USDA United States Department of Agriculture

Forest Service

North Central Research Station

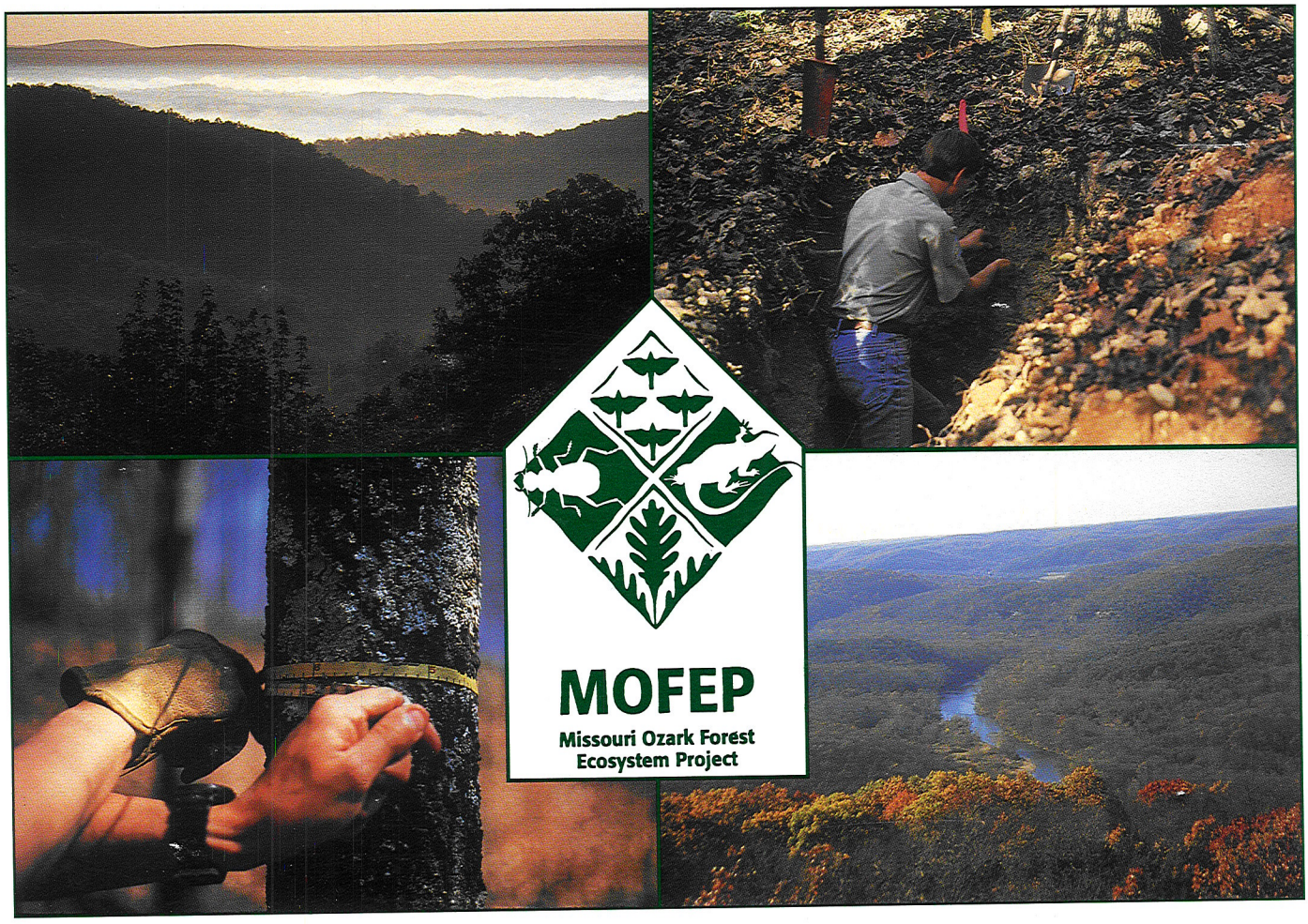
General Technical Report **NC - 208**

Missouri Ozark Forest Ecosystem Project

Site History, Soils, Landforms, Woody and Herbaceous Vegetation, Down Wood, and Inventory Methods for the Landscape Experiment

Stephen R. Shifley and Brian L. Brookshire, Editors

Missouri Department of Conservation



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410, or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Front cover photo credits: Randy Jensen, Stephen Shifley, Missouri Department of Conservation

North Central Research Station
Forest Service—U.S. Department of Agriculture
1992 Folwell Avenue
St. Paul, Minnesota 55108
Manuscript approved for publication August 31, 2000
2000

Missouri Ozark Forest Ecosystem Project: Site History, Soils, Landforms, Woody and Herbaceous Vegetation, Down Wood, and Inventory Methods for the Landscape Experiment

Edited by Stephen R. Shifley and Brian L. Brookshire

FOREWORD

The Missouri Ozark Forest Ecosystem Project (MOFEP) is a century-long experiment to examine the impacts of alternative forest management practices on a wide array of ecosystem attributes. MOFEP is actually an integrated program of research studies conducted by dozens of scientists and technicians across the same nine forest landscapes. Each part of the MOFEP study, whether it deals with birds or herpetofauna or genetics or fungal communities or volume growth or some other aspect of the forest, requires detailed information about the composition and structure of the forest vegetation and about physical site characteristics. That information provides a basic description of the forest and is necessary to interpret future results in an ecological context.

MOFEP will outlive the professional careers of the scientists and technicians who are now conducting research and who are intimately familiar with the study sites and forest conditions. Over time, as trees are harvested, the character of the study sites will change dramatically. Consequently, at the outset of this long-term experiment, it is essential to thoroughly document features of the physical landscape and the condition of the associated forest vegetation.

This report provides a detailed description of the MOFEP study area and of the forest vegetation from 1991 through 1995, the period of study establishment and pretreatment data collection. We expect this report will be a principal reference for those involved with the Missouri Ozark Forest Ecosystem Project and for those who will interpret and apply the results of that research. This report will also provide essential documentation for those investigators who will add new studies to MOFEP in the future. In combination, the chapters in this report provide the most detailed description ever assembled for an upland Ozark forest. In fact, there are few other databases anywhere that describe forest conditions in comparable detail for such a large area. In addition to serving as essential documentation for the MOFEP research, the material in this report provides a valuable baseline of forest conditions that can be used to compare and contrast findings from other forest ecosystems.

This report includes six chapters, four large appendices, and important maps. The first chapter by Brookshire and Dey provides a general overview of MOFEP and information about the timing of woody and herbaceous inventories in the 5 years preceding the harvest treatments. The maps in that chapter show relationships among vegetation plots, landforms, soil units, stand boundaries, and inventory plot locations. The second chapter by Guyette and Larsen summarizes the anthropogenic factors that have shaped forests in the study area. They discuss fire, logging, and grazing in the context of the indigenous people and the later European settlers who inhabited the study area. They also characterize the climate change at the sites and the impacts of atmospheric pollutants. In the third chapter Kabrick *et al.* describe the soils, geology, and landforms associated with the MOFEP sites, and they place the sites in the context of regional landtype associations and ecological classification systems. The related appendix provides a detailed characterization of the soils and landforms associated with the vegetation inventory plots. The fourth chapter by Shifley *et al.* provides detailed summaries of the structure and species composition of the woody vegetation. Summaries of species by diameter class are provided by site and for the main ecological landtypes. A related appendix provides detailed information describing structure, density, volume, growth, snags, and down wood for inventory plots. Field methods for woody

vegetation sampling are described in another related appendix by Randy Jensen. The fifth chapter by Grabner summarizes the state of the herbaceous vegetation in the years preceding harvest treatments. Related appendices summarize herbaceous species abundance, and year-to-year variation. The final chapter by Herbeck summarizes the volume, size, and condition of down wood on the forest floor.

We are indebted to all the individuals who toiled long hours in the field to collect data from more than 96,000 trees and more than 10,000 herbaceous sampling quadrats scattered across the 9,300+ acres of the study area. Randy Jensen deserves special credit for orchestrating the majority of the field inventory that provided the basis for this report. Lynn Roovers conducted extensive error checking on the overstory and meticulously prepared the tables in Appendix C. B. J. Gorlinsky and Steve Westin prepared the maps with their usual skill and good humor. Special thanks to the reviewers of the chapters in this report: Carl Mize, DeeCee Darrow, Tom Foti, David Hammer, Carl Hauser, Ken McCarty, and Rochelle Renken. Finally, we are indebted to Lucy Burde, Barb Winters, and Mary Peterson for their editorial guidance and for overseeing the infinite details associated with preparation of the finished document.

Stephen R. Shifley
Columbia, Missouri

Brian L. Brookshire
Jefferson City, Missouri

CONTENTS

Page

Establishment and Data Collection of Vegetation-related Studies on the Missouri Ozark Forest Ecosystem Project Study Sites 1
Brian L. Brookshire and Daniel C. Dey

A History of Anthropogenic and Natural Disturbances in the Area of the Missouri Ozark Forest Ecosystem Project 19
Richard Guyette and David Larsen

Physical Environment of the Missouri Ozark Forest Ecosystem Project Sites 41
John Kabrick, Dennis Meinert, Tim Nigh, and B.J. Gorlinsky

Composition and Structure of Woody Forest Vegetation in the Missouri Ozark Forest Ecosystem Project 71
Stephen R. Shifley, Lynn M. Roovers, Randy G. Jensen, and David R. Larsen

Ground Layer Vegetation in the Missouri Ozark Forest Ecosystem Project: Pre-treatment Species Composition, Richness, and Diversity 107
Jennifer K. Grabner

Analysis of Down Wood Volume and Percent Ground Cover for the Missouri Ozark Forest Ecosystem Project 124
Laura A. Herbeck

Appendices

Appendix A—Pre-treatment Woody Vegetation Inventory Protocols 134
Randy Jensen

Appendix B—Physical Plot Characteristics with Landform, Soil, and Site Quality ... 149
John Kabrick, Dennis Meinert, and Tim Nigh

Appendix C—Woody Vegetation Characteristics by Site and Plot 173
Lynn M. Roovers

Appendix D—Herbaceous Species Cover by Inventory Year (Landscape Format) 305
Jennifer K. Grabner

Index to Maps

MOFEP sites showing stand boundaries and vegetation plot locations with plot numbers 6-14

MOFEP sites showing soil map units and vegetation plot locations with plot numbers 52-60

Establishment and Data Collection of Vegetation-Related Studies on the Missouri Ozark Forest Ecosystem Project Study Sites

Brian L. Brookshire[1] and Daniel C. Dey[2]

Abstract.—The Missouri Ozark Forest Ecosystem Project (MOFEP) is an experiment designed to determine the effects of forest management practices on important ecosystem attributes. MOFEP treatments evaluated include even-aged, uneven-aged, and no management treatments. Forest vegetation provides a common ecological link among many organisms and ecological processes, and therefore monitoring forest vegetation before and after management treatments is a high priority on MOFEP. Between 1990 and 1994, 645 permanent vegetation plots were established on the nine MOFEP sites to inventory woody vegetation, herbaceous vegetation, and down wood. During 1994-95, woody vegetation and down wood were reinventoried on the original 645 plots, and three additional plots were established in bottomland ecological landtypes. Herbaceous vegetation was inventoried annually from 1993 through 1995. By 1996, all vegetation monitoring was completed to establish baseline information before implementation of the management treatments. We describe study site selection, management treatments, and vegetation sampling methods.

The Missouri Ozark Forest Ecosystem Project (MOFEP) was initiated in 1989 by the Missouri Department of Conservation (MDC) to experimentally evaluate the effects of even-aged, uneven-aged, and no-harvest management on multiple ecosystem attributes in the southeast Missouri Ozarks (Brookshire *et al.* 1997, Brookshire and Hauser 1993, Kurzejeski *et al.* 1993). MOFEP will provide a comprehensive evaluation of the impacts of operational management practices on a wide array of ecosystem attributes. MOFEP includes more than 25 related studies of such diverse attributes as neotropical migrant birds, litter and canopy invertebrates, small mammals, reptiles and amphibians, the physical environment, genetics, and overstory and understory vegetation (Brookshire *et al.* 1997).

Forest vegetation is the common link among all ecosystem components being studied. Therefore, a detailed description of vegetation characteristics and sampling procedures is required to provide a basis for properly interpreting results of the MOFEP experiment. Because MOFEP is a long-term experiment, vegetation sampling protocols and initial site conditions must be fully documented at the beginning. In this paper, we document details of how the MOFEP vegetation study was established and how it supports allied projects.

In total, this volume documents the site history, the physical site characteristics, the composition and structure of the forest overstory, the composition and abundance of herbaceous vegetation, and the volume and size structure of down wood on the nine MOFEP sites before the implementation of management treatments. Subsequent chapters and appendices provide detailed summaries of these characteristics by plot, site, and ecological landtype (ELT). In combination, this information provides a richly detailed profile of a mature forest ecosystem in the Missouri Ozarks.

METHODS

The MOFEP experiment is laid out in a randomized complete block design. Nine sites that range in size from 772 to 1,271 ac were selected as experimental units; these sites are

[1] Staff Supervisor, Forestry Division, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.
[2] Research Forester, USDA Forest Service, North Central Research Station, 202 Anheuser-Busch Natural Resources Building, University of Missouri, Columbia, MO 65211-7260.

sometimes referred to as compartments (Sheriff and He 1997). The nine sites were allocated equally to three blocks based on their spatial proximity to each other (fig. 1). Each of the management treatments (even-aged, uneven-aged, and no-harvest) was assigned randomly to three experimental sites in each block.

The condition of forest vegetation on each site was inventoried and monitored between 1990 and 1995, which provided a pre-treatment baseline before the first management treatments were implemented in 1996. We anticipate the next management treatments will be applied in 2011. Sheriff and He (1997) provide additional detail on the experimental design of the MOFEP study.

Site Selection

The MOFEP sites are located in Carter, Reynolds, and Shannon Counties in the southeast Missouri Ozarks (fig. 1). This part of Missouri is approximately 84 percent forested. The area has not been glaciated, and most soils have been exposed for more than 250 million years. Physical site characteristics are presented in detail by Meinert *et al.* (1997) and Kabrick *et al.* (this volume). Selected sites had to be: (1) at least 600 ac in size; (2) in contiguous tracts with minimal edge; (3) largely free from manipulation for at least 40 years (i.e., less than 5 percent of area disturbed) and preferably longer; (4) owned by MDC; (5) located in the southeast Missouri Ozarks; and (6) in close proximity to each other. Sites were selected after a search of MDC inventory records, discussions with local site managers, and numerous aerial and field evaluations (Kurzejeski *et al.* 1993). Most overstory trees on the sites range from 50 to 70 years old; trees older than 100 years occur on all sites and a few trees are older than 140 years. Additional description of the study area is provided by Brookshire *et al.* (1997), Brookshire and Shifley (1997), Brookshire and Hauser (1993), and Meinert *et al.* (1997).

Vegetation Plot Establishment

Each MOFEP experimental site was divided into areas of common slope and aspect and ecological landtypes were identified and mapped (see fig. 2 in Brookshire *et al.* 1997). Ecological landtypes were further divided into stands that averaged approximately 16 ac in size (fig. 2). Stand sizes ranged from 0.4 to 154 ac; the smallest stands were typically established around unique features (e.g., sinkholes) and the largest stands were located on sites scheduled to receive uneven-aged management (where large stand sizes did not present obstacles to prescribing management activities).

MOFEP site boundaries and internal stand boundaries were drawn on 1:15,840 topographic maps. In the office, initial vegetation inventory plot locations were randomly assigned within each site (or compartment) until each stand received at least one plot. Then, the number of plots by ecological landtype was calculated and additional plots were added to randomly assigned locations in the ecological landtypes that were underrepresented on an area basis. In the field, sample plot locations were eliminated if they:

- fell on a narrow shoulder ridge or narrow glade that caused the plot to encompass two distinctly different ecological landtypes,
- fell on a trail and there was insufficient room to fit a plot to the side of the trail without it falling outside the stand, or
- fell within two chains of a disturbance such as a road, food plot, or site boundary.

During initial plot establishment, plot locations were shifted slightly if that would correct one of the conditions listed above and retain the plot within the same stand. In some cases, a stand classified as predominantly one ELT had small inclusions of another ELT (e.g., multiple aspects occurred within a stand). If a plot location included aspects of more than one ELT, the plot was shifted slightly so that it fell within the primary ELT for the stand.

A total of 645 permanent vegetation plots was established during 1990-92 (table 1) (Sheriff and He 1997). Plot center and subplot centers were permanently marked with steel rods to aid in relocating the plots. During 1994-95, woody vegetation and down wood were reinventoried on the original 645 plots, and three additional vegetation plots were added in 1995 to intensify sampling in bottomland areas. Therefore, 648 vegetation inventory plots now exist on the nine MOFEP sites with between 70 and 76 plots per site (fig. 2).

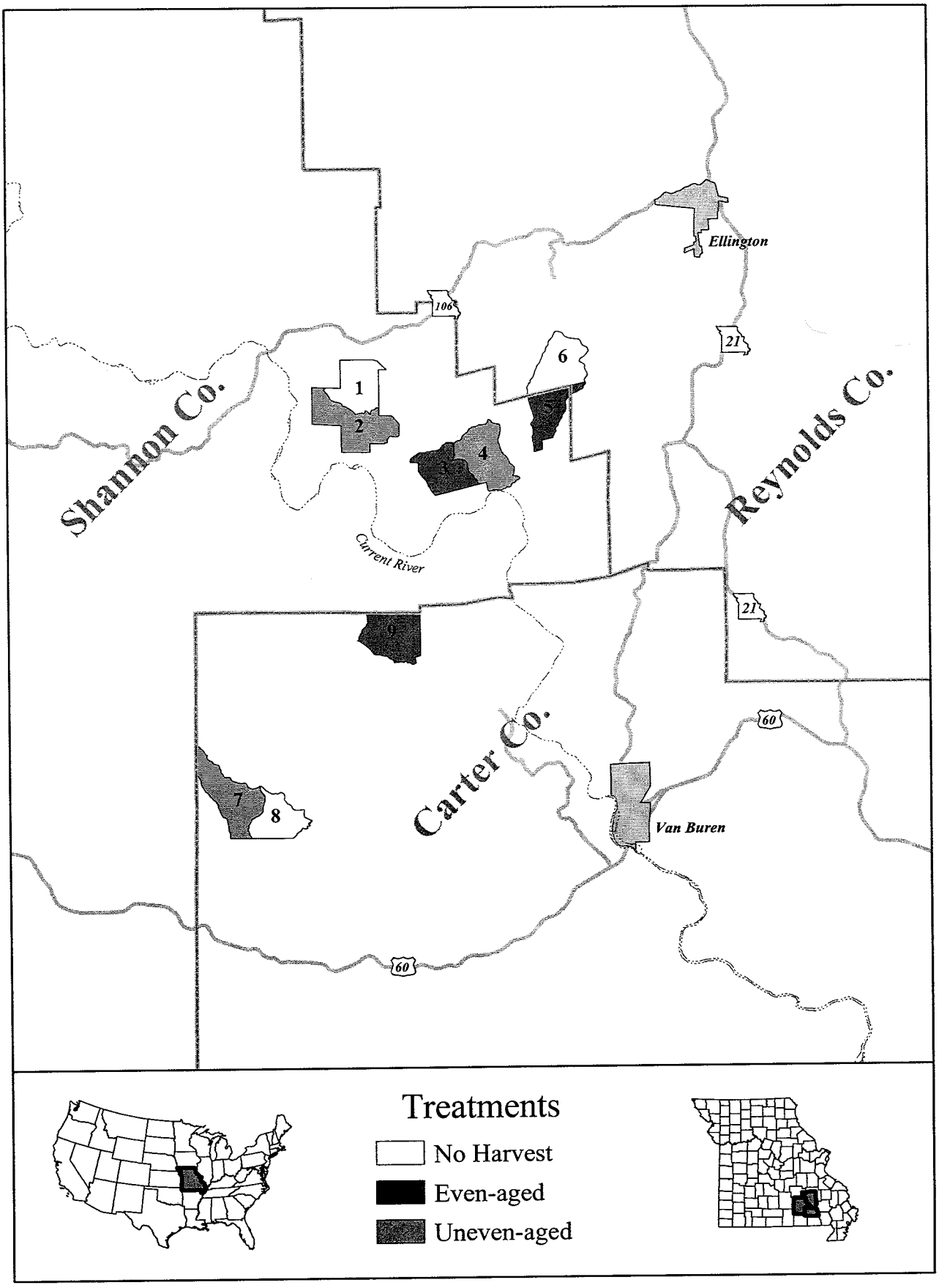


Figure 1.—*Location of the nine MOFEP experimental sites (compartments) and their assigned treatments.*

Table 1.--MOFEP vegetation plot measurement history by year, 1990 to 1995.

	1990	1991	1992	1993	1994	1995
Site 1		Established 73 permanent plots Measured 73 overstory plots	**Summer:** Measured 73 herbaceous plots **Fall:** Measured 73 herbaceous plots	**Summer:** Measured 73 herbaceous plots	Established 3 permanent plots Measured 8 overstory plots	Measured 68 overstory plots
					Summer: Measured 73 herbaceous plots	**Summer:** Measured 76 herbaceous plots **Fall:** Measured 76 herbaceous plots
Site 2		Established 73 permanent plots Measured 73 overstory plots	**Summer:** Measured 73 herbaceous plots	**Summer:** Measured 73 herbaceous plots	Measured 8 overstory plots	Measured 65 overstory plots
					Summer: Measured 73 herbaceous plots	**Summer:** Measured 73 herbaceous plots
Site 3		Measured 43 overstory plots	Measured 29 overstory plots	**Summer:** Measured 72 herbaceous plots	Measured 8 overstory plots	Measured 69 overstory plots
			Summer: Measured 72 herbaceous plots		**Summer:** Measured 72 herbaceous plots	**Summer:** Measured 72 herbaceous plots
Site 4			Established 74 permanent plots Measured 74 overstory plots	**Summer:** Measured 74 herbaceous plots	Measured 8 overstory plots	Measured 69 overstory plots
			Summer: Measured 74 herbaceous plots **Fall:** Measured 74 herbaceous plots		**Summer:** Measured 74 herbaceous plots	**Summer:** Measured 74 herbaceous plots

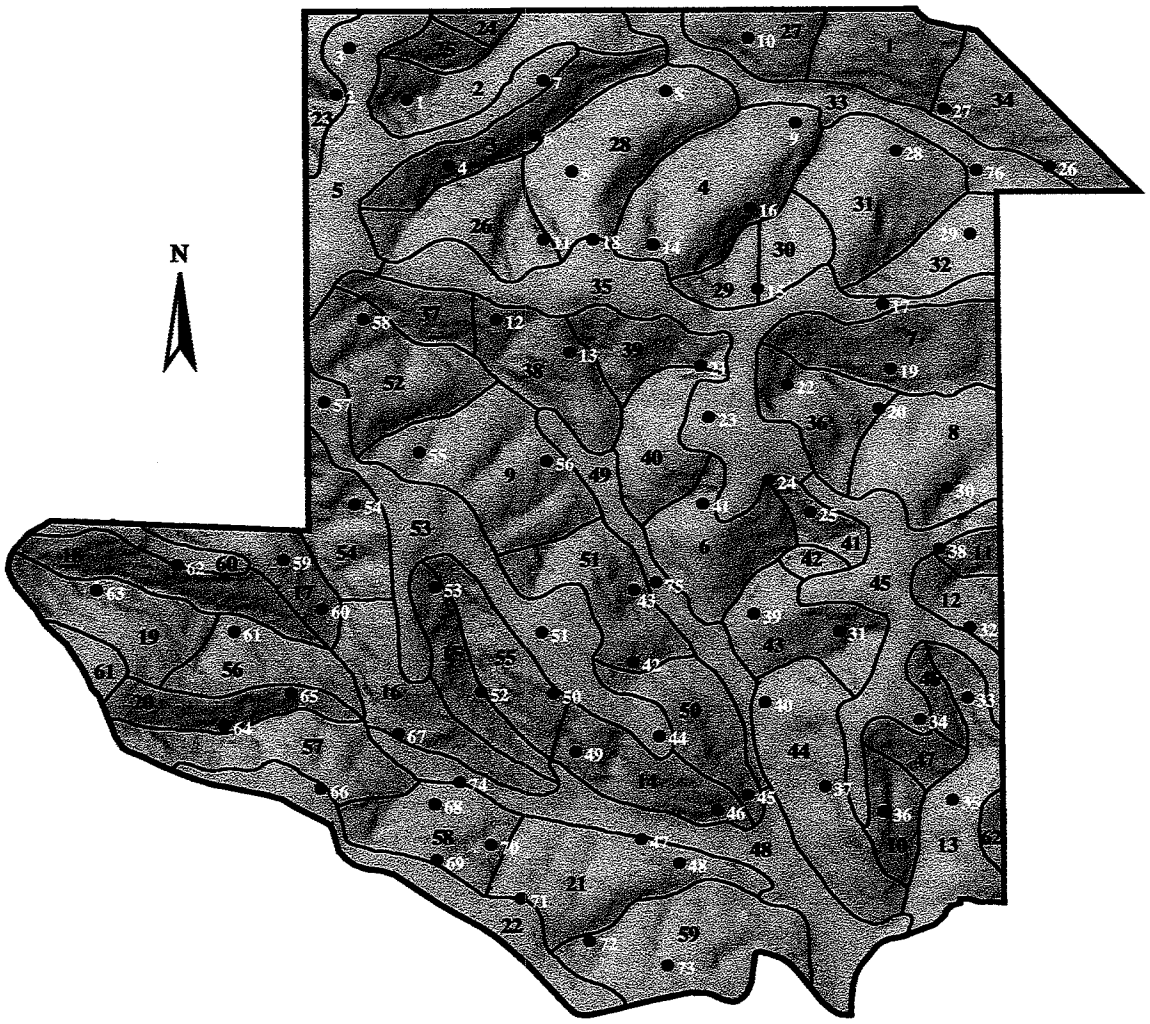
(Table 1 continued on next page)

(Table 1 continued)

Site 5			Established 70 permanent plots Measured 70 overstory plots	**Summer:** Measured 70 herbaceous plots	Measured 8 overstory plots	Measured 70 overstory plots
			Summer: Measured 70 herbaceous plots		**Summer:** Measured 70 herbaceous plots	**Summer:** Measured 70 herbaceous plots **Fall:** Measured 70 herbaceous plots
Site 6			Established 71 permanent plots Measured 71 overstory plots	**Summer:** Measured 71 herbaceous plots	Measured 8 overstory plots	Measured 63 overstory plots
			Summer: Measured 71 herbaceous plots		**Summer:** Measured 71 herbaceous plots	**Summer:** Measured 71 herbaceous plots
Site 7		Established 71 permanent plots Measured 71 overstory plots	**No Sampling**	**Summer:** Measured 71 herbaceous plots	Measured 8 overstory plots	Measured 63 overstory plots
		Summer: Measured 71 herbaceous plots			**Summer:** Measured 71 herbaceous plots	**Summer:** Measured 71 herbaceous plots
Site 8	Established 45 permanent plots Measured 45 overstory plots	Established 25 permanent plots Measured 25 overstory plots	**No Sampling**	**Summer:** Measured 70 herbaceous plots	Measured 8 overstory plots	Measured 64 overstory plots
		Summer: Measured 70 herbaceous plots			**Summer:** Measured 70 herbaceous plots	**Summer:** Measured 70 herbaceous plots
Site 9		Established 71 permanent plots Measured 71 overstory plots	**No Sampling**	**Summer:** Measured 71 herbaceous plots	Measured 8 overstory plots	Measured 64 overstory plots
		Summer: Measured 71 herbaceous plots			**Summer:** Measured 71 herbaceous plots	**Summer:** Measured 71 herbaceous plots

Stand Boundaries
Site 1

(No Harvest Management)



0.25 0 0.25 0.5 Miles

Map Scale 1:15,840
1 Inch = 1/4 mile

Note: White Numbers (Vegetation Plots)
Black Numbers (Stand Numbers)

Figure 2a.—*Stand boundaries and vegetation plot locations for MOFEP Site 1.*

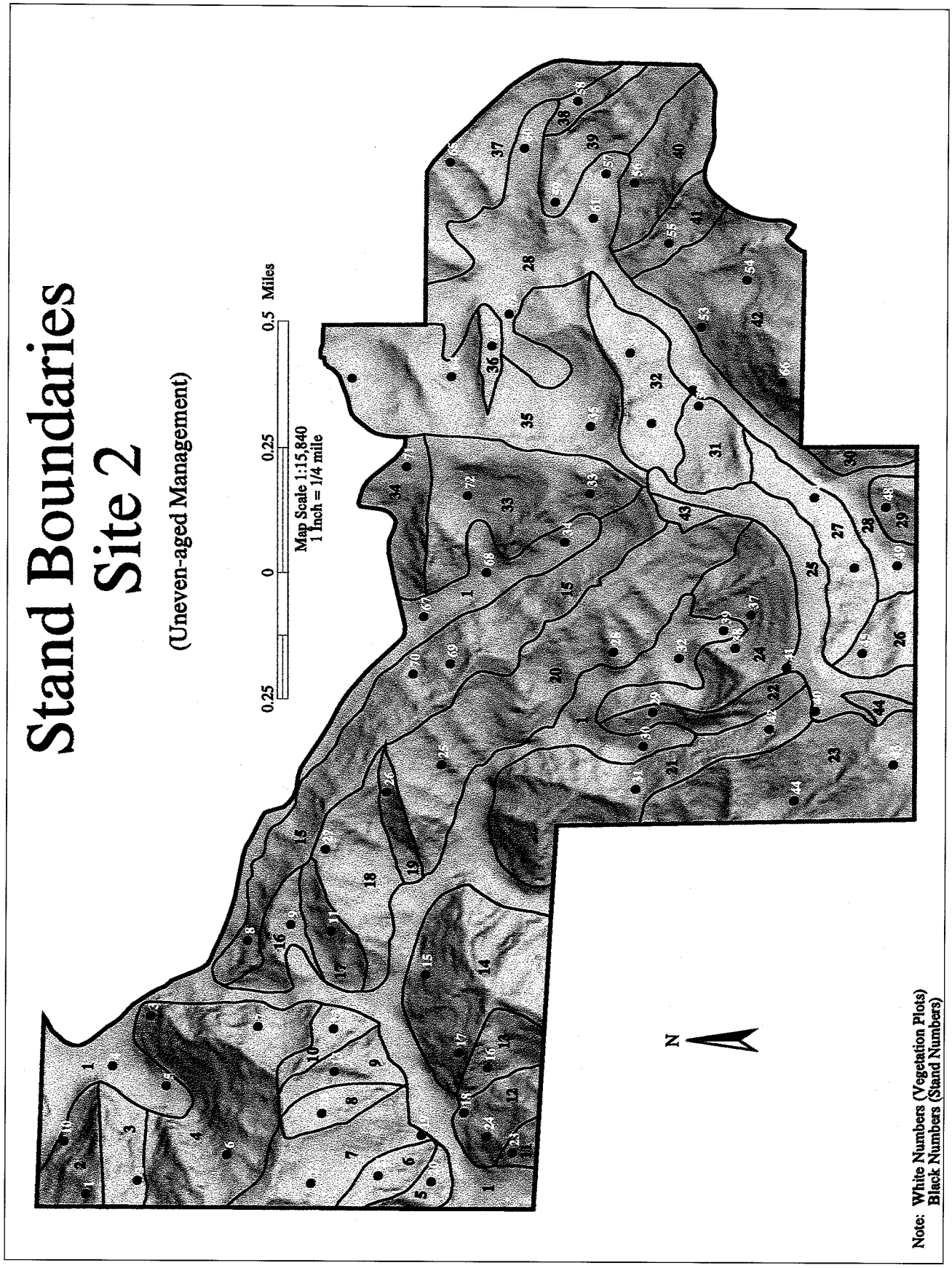


Figure 2b.—*Stand boundaries and vegetation plot locations for MOFEP Site 2.*

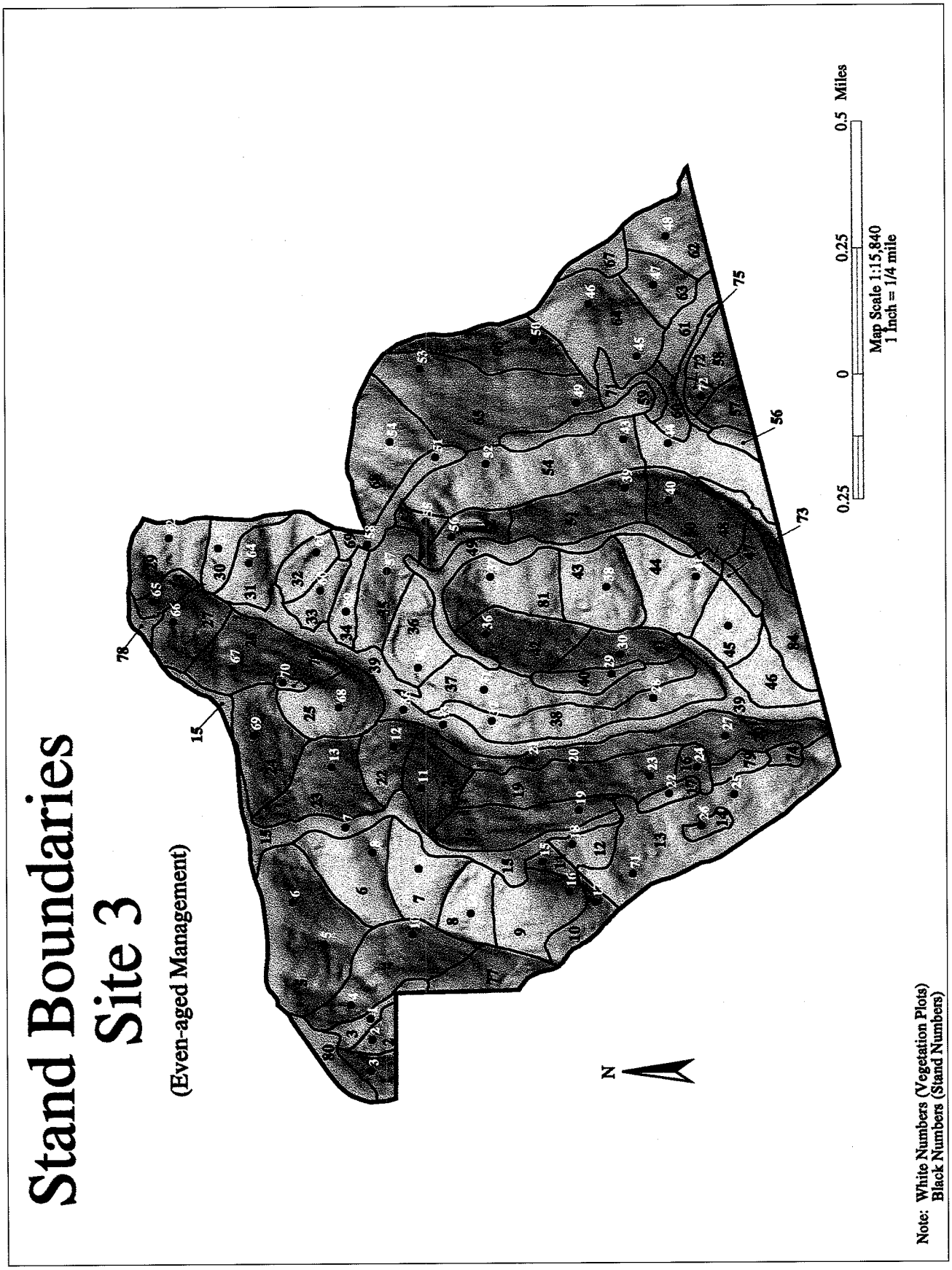


Figure 2c.—*Stand boundaries and vegetation plot locations for MOFEP Site 3.*

Figure 2d.—*Stand boundaries and vegetation plot locations for MOFEP Site 4.*

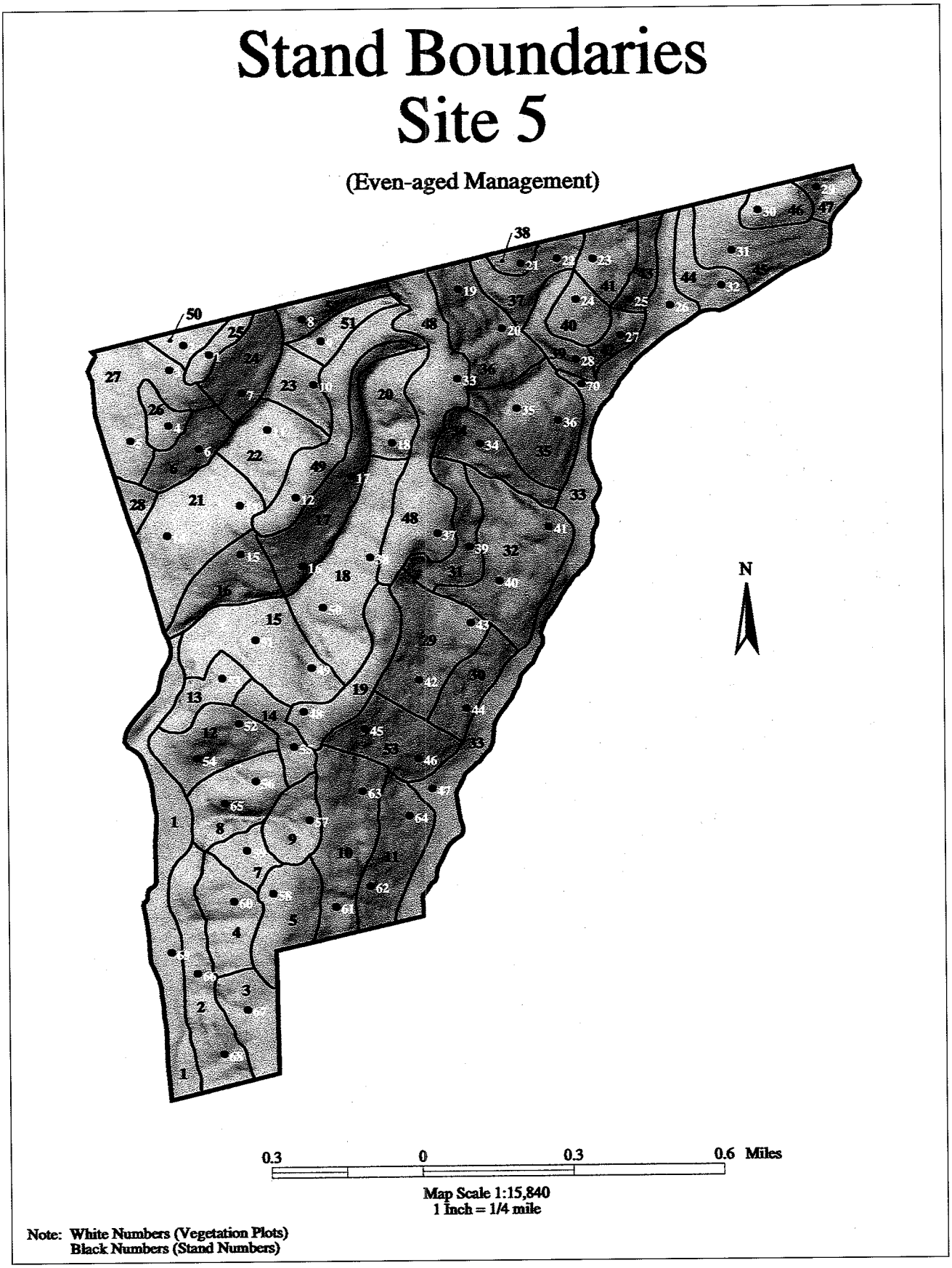


Figure 2e.—*Stand boundaries and vegetation plot locations for MOFEP Site 5.*

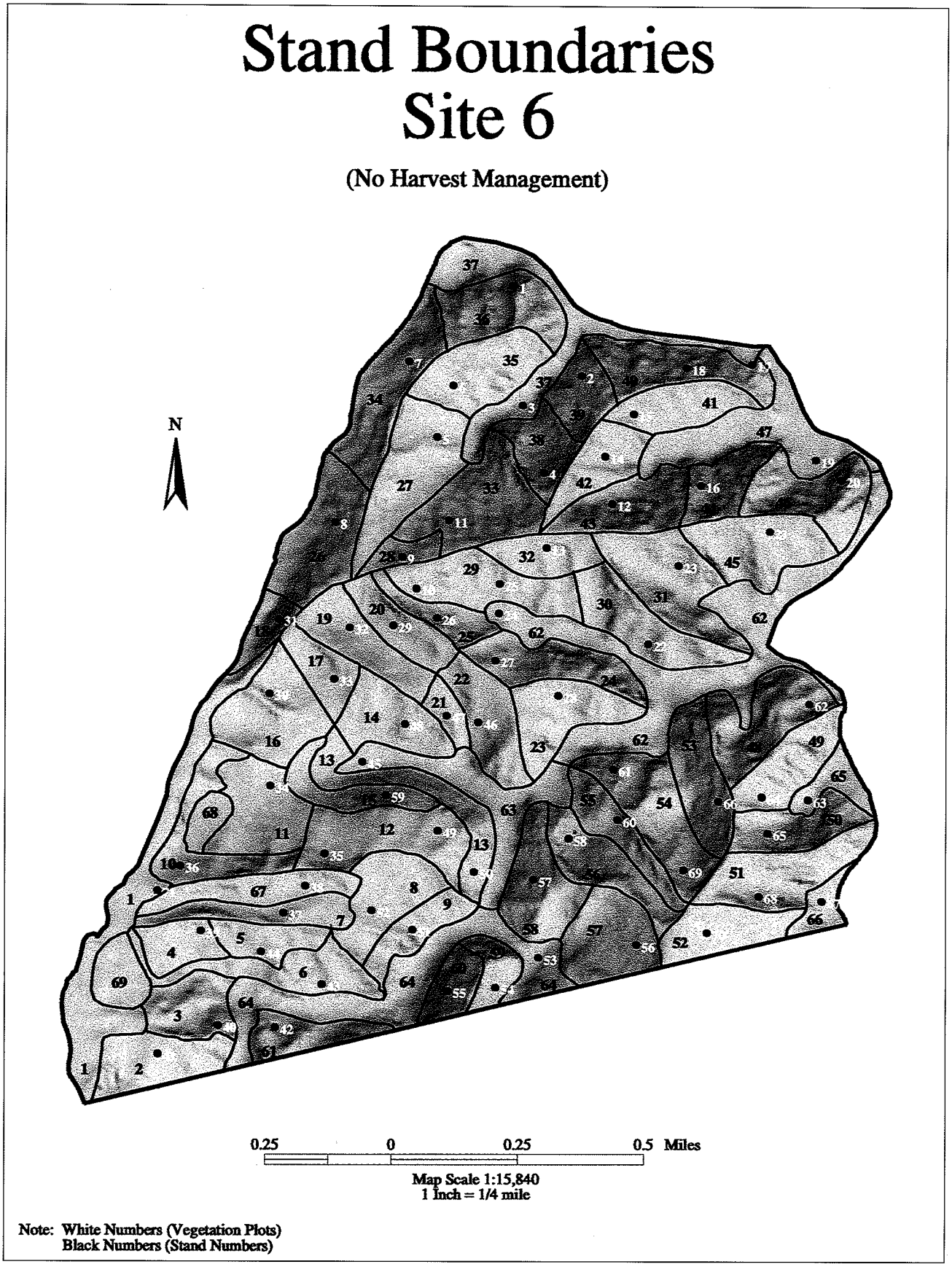


Figure 2f.—*Stand boundaries and vegetation plot locations for MOFEP Site 6.*

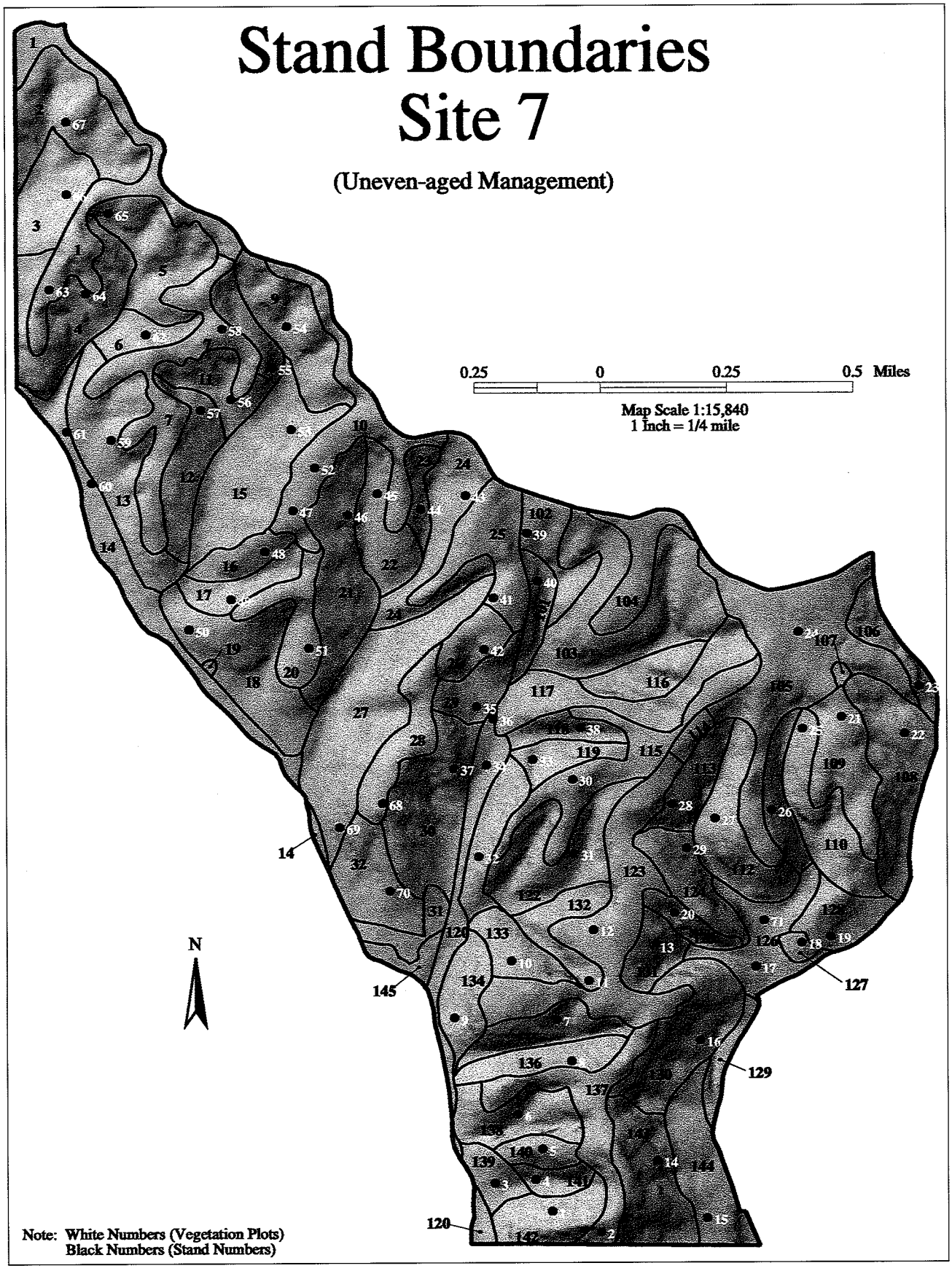
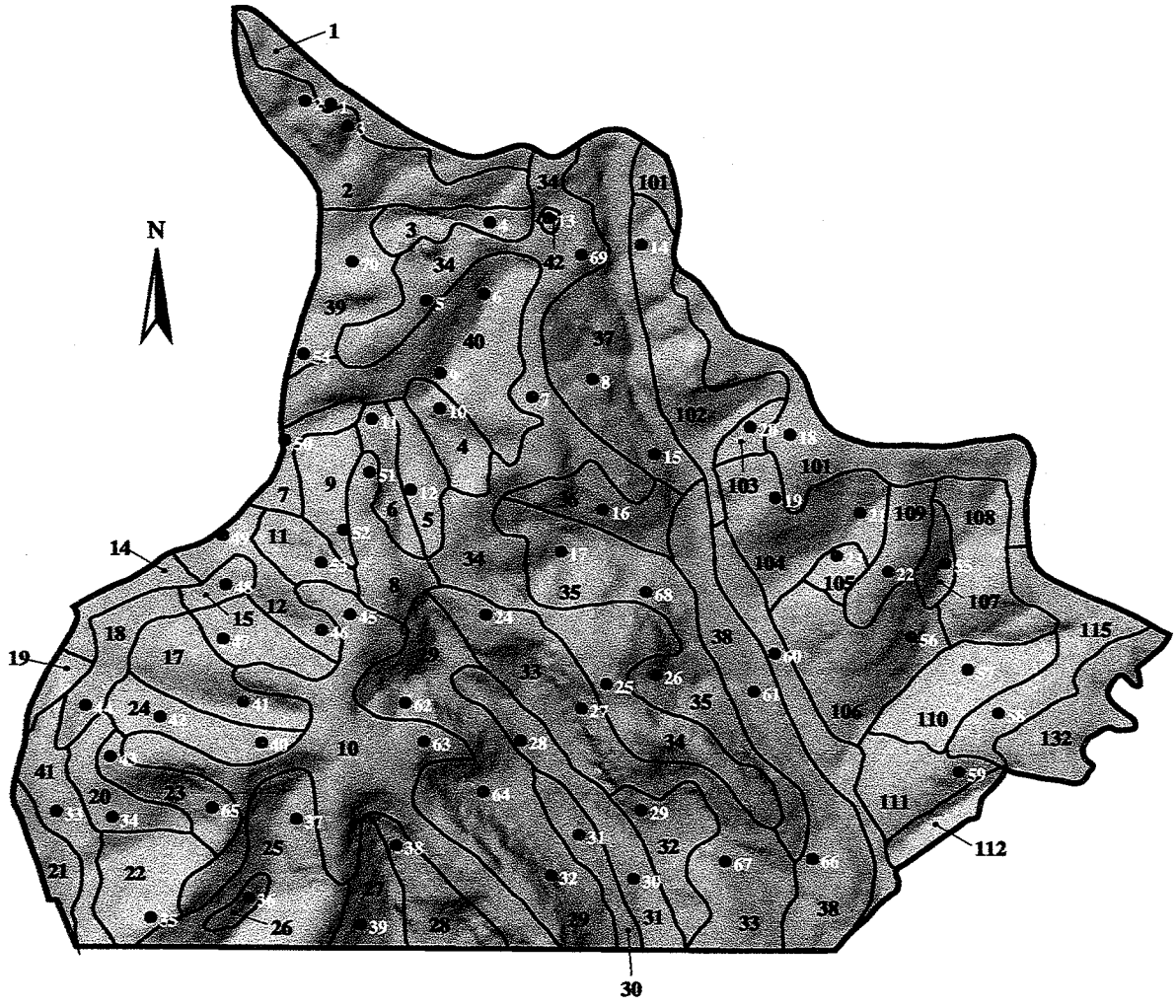


Figure 2g.—*Stand boundaries and vegetation plot locations for MOFEP Site 7.*

Stand Boundaries
Site 8

(No Harvest Management)



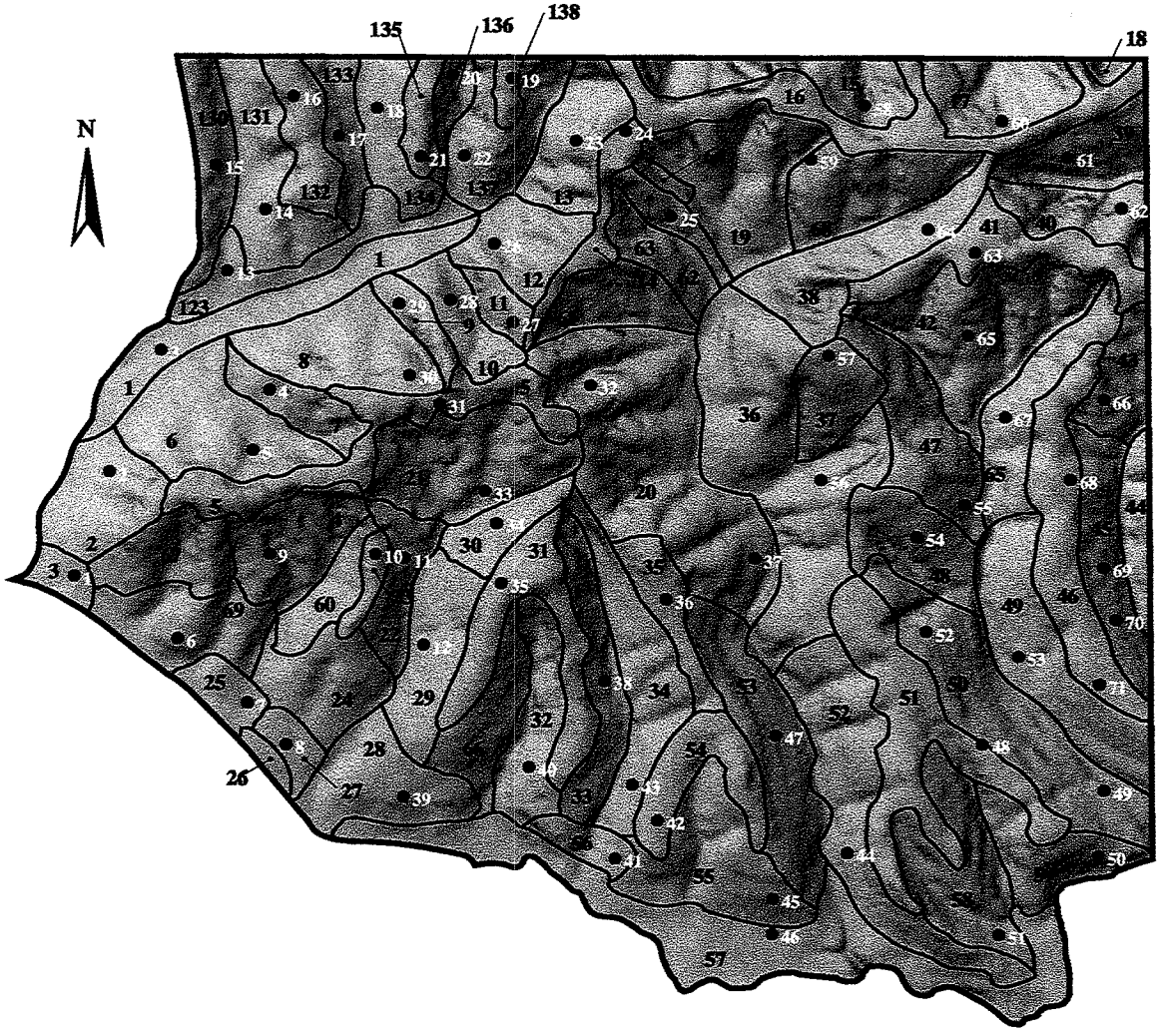
Map Scale 1:15,840
1 Inch = 1/4 mile

Note: White Numbers (Vegetation Plots)
Black Numbers (Stand Numbers)

Figure 2h.—*Stand boundaries and vegetation plot locations for MOFEP Site 8.*

Stand Boundaries
Site 9

(Even-aged Management)



Note: White Numbers (Vegetation Plots)
Black Numbers (Stand Numbers)

Figure 2i.—*Stand boundaries and vegetation plot locations for MOFEP Site 9.*

Overstory, understory, down wood, and physical site characteristics were measured on a 0.5-ac circular plot (Appendix A). Within the 0.5-ac plot, all live trees ≥4.5 in. diameter at breast height (dbh; 4.5 ft above ground level) and all standing dead trees ≥8 ft tall and ≥4.5 in. diameter were measured. Live trees and woody vines ≥1.5 in. dbh and <4.5 in. dbh were measured on four 0.05-ac subplots located within the 0.5-ac main plot. Live trees and woody vines ≥3.3 ft tall and <1.5 in. dbh were measured on 0.01-ac subplots nested within each 0.05-ac subplot. On the 0.5-ac main plot, information collected for each tree included species, dbh, crown class, and number and size of dens and cavities (Appendix A). Each tree was permanently marked for future remeasurement. The abundance of down wood was measured on four transects within the 0.5-ac vegetation plot. On average, a two-person crew was able to establish two plots and collect all woody vegetation data in one 10-hour day. Appendix A includes detailed measurement protocols for all woody vegetation.

At different times between 1992 and 1995, 15 overstory trees [five each in the white oak group (*Quercus alba, Q. stellata*), the red oak group (*Q. coccinea, Q. velutina*), and shortleaf pine (*Pinus echinata*)] received additional crown and volume measurements. These included canopy width, tree height, crown ratio, crown volume, merchantable bole volume, stem taper, and merchantable height. Also, site index for each plot was determined from trees adjacent to the plot (within 5 chains). An average of five site index trees per plot were cored and measured. When possible, multiple species per plot were selected from among white oak (*Quercus alba*), black oak (*Q. velutina*), scarlet oak (*Q. coccinea*), and shortleaf pine (*Pinus echinata*).

The initial measurement of herbaceous vegetation abundance and percent ground cover was made in 1991 (sites 7, 8, 9) and 1992 (sites 1-6). Herbaceous vegetation was remeasured in the summers of 1993-95 (all sites) (table 1). Fall sampling on selected plots occurred in 1992, 1993, and 1995. Herbaceous vegetation and any woody vegetation <3.3 ft tall was measured on 16 one meter square subplots within each of the permanent vegetation plots (see fig. 1 in Appendix A). Grabner *et al.* (1997) and Grabner (this volume) provide detailed descriptions of initial herbaceous characteristics of the MOFEP sites.

TREATMENTS

The three forest management treatments compared in the MOFEP experiment are even-aged management (EAM), uneven-aged management (UAM), and no-harvest management (NHM). These represent the range of silviculture practices applied on private and public lands in Missouri. Treatments are briefly described below and in Brookshire and Hauser (1993) and Brookshire *et al.* (1997). Treatments were implemented in 1996 after completing the 1991-95 pre-treatment inventories described in this volume. Harvest treatments by stand are shown in figure 3 of Brookshire *et al.* (1997) and will be further described in subsequent publications.

Even-aged Management

Even-aged management followed MDC Forest Land Management Guidelines (1986), with a cutting rotation of 80-100 years per site. This results in a regulated harvest of 10-12 percent of the area per entry on a 10-year re-entry period. Under this treatment, 10 percent of each site (i.e., each compartment) is left as "old growth" and reserved from harvest in perpetuity. The desirable tree size class distribution on the remaining area is 10 percent seedlings, 20 percent small trees (2.5-5.5 in. dbh), 30 percent poles (5.6-11.5 in. dbh), and 40 percent sawtimber (>11.5 in. dbh). Harvest prescriptions follow Roach and Gingrich (1968). In general, the total area regenerated by clearcutting was restricted to approximately 10-12 percent of each treated site. Stands at risk of heavy mortality from such factors as oak decline were selected first for regeneration; other stands in need of regeneration were deferred to the next entry. In the remaining stands with site index ≥55 (base age 50 years), intermediate cutting was applied following the guidelines of Roach and Gingrich (1968) provided the stands would yield enough timber for a commercial sale (approximately 2,000 bd ft/ac) without reducing residual stocking of acceptable growing stock below B-level. Glades, food plots, ponds, and other amenities were managed according to the 1986 MDC Forest Land Management Guidelines.

Uneven-aged Management

Uneven-aged management was also implemented using MDC Forest Land Management Guidelines (1986) with stand treatments following Law and Lorimer (1989). Approximately 10 percent of each site was designated as old growth in perpetuity, and the remaining 90 percent was managed using uneven-aged silviculture. Treatments on UAM sites will be timed to coincide with treatments for EAM sites over the next 80-100 years. Each UAM site was divided into management units (usually <25 ac in size), and management objectives were set for largest diameter tree (LDT), residual basal area (RBA), and q-value. The LDT objective was equal to the desired sawtimber size objective for an identical site under EAM. An overall RBA equivalent to B-level stocking was chosen, with adjustments made to anticipate for logging damage (Roach and Gingrich 1968). Q-value objectives ranged from 1.3 to 1.7 (Law and Lorimer 1989). For trees >5 in. dbh, the target tree size class distribution for UAM was identical to the composite size class distribution across the EAM sites. Harvesting was deferred in stands that could not generate a commercial harvest. In 1996, 69 percent of site 2 was harvested, 62 percent of site 4, and 41 percent of site 7.

No-harvest Management

Sites under no-harvest management will not receive timber harvesting. Forest disturbances such as windthrow, fires, or insects and disease outbreaks will occur as they do on any other State-owned forest land, except that salvage harvesting of dead and dying timber will not occur. Wildfires will be suppressed and large-scale damaging insect outbreaks will be controlled. This treatment will serve as the experimental control in this project (Sheriff and He 1997).

DISCUSSION

Because of the magnitude of the MOFEP study, initial vegetation plot establishment occurred over several months. Subsequent remeasurement of plots took less time because plots were already established and more personnel were available to assist in the effort (table 1). Allied studies (i.e., studies on other ecosystem attributes) were initiated at different intervals throughout the pre-treatment phase of MOFEP. Several major allied studies were established during or immediately after initial vegetation plot establishment; others followed depending on funding and scientist interest (table 2, see also Brookshire and Shifley 1997).

The MOFEP vegetation inventory is the largest summary of Ozark forest conditions ever assembled. It includes repeated measurements on more than 96,000 individual trees. The herbaceous inventory tallied abundances for more than 400 individual species. Together, these inventories provide a detailed assessment of Ozark forest composition and structure across all the common ecological landtypes on the MOFEP sites. Characteristics of the forest overstory, the forest understory, and down wood are presented in detail in later chapters of this report.

CONCLUSIONS

Long-term field experiments require detailed documentation of the establishment of the project to withstand the scientific scrutiny that inevitably occurs over time. This report provides detailed descriptions of vegetation inventory and analysis conducted on the MOFEP sites. This information is necessary for those scientists currently conducting studies on the MOFEP sites, and it will be invaluable to scientists who work on the MOFEP sites in the future. The detailed vegetation information provides a common ecological link between various research experiments for scientists conducting allied projects on the MOFEP study sites. The MOFEP vegetation inventory also serves as a comprehensive regional summary of forest structure and composition that can be compared and contrasted with hardwood forests elsewhere.

LITERATURE CITED

Brookshire, B.L.; Jensen, Randy; Dey, D.C. 1997. The Missouri Ozark Forest Ecosystem Project: past, present, and future. In: Brookshire, B.L.; Shifley, S.R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 1-25.

Table 2.—*Research studies affiliated with the Missouri Ozark Forest Ecosystem Project. See Brookshire and Shifley (1997) for additional information about these research projects.*

	Principal investigator(s)	Study title
1.	J. Bruhn, J. Wetteroff,, Jr. J. Mihail	Determination of the ecological and geographical distributions of *Armillaria* species in Missouri Ozark forest ecosystem
2.	J. Bruhn, J. Mihail, D. Stokke, S. Burks	Mechanical damage to residual stem root systems associated with forest operations in Ozark forest ecosystems
3.	R. Cecich	White oak acorn production along a slope transect
4.	J. Chen, M. Xu, K. Brosofske	Microclimate characteristics in southeastern Missouri's Ozarks
5.	R. Clawson, J. Faaborg, E. Seon	The effects of selected timber management practices on forest interior birds in Missouri oak-hickory forests
6.	D. Dey, D. Larsen, R. Jensen	Stump sprout response to MOFEP harvest treatments
7.	J. Dwyer	Economic comparisons of harvest practices on MOFEP study sites
8.	J. Dwyer	Tree grading on the MOFEP study sites
9.	J. Dwyer, R. Jensen	Documenting harvest damage to MOFEP study sites
10.	D. Frantz, D. Hamilton	Abundance and production of berry producing plants on MOFEP study sites: the soft mast study (pre-harvest conditions)
11.	D. Frantz, R. Renken	Small mammal communities on MOFEP sites and their response to treatments
12.	J. Grabner, D. Larsen, J. Kabrick	Composition, structure and dynamics of MOFEP ground flora
13.	W. Gram, V. Sork, R. Marquis	Synthesis and integration of pretreatment results from the Missouri Ozark Forest Ecosystem Project
14.	R. Guyette, D. Dey	Historic Shortleaf Pine (*Pinus echinata* Mill) abundance and fires frequency in a mixed oak-pine forest (MOFEP, compartment 8)
15.	L. Herbeck, D. Larsen	Ecological interactions of vegetation and Plethodontial Salamanders in Missouri Ozark forests
16.	R. Jensen	Tree cavity abundance, size and use on MOFEP study sites
17.	J. Kabrick, D. Jensen, S. Shifley	Analysis of MOFEP woody vegetation and environmental data
18.	D. Ladd	Profiling MOFEP Lichen Vegetation
19.	D. Larsen	Simulated long-term effects on the MOFEP cutting treatments
20.	R. Marquis, J. Le Corff	The oak herbivore fauna of Missouri Ozark Forest Ecosystem Project
21.	S. Pallardy	Vegetation analysis, environmental relationships, and potential successional trends in the Missouri Ozark Forest Ecosystem Project
22.	R. Renken	The herpetofaunal communities on Missouri Ozark Forest Ecosystem Project (MOFEP) study sites
23.	S. Sheriff, Z. He	The experimental design of the Missouri Ozark Forest Ecosystem Project
24.	S. Shifley, B. Brookshire, D. Larsen L. Herbeck, R. Jensen	Snags and down wood on upland oak sites in the Missouri Ozark Forest Ecosystem Project
25.	V. Sork, A. Koop, M. de la Fuente, P. Foster, J. Raveill	Patterns of genetic variation in woody plant species in the Missouri Ozark Forest Ecosystem Project
26.	H. Pratt, Jr.	Aspects of carbon and sulfur transformations in MOFEP surface soils
27.	L. Vangilder	Acorn production on MOFEP study sites: pretreatment data
28.	J. Weaver, S. Heyman	The distribution and abundance of leaf litter arthropods

Brookshire, B.L.; Shifley, S.R., eds. 1997. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 378 p.

Brookshire, B.L.; Hauser, C.H. 1993. The Missouri Ozark Forest Ecosystem Project: the effects of forest management on the forest ecosystem. In: Gillespie, A.R.; Parker, G.R.; Pope, P.E.; Rink, G.R., eds. Proceedings of the 9th central hardwood forest conference; 1993 March 8-10; West Lafayette, IN. Gen. Tech. Rep. NC-161. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 289-307.

Grabner, J.K. 2000. Ground layer vegetation in the Missouri Ozark Forest Ecosystem Project: pre-treatment species composition, richness, and diversity. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 107-123.

Grabner, J.K.; Larsen, D.R.; Kabrick, J.M. 1997. An analysis of MOFEP ground flora: pre-treatment conditions. In: Brookshire, B.L.; Shifley, S.R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 169-197.

Kabrick, J.M.; Meinert, Dennis; Nigh, Tim. 2000. Physical environment of the Missouri Ozark Forest Ecosystem Project sites. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 41-70.

Kurzejeski, E.W.; Clawson, R.L.; Renken, R.B.; Sheriff, S.L.; Vangilder, L.D.; Hauser, C.; Faaborg, J. 1993. Experimental evaluation of forest management: the Missouri Ozark Forest Ecosystem Project. Transactions of the 58th North American wildlife and natural resources conference: 599-609.

Law, J.R.; Lorimer, C.G. 1989. Managing uneven-aged stands. In: Clark, F.B.; Hutchinson, J.G., eds. Central Hardwood Notes. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: Note 6.08: 1-6.

Meinert, D.; Nigh, T.; Kabrick, J. 1997. Landforms, geology, and soils of the MOFEP study area. In: Brookshire, B.L.; Shifley, S.R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 56-68.

Missouri Department of Conservation. 1986. Forest land management guidelines. Jefferson City, MO: Missouri Department of Conservation. 86 p.

Roach, B.A.; Gingrich, S.F. 1968. Even-aged silviculture for upland central hardwoods. Handb. 355. Washington, DC: U.S. Department of Agriculture, Forest Service. 39 p.

Sheriff, S.L.; He, Zhuoqiong. 1997. The experimental design of the Missouri Ozark Forest Ecosystem Project. In: Brookshire, B.L.; Shifley, S.R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 26-40.

A History of Anthropogenic and Natural Disturbances in the Area of the Missouri Ozark Forest Ecosystem Project

Richard Guyette and David Larsen[1]

Abstract.—The disturbance history of the MOFEP sites has had a dominant effect on the vegetation of the area. In this paper we describe the natural and human disturbance history of the MOFEP sites over the last 300 years. We indicate the interrelationship of fire, wind, and human activity and how they contribute to produce the vegetation that we see on the landscape today.

Humans have had an impact on the forests and wildlife of the MOFEP sites for thousands of years. The floral and faunal communities of the MOFEP sites have coevolved with human as well as natural disturbances. This report will summarize the interactions between humans and this forest ecosystem over the last 1,000 years at the MOFEP sites in southeast Missouri. Emphasis will be given to the last 300 years because of quantitative data provided by the tree-ring record, the availability of historical documents, and the importance of this period in forming the current ecosystem. Human impacts on the MOFEP sites have been greatest in more recent times because of the growing human population at both local and global scales. Interrelated aspects of the natural and human history of the area will be emphasized. The objective of this report is to review the impact of human and, to some lesser extent, natural disturbances on the forests and wildlife of the MOFEP sites.

This report is organized by four classes of major human activities that have changed, disturbed, and impacted the MOFEP sites over the last 1,000 years: (1) anthropogenic fire history, (2) logging, (3) agriculture, and (4) regional and global changes. Although these activities overlap in time and space, they have a general progression through time that will be used to give a chronosequence to the sections of this report. Human populations and cultures will be discussed by periods that include the Mississippian cultural period (900-1200), the depopulated period (1200-1760), the Native American repopulation period (1760-1825), the European settlement period (1820-1940), and the modern industrial period (1940-1997). Figure 1 is a general timeline of these interacting events.

A HISTORY OF ANTHROPOGENIC FIRE

Wildland fire has been one of the most pervasive and variable disturbances affecting the MOFEP sites over the last millennium. Wildland fire affects such diverse aspects of the Ozark forest ecosystem as runoff, erosion, and water infiltration (Welsch 1972), plant and soil chemistry (Vance *et al.* 1983, Guyette and Cutter 1997), regeneration of oak forests and species (Johnson 1993), survival and dominance of post oak (*Quercus stellata)* over hickory and red oak species (Huddle and Pallardy 1996a), tree species dominance (Nigh 1984, Nigh *et al.* 1985, Guyette and Dey 1997a, Batek *et al.* 1997), survival of oak seedlings over maple seedlings (Huddle and Pallardy 1996b), spatial demography of trees (Jenkins and Rebertus 1994), forest structure and tree species density (Nelson 1994, Guyette and Dey 1997b), insect abundance (Shuey 1994, Swengel 1994), herbaceous vegetation (Jenkins *et al.* 1997), soil fauna (Wright and Bailey 1982), and wildlife (Chandler *et al.* 1983). We begin with a general description of the fire history in and around the MOFEP sites via tree-ring analysis, fire statistics, and historical documentation. Details about the past anthropogenic fire regime and some of its effects are discussed. Much of the fire history information that follows is compiled from more than 26 fire scar chronologies derived from

[1] Research Associate Professor and Associate Professor, respectively, School of Natural Resources, University of Missouri, 203 Anheuser-Busch Natural Resources Building, Columbia, MO 65211.

Calendar year (50 year increments)	1700		1750		1800		1850		1900		1950		
Cultural groups	Quapaw and Osage (from downstream and west)		Delaware, Shawnee, Cherokee (emigrants from the east)				Old-stock Euro-Americans (from Tennessee)		Old-stock Euro-Americans (English, Irish, and German ancestry)				
Economics	hunting, gathering, and subsistence agriculture						livestock, agriculture,logging		logging, livestock, agriculture, tourism				
Population	< 0.06 humans per km^2				< 0.6 humans per km^2			0.6 to 4.6 humans per km^2			4.6 to 3 humans per km^2		
Fire history stage	population dependent							fuel limited		fuel fragmentation		fire suppression	
Mean fire interval	MFI < 12.4 years, fires more intense in fall and spring						MFI < 3.7 years, fires less intense in spring					MFI > 50 years	
Sites burned	8 % per year		13 % per year		16 % per year		35 % per year			22 % per year		< 5 % per year	
Chemical era	low sulfur							high sulfur					
Livestock	none						hogs, cattle 0 to 16 per km^2				hogs, cattle 16 to 9 per km^2		
Vegetation	oak - hickory - pine forests with some woodlands and savannas								forest regeneration and conversion			maturing forests	

Figure 1.—*Generalized sequence of changes in human and natural factors by historic period at the MOFEP sites. The MFI is the mean fire interval.*

shortleaf pine (*Pinus echinata* Mill.) stumps and trees in the MOFEP sites and in the upper Current River watershed. Dendrochronological methods were used to date 2,201 fire scars from 166 shortleaf pine remnants that form the basis for much of the following discussion (Guyette and Cutter 1997).

During the fall, winter, and spring of most years, dry warm weather of only a few days is sufficient to dry ground fuels and permit the spread of surface fires in and around the MOFEP sites. Severe fires during the growing season are rare but do occur during very hot and dry summers. Many of the years when large areas of the Current River watershed burned were years of severe growing season drought (Guyette 1995). Overall, however, growing season drought, as reconstructed from tree rings, is only weakly correlated with the percent of trees scarred between 1700 and 1820 ($r=-0.23$, $p=0.02$). Despite an abundance of thunderstorms (50-70 thunderstorm days per year) (Baldwin 1973), natural ignitions are rare (Schroeder and Buck 1970). Fire statistics for Missouri (Westin 1992) indicate that less than 1 percent of fires are caused by lightning. Thus, human population density and culture are the most important factors influencing the frequency of ignitions and environmental interactions of wildland fire.

A progression of four phases of the anthropogenic fire regime can be identified in the fire record: (1) an ignition limited phase, (2) a fuel limited phase, (3) a propagation limited phase, and (4) a culturally limited phase. During phase 1, fire frequency increases as the human population and number of potential ignitions increase. In later phases, as human population density increases, fuel, landscape artifacts, and finally culture becomes limiting to fire frequency. During each phase, climate and topography interact with anthropogenic ignitions in different ways to control fire frequency.

Fuel accumulation is an important aspect of the fuel matrix in the surface fires of the Ozarks about which little is known. Decay constants (i.e., the time it takes the litter mass to reach a dynamic equilibrium with site and climate) have important implications for the interaction between fire intervals and fuel accumulation. Scowcroft (1965) quantified litter accumulation in an oak forest of the southeast Ozarks and found that annually burned plots had about a third as much litter as did unburned control plots; study plots burned once every 5 years had about 76 percent of the litter accumulation of the control plots. These rates of accumulation indicate a decay constant of from 6 to more than 12 years. Thus, fire return intervals that are less than the decay constant tend to reduce fire intensity and spread. Decay rates of litter also affect the level of nutrients, such as calcium (Ca), held in the litter layer.

Fire Intervals and Population Densities

The average mean fire-free intervals (MFI) calculated for the sites by time period are: the depopulated period, 1580-1700, MFI=17.7 years; the Native American repopulation period, 1701-1820, MFI=12.4 years; and the Euro-American settlement period, 1821-1940, MFI=3.7 years. Fire frequency was more variable among and within sites during the period of Native American repopulation (1701-1820) than during the period of Euro-American settlement (1821-1940). The percentage of sites burned annually before 1850 is correlated ($r=0.87$, $p<0.05$) with population density at the low levels (<0.64 people per km^2). The percentage of sites burned annually decreased by about 20 percent from 1850 to 1940 and is correlated ($r=0.40$, $p<0.01$) with an increase in population density approaching 4.6 people per km^2. About 10 to 15 percent of the sites burned annually between 1700 and 1800 during a period of low (<0.6 people per km^2) population density. Fire frequency at and near some of the MOFEP sites is given in table 1. Effective fire suppression, education, and the increased value of wood over forage by agencies such as the Missouri Department of Conservation and the USDA Forest Service began about 1940 and reduced the percent of sites burned annually from about 21 percent in 1940 to less than 1 percent in the 1990's.

At higher population densities (>0.64 people per km^2), fire frequency and the percent of sites burned leveled off and then began to decrease. This decrease in the percent of sites burned coincided with increasing population density between 1890 and 1940. A peak in population density (about 4.6 people per km^2) was reached in the 1920's. Causes of this decline in fire frequency may relate to grazing, fuel trampling by hogs, open range for livestock, roads, some fire suppression, vegetation change, and land clearing.

Table 1.—*Mean fire intervals (MFI) in and around the MOFEP sites by historic periods. The Booming Shoal site is on a limited area of MOFEP site 1 and the intervals were measured on trees that grew on north-facing slopes.*

Site name	MOFEP site	1821-1940		1701-1820		1581-1700	
		Mean	Range	Mean	Range	Mean	Range
Booming Shoal	1	6.4	(2-13)	12	(3-20)		
Blue Spring	2	1.8	(1-7)	4.3	(1-12)		
Huckleberry Hollow	4	2.2	(1-11)	7.1	(1-24)		
Deer Run	5,6	1.8	(1-7)	2.7	(1-8)	12.0	(1-60)
Nordic Hollow	8	3.1	(1-10)	6.3	(2-24)		

One remarkable aspect of the early fire record during the depopulated era is that a small human population could maintain a fire regime where about 10 to 15 percent of the sites were burned annually. Although there are no population estimates of Native Americans in the Current River watershed before 1820, the population density was probably <0.10 persons per km^2 and much less before the eastern migration of Euro-Americans and Native Americans. In 1820 about 30 percent of the sites were burning annually. This ratio of population to burning is even more remarkable considering the highly dissected terrain of the Current River watershed that does not favor the rapid spread of fire.

Peoples of Mississippian culture populated the rich fertile bottom lands of the Current and Jacks Fork River about 1000 A.D. (Lynott 1989, Price *et al.* 1983). These agricultural communities would have supported a relatively large permanent population compared to the hunters and gatherers of the past. This large agricultural population may have supported the first significant anthropogenic disturbances at the MOFEP sites. Burning for land clearing, defense, hunting, wildland pasture, parasite reduction, and vegetation management probably made this a period of frequent fire at the MOFEP sites. New plants and diseases may have been introduced to the area by way of trade with other cultures at this time. By 1350 these peoples and their culture had left the Current River watershed.

The end of the Mississippian phase marked the beginning of a long and major depopulation of the watershed. Depopulation caused by disease (Dobyns 1983, Ramenofsky 1987), warfare, and migration occurred throughout much of North America (DeVivo 1991) and has been linked with abrupt changes in fire history (Guyette and Dey 1995a, Dey and Guyette 1996a). The depopulated period is defined by a decline in the Mississippian substage (about 1300 A.D. in the Current River watershed), after which there is only sparse evidence of proto-historic aboriginal peoples (Price *et al.* 1976) until historic times (the early 1700's). The chronicle of Desoto's exploration in Arkansas mentions that "the only people to the north are those who carry their houses on their backs." Artifacts such as willow leaf projectile points, found predominately in the lower reaches of the Current River, indicate some limited use of the area until the late 1700's (Price and Price 1986) and a connection to an Armorel cultural phase in northern Arkansas. Although the fire frequency during the earlier part of the depopulated period is generally lower than during later periods, it is still much greater than might be expected from lightning ignitions (Schroeder and Buck 1970). Seasonal hunting trips in the Current River watershed by peoples from downstream reaches of the river system may have been an ignition source. The territory of the Osage did not include the Current River watershed in 1673 (Bailey 1973).

Change in the territorial boundaries of the Osage from the late 1600's to 1803 (Bailey 1973, Wiegers 1985) coincides with long-term trends in fire frequency in the Current River watershed during this period (Guyette and Cutter 1997). Banks (1978) comments that there were about 6,000 Osage around 1800. Half of these were in Arkansas. About 1,200 Great Osage lived on the Osage River 280 km

west of the Current River (Marriott 1974). They hunted in the east (perhaps the Current River watershed) for bears and in the west for buffalo (Chapman and Chapman 1972). A major Osage trade route to St. Louis intersected the lower Current River (Stevens 1991) and could be linked to more frequent fires in the lower reaches of the Current River watershed and more southern MOFEP sites. Territorial expansion by the Osage from 1673 to 1770 probably resulted from many factors, one of which included the acquisition of the horse and equestrian technology from aboriginal trade with western tribes (Wiegers 1985). The horse gave the Osage new range and mobility to hunt, exploit, and culture (by fire) areas such as the Current River watershed that were distant from their territorial focus. Wiegers (1985) estimates the Osage acquired horses as early as 1680 while Waldman (1985) sets the date around 1719. An increase in the percent of sites burned in the Current River watershed occurred around 1720, coincident with the 1719 date for the acquisition of horses.

The introduction of horses had other implications for disturbance ecology of the MOFEP sites. One man on a horse with a pine knot, grease torch, or lariat and packed grass ball could have safely ignited a much larger area of the landscape than a man on foot. This leap in "ignition technology" could be in part responsible for large areas burned (>60,000 ha) in the Current River watershed in 1800, 1795, 1780, 1777, 1772, 1753, 1728, and 1704 (Guyette 1995). With the horse may have come new parasitic species.

The annual pattern of Osage subsistence activities (Brazelton 1935) included a spring hunt for bear and beaver that began in February or March. Stevens (1991) reports the Osage moved south and east toward the Current River on extended hunting trips for bear. Bear and beaver were probably abundant in the forested hills and many small tributaries of the Current River in the area of the MOFEP sites. Many bears were killed while hibernating in caves (Short 1934) of which there are many in the Current River watershed. The probable presence of the Osage in the Current River hills during March is important. March is the month with the greatest number of fires (Westin 1992) in the area around the MOFEP sites (and in Missouri) during the last 30 years. The combination of seasonal subsistence activity, fuel, and climate indicates that the Osage may have been an important source of spring fire ignitions during the 1700's.

More than 6,000 Quapaw (Baird 1980) lived to the southeast of the Current River in Arkansas near the confluence of the White, Arkansas, and Mississippi Rivers before 1680. Disease came first to large riverine cultures such as the Quapaw because of their location and population density (Dobyns 1983). Thus, the number of hunters from downstream and the number of fires in and around the MOFEP sites may have been reduced by the first European contacts in the 1500's. Disease reduced the Quapaw population by two-thirds in 1698 and again reduced their population in 1747 and 1751. There were only about 700 Quapaws by 1763. Their location gave the Quapaw access by foot and canoe to the game and resources of the Ozarks and the Current River. Chapman and Chapman (1972) and others (O'Brien 1996) report the Current River was within the bounds of the Quapaw. Baird (1980) speculates that the Quapaws were pushed west of the Mississippi River and south of the Current River by well-armed Iroquoian and Algonquin invaders as recently as the 1600's. This large human population downstream of the MOFEP sites is one of the potential anthropogenic sources of ignition, especially in the lower regions of the Current River watershed. Fires were more frequent in the lower reaches of the river between 1700 and 1820. The mean fire-interval at 23 sites on the Current River is correlated ($r=0.54$, $p<0.01$) with the distance upstream from Van Buren, Missouri (Guyette and Cutter 1997). Coincident with a low in the percent of sites burned around 1750 in the Current River watershed were epidemic disease in 1747 and 1751 that reduced the Quapaw population (Baird 1980). In addition, conflict with the expansion of Osage may have restricted Quapaw movement into the vicinity of the MOFEP sites and the Current River. Both these factors would have reduced anthropogenic ignitions by the Quapaw in the Current River watershed. The effect of disease, war, and migration during the period of European westward expansion has been associated with fire history in other areas of eastern North America (Guyette and Dey 1995a, b).

The mean fire-free interval for each of the 23 sites during two periods (1701-1820, 1821-1940) is positively correlated (1701-1820, r=0.54; 1821-1940, r=0.58) with the upstream distance of the sites. Less frequent fires in the upper parts of the watershed suggest that these areas were less frequented by humans. Many archeological and historic Native American sites are located in the larger and more fertile bottom lands in the downstream reaches of the Current River (Stevens 1991). Quapaw lived downstream and southeast of the watershed (Chapman and Chapman 1972). Also, the Mississippian cultural phase persisted in the southeast Ozark border area until as late as 1700 (Price *et al.* 1976). Even today the lower reaches of the Current River have larger towns than the upper sections. The mean fire-free intervals among time periods (1701-1820 and 1821-1940) are significantly correlated (0.54, p=0.01), indicating some continuity in fire frequency through time. Perhaps fertile soils produce more fuel and forage, which in turn attract more game, hunters, gatherers, and agriculturalists. These factors persist, to some extent, through time. Alternatively, fertile soils may be correlated with landscape-level fire dynamics, or landform gradients such as topographic roughness, that may affect the spread and consequently the frequency of fire.

Cherokee began migrating into areas just east of the Current River watershed in the late 1770's as they were pushed from their eastern lands by Euro-Americans (Gilbert 1996). About 6,000 Cherokee (Gilbert 1996) may have been living in southeast Missouri and northeast Arkansas at the time (1803) of the Louisiana Purchase. Many of the Cherokee settled to hunt and farm along the St. Francis River, which lies about 60 km east of the Current River. The Osage made war upon the Cherokee (Banks 1978) as the Cherokee infringed upon their hunting grounds. The Current River watershed was at the boundary between the tribes. A general increase in the percentage of sites burned annually (Guyette and Cutter 1997) in and around the MOFEP sites in the Current River watershed occurred from 1760 (9 percent) to 1820 (30 percent) coincidently with the migration of the Cherokee (Gilbert 1996).

The Delaware and Shawnee passed through Missouri at Cape Girardeau and the Current River watershed on their way west in the late 1700's and early 1800's (Stevens 1991). One estimate of Shawnee and Delaware population west of the Mississippi in 1812 was 400 (Marriott 1974). Banks (1978) states that in 1816 there were about 840 Delaware and 1,300 Shawnee in all of Missouri. In 1824 there were 1,383 Shawnee in Missouri (Howard 1981). Some fraction of the populations of these tribes lived in the upper Current River near the MOFEP sites. Delaware hunted, lived, and traded in the upper Current River area from about 1815 to 1822. In November 1820, 1,346 Delaware crossed the Mississippi River and made an emergency encampment on the Jacks Fork of the Current River (Weslager 1978), probably near Mahans Creek. The Delaware had lived among Europeans and adopted much of their technology. The Delaware had a history of using wildland fire before arriving in Missouri from Ohio (Whitney 1994). With their history of using wildland fire and a significant population, the Delaware probably set many of the fires that resulted in the very frequent burning (mean fire interval <2 years) at several sites in the upper Current River area between 1815 and 1822 (Guyette and Dey 1997a). Coinciding with the arrival of the Delaware and Shawnee, the percent of sites burned annually increased from about 15 percent in 1810 to a peak of more than 32 percent around 1820, easily the largest and most rapid increase in the percent of sites burned in 400 years of fire scar record. Most of the Delaware and Shawnee had left the Current River watershed by the 1830's, and Euro-Americans were beginning to settle in the area. The percent of sites burned annually dropped from about 32 percent in 1820 to about 27 percent in 1830, coincident with the departure of the Delaware and Shawnee from the Jacks Fork and Current Rivers.

Old-stock Euro-Americans (Gerlach 1986) from the Southeastern U.S., mainly Tennessee, began settling in the area around 1820. Later, around 1860, Scotch-Irish immigrated into the area. The region of the MOFEP sites, like other areas in the Eastern United States (Sutherland 1997), experienced an increase in fire frequency with increased settlement by Euro-Americans. In the Current River watershed, the percent of sites burned increased with population density during the 1810-1850 period. Fire frequency was positively correlated ($r = 0.87$, $p<0.05$) with population density at the low population densities (<0.64

people per km^2) of this period. The average percent of sites burned in a year increased from 20 percent in 1810 to 39 percent in 1850.

Chemical Effects of Fire

The long-term effect of an anthropogenic fire regime on Ca availability was inferred from Ca and aluminum (Al) concentrations in tree rings (Guyette and Cutter 1997) at sites with low soil Ca in the Current River watershed. Although the availability of Ca in soils of the MOFEP sites would vary somewhat from the sites in this study, similar trends in Ca availability might be expected in some soils of the MOFEP sites. Soils derived from Roubidoux sandstone, rhyolite, or highly cherty soils might be subject to similar changes in Ca cycling. Many studies have indicated that Ca is more available to plants after fires. Parallel trends in the fire frequency of the Current River watershed and heartwood Ca concentrations from three low Ca sites in the watershed were found in the 340 years of common record. The Ca chronology of dated redcedar heartwood increments was highly correlated with the 20-year grouped means of the percent of sites scarred ($r=0.81$, $p<0.05$) and trees scarred ($r=0.77$, $p<0.05$). In contrast, Al concentrations in heartwood redcedar were inversely correlated with the percent of sites burned ($r=-0.65$, $p<0.05$) and trees scarred ($r=-0.70$, $p<0.05$).

LOGGING

As settlers moved into the area around the MOFEP sites, logging was minimal for two key reasons: the technology of the cutting practices and transportation out of the region. Due to these factors and an abundant timber supply in more accessible regions of the U.S., logging products before 1880 were mostly for local markets.

Within the region, timber harvest was controlled by the transportation system. Before 1880, wood transportation in this area consisted of horse pulled wagons over very poor roads or water transportation in the spring on flooded rivers. Neither of these methods was dependable. During this period logging was conducted closer to rail transportation systems than in other parts of the State. In the late 1870's and early 1880's, businessmen involved in the timber industry in Pennsylvania were looking for a new area with an abundant supply of timber. The Reynolds, Carter, Shannon, and Ripley County areas were attractive to several investor groups. Because of the poor transportation within the region, several of these investor groups started by building railroads to facilitate logging and lumber transportation. The timing and the relative spatial arrangement of the transportation infrastructure played a large role in the current forest structures (i.e., size, age, spatial distributions, species composition, and density of plants with each forest stand) on the MOFEP sites. Figure 2 shows the location of the railroads, rivers, towns, and large sawmills around the MOFEP sites. Figure 3 provides a timeline indicating the time of operation of railroads, large sawmills, and other influences of regional logging around the MOFEP sites.

Two railroads were in and around the MOFEP sites. The Missouri Southern Railroad extended out of the Black River Valley to Garwood then north through Webb Creek to Ellington (USDA Forest Service 1942, Dew 1972, Grant 1970, Ellinghouse 1978). The closest the Missouri Southern Railroad's main track comes to the MOFEP sites is in the center of the valley in front of the current Ellington Missouri Department of Conservation Office, about 2 miles from site 6. This railroad serviced nine sawmills along the tracks and carried general freight and passengers on the daily round trip from Leeper to the end of the line (Ellington Press 1905).

The Current River Railroad, which ran east-west approximately where Missouri state highway 60 is today, would have accessed the timber of MOFEP sites 7, 8, and 9. The main mill for this railroad was in Grandin, Missouri, in Carter County. This railroad operated mainly to service the Missouri Lumber and Mining Company mills in Grandin and later in West Eminence (Hill 1949, Oakley 1968, Ponder 1989). The Grandin mill of the Missouri Lumber and Mining Company, one of the largest in the country, had both a band saw and a circular saw and a capacity of 160,000 board feet per day (Oakley 1968).

River transport was the other major method of transporting logs in the Ozarks at this time (Hill 1949). The logs were hauled to the river with wagons and then floated down the river when the water level was acceptable. The logs

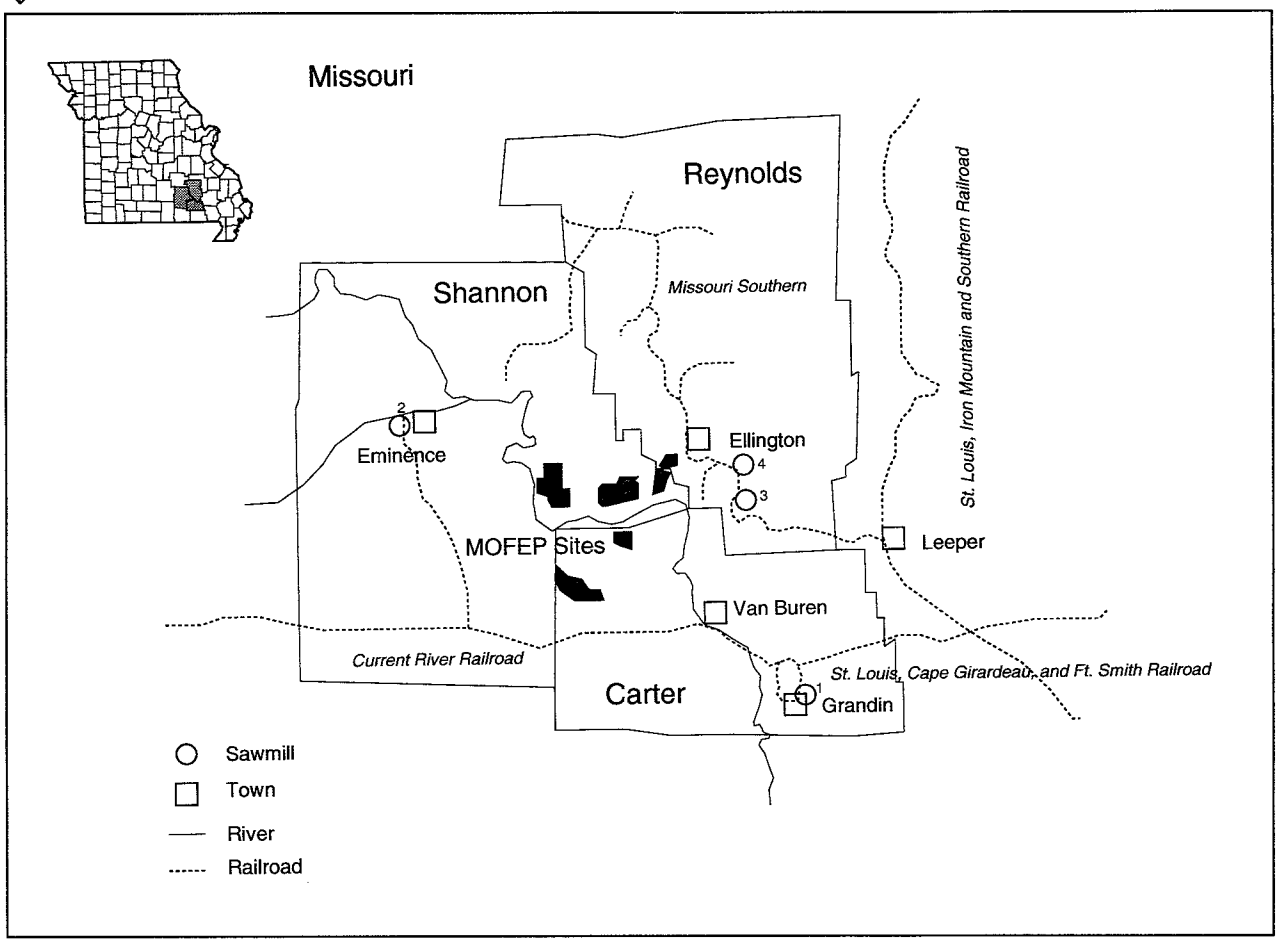


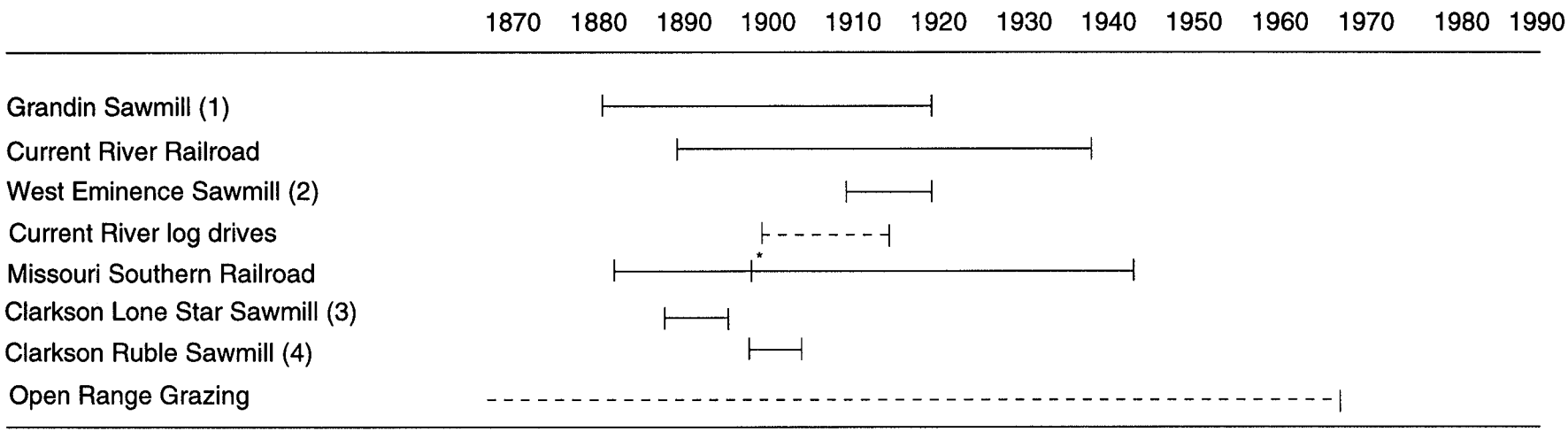
Figure 2.—*Map of the general area around the MOFEP sites and the location of railroads, sawmills, and river systems. Numbers of major sawmills (1-4) correspond to those in table 2.*

were floated individually and not in rafts because of the many sharp bends in the river; they were followed by men in boats who dislodged the logs that became stuck. A log boom was installed at Chicopee (near the Van Buren Bridge). Because the logs were floated individually, many were lost through the boom, most of which were recovered by the Doniphan Lumber Company. Two large drives were made in 1900, each of which had a half a million board feet of logs (Hill 1949).

The St. Louis Lumberman, quoting statistics from the Missouri Labor Bureau, reported that in 1904, 60 million board feet of logs were shipped out of Reynolds County. Shannon County was logged later because of the steepness of its topography. The Missouri Lumber and Mining Company's mill in West Eminence was built in 1909 and sold in 1919. By 1910 the area in which the MOFEP sites are located was described as cutover mixed pine and oak (Record 1910).

In one event that shows the importance of the Missouri Ozark region to the national timber supply at the turn of the century, the 1907 senior forestry class from Yale came to Grandin, Missouri, to study logging, surveying, lumber production, and southern pine forestry.

Few, if any, public inventories were taken in the early days of the forest exploitation period in the Ozarks. One of the first public inventories in the area was done by the Works Project Administration during 1937 and 1938. The results of this inventory provide a unique view into the condition of the forest in and around the MOFEP sites in the late 1930's. The inventory consisted of a total of 2,338 plots of which 1,896 were classified as forested, and 1,883 of these forested plots were considered to be productive. The sample design consisted of two nested 1/20 acre circular plots for trees 2 to 4 inches dbh and a 1/5 acre circular plot for larger trees. Sample plots were taken every



* *Missouri Southern reaches Ellington and converts from narrow gauge to standard gauge.*

Dashed line indicates less precise record of the actual dates.

Figure 3.—*A timeline of the logging events from 1870 to 1990.*

20 chains (1,320 ft) along the sample line, and lines were 1 mile apart. The plots were located on all land outside the Clark National Forest boundaries within Reynolds County. Two special areas were identified for inventory summary tables: The Deer Run State Forest (6,618 acres, site 6 is in Deer Run State Forest) and the Warneke tract (160 acres) was old-growth.

Stock tables are reproduced in tables 2, 3, and 4 for southern Reynolds County, Deer Run, and the Old-growth or "Virgin" tract. Some of the most notable information in these tables is that the general ratio between hardwoods and pine in all three tables is one-third pine and two-thirds hardwoods, and the average basal area in the county was very low at 46.5 square feet per acre and only 35.6 square feet per acre for commercial species. This can be contrasted with a basal area per acre ranging from 85 to 110 on most of the MOFEP vegetation plots. Additionally, the county average volume (all volumes associated with this inventory use the Scribner log rule) was 586 board feet per acre while volumes of 5,000-8,000 board feet per acre were reported before the harvest and current MOFEP volumes average 6,500 board feet per acre. The density of the trees greater than 10 inches in diameter was as low as 19.4 trees per acre (table 2).

Because Deer Run State Forest existed at the time of the inventory, a special summary was made of the plots within the forest. Even though Deer Run State Forest was used to breed white-tail deer, grazing pressure inside the area was notably less than outside the fenced area. Around 1932, Deer Run State Forest was surrounded with an 8-ft wire fence, which was maintained until the end of the deer breeding program in the early 1960's. MOFEP site 6 is entirely within the Deer Run State Forest, and the boundary between site 5 and 6 is the old fenceline. Basal areas within the forest were comparable to those outside the forest because the land had been purchased in the early 1930's. Basal area of commercial species in the Deer Run State Forest was 46 square feet per acre and sawtimber volume was 521 board feet per acre in 19 trees greater than 10 in. in diameter (table 3).

The statistics for the Old-growth or Virgin stand are not that different from those for current MOFEP plots except for the higher ratio of pine to hardwoods. This stand averaged 84 square feet of basal area per acre and 74 square feet of basal area per acre in trees >10 in. in diameter. Gross volume per acre was 2,260 board feet of pine and 4,039 board feet of hardwoods (table 4).

Until 1925, there were no roads suitable for truck travel so the logs and lumber were transported mainly by river, railroad, and horse pulled wagon. Additionally, the inventory reported that no paved roads existed within Reynolds County as of 1939.

Table 5 lists the annual wood volume shipped from Reynolds County, averaged by 5-year periods from 1895 to 1929.

AGRICULTURE

Direct effects of agriculture were limited in the steep and forested areas of the MOFEP sites. Only small areas on the ridges and in floodplains of the MOFEP sites were suitable for growing crops or intensive grazing. The indirect effects such as open range grazing, soil erosion, gathering, and range burning (as previously discussed) on the forests of the MOFEP sites were as pervasive and unrelenting as the march of human population.

Some agriculture activity existed in areas near the MOFEP sites as early as 700 A.D. The rich alluvial terraces of the Current River provided fertile croplands for Mississippian agriculturalists. MOFEP sites 1 and 2 are within a few kilometers (<4) of at least 33 archeological sites along the Current River terraces. MOFEP sites 3 and 4 are also just north of the river corridor and adjacent to many archeological sites. Although these sites date from many ages and cultures, the proximity of these MOFEP sites to areas of human occupation is strong evidence their flora and fauna have been influenced by anthropogenic disturbances, particularly fire, during many periods over thousands of years. Sites 5 and 6 (MOFEP) are only slightly more removed from the Current River corridor and the influences of human agricultural activities. MOFEP sites 7, 8, and 9 were probably least impacted by Native American agricultural activities because of their distance from the Current River and other large creek terraces. Site 9 is also insulated from the spread of fire and human activity near the Current River corridor by very steep topography.

Table 2.—*Stand and stock tables for Reynolds County forest and land survey, 1938.*

Stock and Stand Tables for the Average Acre, All Productive Stands[1]
Reynolds County, Missouri - 1938

DBH	Black oak group		Hickories		White oak group		Scarlet oak		Shortleaf pine		Post and Chi. oaks		Red oaks		Bottomland hardwoods[2]		Black gum		Misc uncommon[3]		Total sawtimber	
Inches	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume
	(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)	
2	25.50		34.73		29.04		18.63		20.10		17.11		10.05		4.53		4.17		0.23		164.09	
4	12.20		7.94		10.33		9.60		8.36		6.93		3.58		1.05		0.72		0.07		60.78	
6	5.77		3.22		3.78		5.42		3.79		2.30		2.32		0.69		0.13		0.05		27.47	
8	3.41		1.85		2.20		3.05		1.92	8	1.48		1.40		0.35		0.10		0.03		15.79	8
10	2.09	6	0.95	3	1.74	7	1.59	7	0.78	18	1.35	5	0.87	4	0.18	1	0.13	0	0.01	0	9.69	51
12	1.16	35	0.42	8	1.01	27	0.73	18	0.26	16	1.00	25	0.42	16	0.11	3	0.10	3	0.01	0	5.22	151
14	0.42	24	0.19	6	0.56	14	0.32	17	0 10	11	0.32	15	0.23	16	0.07	5	0.08	4	0.02	1	2.31	113
16	0.23	20	0.09	4	0.23	8	0.18	16	0.02	3	0.11	8	0.10	11	0.04	4	0.05	4	0.00	1	1.05	79
18	0.12	15	0.05	4	0.10	4	0.10	13	0.01	2	0.04	4	0.07	10	0.02	4	0.01	1	0.01	1	0.53	58
20	0.07	13	0.02	1	0.05	2	0.07	13	0.02	6	0.02	2	0.06	13	0.02	3	0.02	2			0.35	55
22	0.05	11	0.00	0	0.03	3	0.03	10	0.00	1	0.00	0	0.01	4	0.01	4	0.00	0			0.13	33
24	0.02	5	0.00	1	0.01	1	0.01	3					0.02	7	0.00	1	0.00	1			0.06	19
26	0.01	3	0.00	1	0.00	0	0.00	1			0.00	1	0.01	2	0.00	1			0.00	1	0.02	10
28	0.00	1					0.00	2					0.01	3			0.00	1			0.01	7
30													0.00	2							0.00	2
32																						
>10 Inches	4.17	133	1.72	28	3.73	66	3.03	100	1.19	57	2.84	60	1.80	88	0.45	26	0.39	16	0.05	4	19.37	578
Total	51.05	133	49.46	28	49.08	66	39.73	100	35.36	65	30.66	60	19.15	88	7.07	26	5.51	16	0.43	4	287.50	586

Notes:
1. Board foot volumes are Scribner log scale, net.
2. Species in group in order of prevalence:
   Elm group, hard maple, walnut, ash group, sycamore
3. Species in group in order of prevalence:
   Butternut, river birch, honey locust, hackberry, black cherry, basswood, black willow.

Basal area (square feet/acre)	
All trees of commercial species (except Blackjack oak)	35.59
All trees of non-commercial species and Blackjack oak	2.89
Cull trees	8.01
Total basal area - all live trees	46.49

Area of cover types comprising this table		
Cover type	Acreage	% of Total
White oak mixed	73,787	24%
White oak	27,763	9%
Red oak	6,134	2%
Black and scarlet oak	73,768	24%
Black and post oak	20,338	7%
Post oak	12,913	4%
Blackjack and post oak	12,267	4%
Pine	15,012	5%
Pine and oak	30,347	10%
Hickory	21,953	7%
Cedar	806	0%
Bottomland hardwoods	4,520	1%
Mixed hardwoods	4,358	1%
Total	303,946	100%

Table 3.—*Stand and stock tables for Deer Run State Forest and Game Refuge, 1938.*

Stock and Stand Tables for the Average Acre, Deer Run State Forest and Game Refuge[1]

Reynolds County, Missouri - 1938

DBH	Black oak group		Hickories		White oak group		Scarlet oak		Shortleaf pine		Post and Chi. oaks		Red oaks		Bottomland hardwoods[2]		Black gum		Total sawtimber	
Inches	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume	trees per acre	Volume
	(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)		(no)	
2	78.05		97.56		73.66		53.66		105.37		39.51		25.37		1.96		6.83		481.97	
4	12.68		13.17		1.95		13.17		29.27		5.85		1.95		0.49				78.53	
6	6.59		2.68		3.17		7.80		9.39		1.71		2.20		0.49		0.12		34.15	
8	3.05		1.46		0.98		4.76		3.41	14	1.95		1.10		0.36				17.07	14
10	0.85	2	2.07	6	1.10	4	1.71	8	0.73	17	2.20	8	0.37	2	0.12	1			9.15	48
12	0.85	26	0.61	9	1.10	29	0.37	9	0.24	15	1.10	28	0.12	5					4.39	121
14	0.24	14	0.12	3	0.73	13	0.98	51			0.49	23			0.12	11			2.68	115
16	0.61	54	0.24	10	0.61	20	0.24	22			0.24	17					0.12	9	2.06	132
18	0.24	31			0.12	3					0.12	12							0.48	46
20							0.12	25									0.12	15	0.24	40
22																	0.12	19	0.12	19
>10 inches	2.79	127	3.04	28	3.00	69	3.42	115	0.97	32	4.15	88	0.49	7	0.24	12	0.36	43	19.12	521
Total	103.16	127	117.91	28	83.42	69	82.81	115	148.41	46	53.17	88	31.11	7	3.54	12	7.31	43	630.84	535

Notes:
1. Board foot volumes are Scribner log scale, net.
2. Species in group in order of prevalence:
   Elm group, hard maple, walnut, ash group, sycamore

Basal Area (square feet/acre)	
All trees of commercial species (except Blackjack oak)	45.95
All trees of non-commercial species and Blackjack oak	4.24
Cull trees	6.93
Total basal area - all live trees	57.12

Area of cover types comprising this table

Cover type	Acreage	% of Total
White oak mixed	484	7%
White oak	323	5%
Black and scarlet oak	1,453	22%
Black and post oak	646	10%
Blackjack and post oak	323	5%
Pine	968	15%
Pine and oak	1,614	24%
Hickory	646	10%
Mixed hardwoods	161	2%
Total	6,618	100%

Table 4.—*Stand and stock table for the average acre, virgin timber tract, Reynolds County, Missouri, 1938*

Stock and Stand Table for the Average Acre, Virgin Timber Tracts,[1,2]

Reynolds County, Missouri - 1938

DBH	Black oak group		Hickories		White oak group		Scarlet oak		Shortleaf pine		Post and Chi. oaks		Red oaks		Black gum		Black walnut		Total sawtimber		Basal area All sound trees of commercial species[3]
Inches	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	trees per acre (no)	Volume	
2			5.00		11.67				5.00		10.00				1.67				33.34		0.763
4	3.33		8.33		15.00		1.67				3.33								31.66		2.764
6	1.25				7.08		0.42		0.83		2.92								12.50		2.617
8	1.25		1.25		3.75		0.83		0.42	2	3.33		0.42				0.42		11.67	2	4.074
10	1.25	4			6.25	60	0.42	7	2.50	36	0.42	2	1.67	37					12.51	146	6.823
12	1.67	50	0.42	17	5.00	162	2.08	75	0.83	43	1.25	32	0.83	33			0.42	9	12.50	421	9.818
14	0.83	50			3.34	124	4.17	346	3.33	374	0.42	24	0.42	30					12.51	948	13.373
16	1.25	112	0.42	45	2.92	136	4.17	603	2.50	498									11.26	1394	15.722
18	0.83	105			2.08	121	3.33	802	1.67	488									7.91	1516	13.978
20	0.42	74					2.08	540	1.67	630	0.42	63							4.59	1307	10.014
22	0.42	89					0.83	287	0.42	189									1.67	565	4.408
>10 inches	6.67	484	0.84	62	19.59	603	17.08	2660	12.92	2258	2.51	121	2.92	100			0.42	9	62.95	6297	74.136
Total	12.5	484	15.42	62	57.09	603	20.00	2660	19.17	2280	22.09	121	3.34	100	1.67		0.84	9	152.12	6299	84.354

Notes:

1. Board foot volumes are Scribner log scale, net.
2. Twelve 1/5 acre plots taken on two separate virgin tracts were used in preparing this table.
   Warneke Tract: T. 31 North, Range 3 East, Section 19 - 2 plots; Arbequst Tract: T. 30 North, Range 1 West, Section 2 - 10 plots.
3. Includes blackjack oak.

Table 5.—*Annual wood volume shipped from Reynolds County, averaged by 5-year periods from 1895-1929*

5-year period starting	Volume (m. bd. ft.)[1]
1895	55,000
1900	56,000
1905	34,000
1910	48,000
1915	40,500
1920	9,000
1925	9,000
1929	9,000

[1]*Source: USDA Forest Service, Forest Land Management of Reynolds County, Missouri.*

Later agricultural activities were more intensive. Walters (1992) presents a persuasive argument for the loss of soil, nutrient fertility, and change in the C:N ratio associated with land-use practices in Shannon County between the mid-1800's to 1974. While the number of farm owners decreased by 72 percent from 1925 to 1974, both soil carbon (C) and nitrogen (N) increased, especially on abandoned lands.

The introduction of domestic livestock to the region of the MOFEP sites had disturbance effects on native soils, plants, animals, and fuels. Hogs and cattle populations in Shannon County peaked in the mid to late 1900's (table 6). Open range for livestock continued in parts of the Current River hills until as late as 1969. Hogs may have had the greatest disturbance effect on the MOFEP sites because of their ability to use forested areas. Disturbance and grazing effects by livestock, especially those of hogs, peaked between 1890 and 1950. Hog populations and the percent of sites burned in the Current River watershed were inversely correlated (-0.45, $p<0.01$) between 1870 and 1960. Horses, mules, sheep, and goats lived on the open range in addition to the many cattle and hogs in the watersheds of the MOFEP sites.

REGIONAL AND GLOBAL CHANGE

Although the MOFEP sites have had little direct disturbance from mining activity, their vegetation and soils are particularly sensitive to changes in atmospheric deposition (Guyette 1994). The MOFEP sites all have some areas with shallow soils, high soil surface to volume ratios, low soil volumes, steep slopes, high nutrient turnover, and soils in transition between Ca and Al buffering. These factors create conditions that make the soils and vegetation of the sites sensitive to changes in local and regional atmospheric emissions and depositions as well as other anthropogenic influences such as fire frequency.

Table 6.—*Hog and cattle populations and density in Shannon County, Missouri*

Date	Hogs	Cattle	Density (head per km^2)
1923	25,100	17,400	16.4
1933	26,100	15,100	15.1
1943	28,800	17,400	17.8
1953	11,800	17,700	11.4
1963	15,400	14,600	11.6
1973	11,800	19,100	11.9
1983	5,300	21,600	10.4
1993	3,500	19,100	8.7

Atmospheric Emissions and Chemical Change

The Industrial Revolution and increased population density brought atmospheric emissions and the deposition of compounds that slowly changed the chemical environment at the MOFEP sites and in the Ozark region. Element concentrations from tree rings of old-growth eastern redcedar (*Juniperus virginiana* L.) in Missouri have been used to reconstruct changes in atmospheric and soil chemistry. We present results from these studies with special reference to the MOFEP sites. The following discussion is organized by trends in element concentrations found in the dated growth increments of trees.

By far, sulfur (S) is the element that has changed most in abundance over the last 300 or more years (Guyette and Cutter 1994). Sulfur emissions from regional coal burning and local mineral smelting have increased S deposition many times over that of pre-industrial inputs. Sulfur deposition was very low during the pre-industrial period and the scarcity of this macronutrient may have been limiting to plant growth. Sulfur would have been made even more scarce at many of the MOFEP sites by frequent fires that volatilized

much of the S locked in organic matter and by hydraulic leaching on steep slopes. Many important indirect effects of S deposition on plant nutrients and soils follow.

Molybdenum (Mo) and S concentrations were determined in growth increments of 13 eastern redcedar trees from the Ozark region of Missouri (Guyette *et al.* 1989). Chronologies were constructed, which dated from 1280 to 1960 for Mo, and from 1580 to 1960 for S. A 45-percent increase in Mo concentrations occurred between 1720 and 1860 when compared with the previous 440 years. A decline in heartwood Mo concentration, beginning in 1860, is hypothesized to be due to increasing soil sulfate from the atmospheric deposition of S compounds. There was a 65-percent reduction in Mo concentration concomitant with a 44-percent increase in S concentration in redcedar heartwood formed after 1860. Sulfur and Mo concentrations were found to be negatively correlated in serial heartwood increments. Competition between sulfate and molybdate ions in soil solutions is thought to have decreased Mo in recent heartwood growth increments. Decreases in the bio-availability of Mo, an essential plant micronutrient, would affect herbaceous legumes at the MOFEP sites the most because of their relatively high requirement for Mo.

One of the largest lead (Pb) mining districts in the world lies just east and north of the MOFEP sites. Three chronologies, two of Pb and one of cadmium (Cd), were constructed from heartwood growth increments of 27 trees on sites in the mining district and on control sites (Guyette *et al.* 1991). No significant increases in Pb were found in growth increments of trees on control sites near the MOFEP study areas. Lead in the xylem of trees growing in acid soils of the mining district increased from 3.1 μmol kg^{-1} in growth increments formed before 1900 to 7.8 μmol kg^{-1} in increments formed after 1900. Cadmium was detected in 46 percent of the wood formed after 1900 versus 3 percent of the wood formed before 1900. Lead and Cd concentrations in growth increments were found to be highly correlated with lead production. Lead in sapwood was also found to correlate with soil pH on acid sites in both the mining district and in the control sites. Lead and Cd increases were found only in wood grown on acid soils (pH<4.5) over rhyolite and not in wood grown on more basic soils derived from dolomites and chert, such as found over much of the MOFEP area.

Soil pH is a master variable affecting the availability of many plant nutrients (Guyette *et al.* 1992a, b). Soil pH changes over the scales of centuries and decades at the MOFEP sites are an important aspect of soil chemistry that is difficult to observe and measure. Manganese (Mn) concentrations in tree rings provide a way to examine past variability in soil pH (Guyette *et al.* 1992b) and were calibrated with the pH of soils at the tree sites. Regression equations were used to estimate temporal changes in soil pH from Mn in heartwood growth increments at sites in the southeastern Ozarks. Patterns of decreasing soil pH between 1860 and 1960 were found at sites with poorly buffered soils and high exposures to SO_2 deposition near the MOFEP sites. Cherty acidic soils derived from dolomite in the pH range of 4.5 to 6 were found to be the most variable in pH over time. These soils decreased about 0.5 pH units between 1860 and 1960 and are similar to soils found on many areas of the MOFEP sites.

The concentration of CO_2 in the atmosphere has been increasing for more than 100 years due to the increased burning of fossil fuels. Increases in atmospheric CO_2 concentrations are hypothesized to result in plant fertilization and increased water-use efficiency. Increases in water-use efficiency would be particularly beneficial to the plants and trees growing on the MOFEP sites where the availability of water may be the factor most limiting growth. Some evidence for increased water-use efficiency in eastern redcedar was found using Ca concentration as transpirational monitor (Guyette and Cutter 1995). As CO_2 concentration increases over the many years of the MOFEP project, the fertilization effects of CO_2 may become important.

Climate and Disturbance

The humid-continental climate of the Current River area produces extremes of precipitation, wind, and temperature that alter species distribution and abundance either directly via drought and windthrow, or indirectly, via fires and species competition. Drought extremes are probably the most important aspect of climate variation because they affect so many organisms from fish to tree species (Guyette

and Rabeni 1995). Variability in both the Palmer Hydrologic Drought Index (PHDI) and in ring-width indices has been lower since the early 1950's (Cleaveland and Stahle 1996). Data show that decade-scale droughts occur several times a century. The driest decade in the last 310 years was the 1930's followed by the 1730's, 1700's, 1830's, and 1850's. Table 7 lists some of the driest and wettest periods in the MOFEP study region. At this date there is little evidence to support the theory that global warming has changed the frequency or severity of drought in the Ozarks. Black oaks were found to be more sensitive to fluctuations in precipitation than either white oak or shortleaf pine (Estes 1970). The growth of oaks was more variable and less influenced by climate in cherty soils than in clay or loess soils. The growth of shortleaf pine was more variable and less influenced by climate when growing in clay than in chert. The growth of evergreen coniferous species, such as shortleaf pine (Estes 1970) and eastern redcedar (Guyette *et al.* 1980) was more limited by climate conditions during the spring (April and May) than were oak species.

Drought and temperature can limit the growth of cold blooded species found in and around the MOFEP sites. Drought-induced changes in water temperature and availability may affect the growth of fishes, amphibians, and reptiles. Climate is particularly limiting to fish in small shallow streams (Guyette and Rabeni 1995). The growth of rock bass (*Ambloplites rupestris*) is correlated with July precipitation and may be due to precipitation-induced changes in stream temperature. Spring temperatures may also be limiting to some fish species such as smallmouth bass (*Micropterus dolomieu*). May maximum temperatures were highly correlated with the back calculated growth of smallmouth bass (Guyette and Rabeni 1995). These findings may have significance in the evaluation of the growth and abundance of upland species, such as turtles or salamanders in the upland areas of the MOFEP sites.

A complex of factors, including drought, extreme temperature, and pathogens (Bruhn *et al.* 1997) is responsible for the dieback of oak species, particularly species in the red oak group growing in the Ozarks (Jenkins and Pallardy 1995, Wetteroff 1993). Drought predisposes trees and stands to decline years before they die back. Severe droughts of the 1930's, early 1950's, and the 1980's caused abrupt declines in both the growth and variance of annual woody growth increments. Rapid growth of some red oak species predisposes them to increased mortality due to drought.

Table 7.—*Ranked periods of extreme drought and moisture in the MOFEP study region. Current River watershed extremes are for the last 360 years and are 3-year averages of the Palmer Hydrologic Drought Index (PHDI). The central year of a period is given. Data were calculated from PHDI reconstructions for the Current River watershed (Cleaveland and Stahle 1996). Also included are the five wettest and driest non-overlapping 5-year periods in the region of Missouri, Illinois, Kentucky, Indiana, and Tennessee between 1700 and 1975 (Cook* et al. *1992).*

	Current River (3-year periods)				Regional (5-year periods)	
	Dry		Wet		Dry	Wet
Rank	Period	PHDI	Period	PHDI	Period	Period
1	1901	-2.33	1804	1.69	1734-1738	1906-1910
2	1838	-1.97	1908	1.71	1799-1803	1779-1783
3	1931	-1.88	1843	1.73	1814-1818	1889-1893
4	1721	-1.83	1803	1.74	1870-1874	1881-1885
5	1704	-1.80	1883	1.79	1930-1934	1947-1951
6	1953	-1.71	1769	1.81		
7	1736	-1.70	1944	1.83		
8	1722	-1.67	1739	1.84		
9	1800	-1.64	1679	1.85		
10	1912	-1.61	1796	1.92		

False springs, severe spring freezes preceded by unusually warm late winters, are detrimental to the flowering and the leaf out at a time of year when many species and their reproductive processes are particularly sensitive to temperature extremes. An excellent 330-year record of false springs in the Ozarks has been reconstructed by Stahle (1990) from frost rings found in species of the white oak group. Stahle (1990) defines false springs as freezes (<-5^0 C) that occur after March 21. False springs are not randomly distributed through time. They are associated with regional and global meteorological conditions such as the Southern Oscillation, specific circulation patterns, and dust veils created by volcanic eruptions.

A long history of investigations on periodic behavior in climate has resulted in the identification of climate cycles that may relate to past and future disturbances at the MOFEP sites. The existence of four cycles has been supported by studies using the past climate record, proxy data such as the tree-ring record, and climatic forcing factors. The following discussion focuses on a 22-year cycle, an 18.6-year cycle, cycles in the 3- to 7-year range, and a quasi-biennial oscillation.

Evidence of a 22-year period in the drought area of the Western United States and Missouri was inferred from a network of more than 40 tree-ring chronologies (Mitchell *et al.* 1979). These authors link the area of drought in the Western United States, via the drought response of trees, to the double sunspot cycle (Hale solar cycle). Further work, using a grid of drought reconstructions from ring-width chronologies throughout the contiguous United States, presents a strong statistical association between drought area and the 22-year Hale solar cycle minima (Cook *et al.* 1997). Recent drought extremes in Missouri and at the MOFEP sites that occurred around 1912, 1934, and the early 1950's coincide with peaks in the drought area index of the Western United States constructed by Mitchell *et al.* (1979). Several of these drought area peaks (1930's and 1950's) correspond to periods that predisposed oaks in the Ozarks to growth decline (Jenkins and Pallardy 1995, Wetteroff 1993). The year with the largest percentage of sites scarred in the Current River watershed, 1780, coincides with a peak in drought area. These examples indicate a solar-terrestrial link in disturbance at the MOFEP sites.

Cook *et al.* (1997), in their work with ring-width chronologies dating back to 1700 also present a strong statistical association between drought area and the 18.6-year lunar tidal maxima. Currie (1984) also finds evidence of a periodic 18.6-year drought associated with the lunar nodal tidal cycle in western North America over the past 1,000 years.

Much has been written on the influence and cycles of Pacific Ocean sea surface temperature and its influence on climate. Cook *et al.* (1992) found some evidence for periodicity in the 3- to 7-year range of the El Nino-Southern Oscillation. Guyette *et al.* (1982) found matching variance peaks at 6.6 years in both an Ozark Palmer Drought Severity Index and ring-width chronologies in the Ozark Highlands. Cleaveland and Stahle (1992) found evidence for the climatic influence of the Southern Oscillation in tree-ring data from Mexico and the Southern United States. Their spectral analysis indicates a 4-year cycle in tree growth, climate, and the Southern Oscillation.

Another cycle in the climate of the MOFEP region is quasi-biennial oscillation, which is a periodicity in the range of 2.2 to 2.8 years. It is a tendency for dry years to alternate with wet years. This biennial pulse in climate has been detected in many parts of the world in tree-ring and meteorological data. It is linked to feedback mechanisms in the equational atmosphere. Tree-ring evidence indicates that a quasi-biennial pulse occurs in the Ozarks but is not continuous through time (Cook *et al.* 1992, Guyette *et al.* 1982).

Wind is a common, but little studied disturbance factor in Ozark forests, but windthrow ranks along with fire and drought as important disturbance factors. On the MOFEP sites, evidence of both recent and ancient windthrow is abundant in newly fallen trees and old tip-up mounds. Rebertus and Meier (1997) find that 74 percent of the gaps in the forests of Courtois Hills are wind related and 90 percent of all gaps were <0.5 ha in area. More gaps occurred on north and east aspects. The uneven-aged structure of an old-growth shortleaf pine stand in the Missouri Ozarks was attributed to regeneration in small gaps created by windthrow (Guyette 1995).

The area affected by tornadoes each year ranges from at least 0.32 km^2 in eastern

regions (Pennsylvania and New York) to over 5 km^2 per 10,000 km^2 per year in some of the Midwestern States (Jamison 1978). Estimates of the actual frequency of tornadoes may be two or three times less than the number of tornadoes reported in Missouri because of demographic factors that influence reporting frequency. The frequency of tornadoes is greater in areas with more east-west slopes than north-south slopes. A tornado hit Paint Rock Bluff near the MOFEP sites in 1988 and ripped small, old (350+ years) eastern redcedar trees from the bluff face.

Straight-line extreme wind gusts from thunderstorms are much more frequent than extreme winds from tornadoes. A 100 mph gust of wind is 10 times more likely to occur from a thunderstorm than from a tornado (Akyuz 1994). The exceedence probability of a 100 mph wind (Kansas City) from a thunderstorm is about 0.001.

Other factors aside from wind speed can greatly affect windthrow such as tree species, soil depth, soil moisture, bedrock characteristics, and tree exposure. These all vary greatly on the MOFEP sites. Rebertus and Meier (1997), in their list of gapmaking species under the present day forest conditions of the MOFEP sites, found that some oak species (*Quercus alba* and *Q. coccinea*) were the most frequent gapmakers followed by shortleaf pine. Shortleaf pine may be more susceptible to windthrow than other species because of its shallow rooting habit, growth on thin rocky soils, height, spacing, and dominant canopy position.

LITERATURE CITED

Akyuz, F.A. 1994. Thunderstorm peak gust estimation for structural engineering design. Columbia, MO: University of Missouri-Columbia. 84 p. Ph.D. dissertation.

Bailey, G.A. 1973. Changes in Osage Social Organization 1673-1906. University of Oregon Anthropological Papers No. 5.

Baird, W.D. 1980. The Quapaw Indians: a history of the downstream people. Norman, OK: University of Oklahoma Press. 290 p.

Baldwin, J.L. 1973. Climates of the United States. Washington, DC: U.S. Department of Commerce, NOAA, Environmental Data Service. 113 p.

Banks, A. 1978. Indians of the upper Current River. Eminence, MO: Alan Banks. 87 p.

Batek, M.J.; Rebertus, A.J.; Schroeder, W.A.; Haithcoat, T.L.; Compas, E.; Guyette, R.P. 1999. Reconstruction of early nineteenth century vegetation and fire regimes in the Missouri Ozarks. Journal of Biogeography. 26: 397-412.

Brazelton, A.N. 1935. Family life of the Osage Indians previous to 1872. Columbia, MO: University of Missouri-Columbia. 106 p. M.S. thesis.

Bruhn, J.N.; Brenneman, J.A.; Wetteroff, J.J., Jr.; Mihail, J.D.; Leininger, T.D. 1997. Spatial patterns of *Armillaria* populations in the Walker Branch Watershed Throughfall Displacement Experiment, Tennessee, USA. In: Pallardy, S.G.; Cecich, R.A.; Garrett, H.G.; Johnson, P.S., eds. Proceedings 11th Central hardwood forest conference; 1997 March 23-26; Columbia, MO. Gen. Tech. Rep. NC-188. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 49-57.

Chapman, C.H.; Chapman, E.F. 1972. Indians and archeology of Missouri. Columbia, MO: University of Missouri Press. 161 p.

Chandler, C.; Cheney, P.; Thomas, P.; Traband, L.; Williams, D. 1983. Fire in forestry. Vol. I: Forest fire behavior and effects. New York, NY: Wiley-Interscience. 450 p.

Cleaveland, M.K.; Stahle, D.W. 1996. Variability of hydrologic drought in the Ozark Highlands, 1680-1980. In: Dean, J.S.; Meko, D.M.; Swetnam, T.W., eds. Tree rings, environment, and humanity. Radiocarbon: 43-50.

Cleaveland, M.K.; Stahle, D.W. 1992. Secular variability of the Southern Oscillation detected in tree-ring data from Mexico and the southern United States. In: Diaz, H.F.; Markgraf, V., eds. El Nino: historical and paleoclimatic aspects of the Southern Oscillation. Cambridge, UK: Cambridge University Press: 271-291.

Cook, E.R.; Meko, D.M.; Stockton, C.W. 1997. A new assessment of possible solar and lunar forcing of the bi-decadal drought rhythm in the Western United States. Journal of Climate. 10(6): 1343-1356.

Cook, E.R.; Stahle, D.W.; Cleaveland, M.K. 1992. Dendroclimatic evidence from eastern North America. In: Bradley, R.S.; Jones, P.D., eds. Climate since A.D. 1500. New York, NY: Routledge. 706 p.

Cunningham, R.J.; Hauser, C. 1989. The decline of the Ozark Forest between 1880 and 1920. In: Waldrop, T.A., ed. Proceedings of pine-hardwood mixtures: a symposium on the management and ecology of the type. Atlanta, GA: [Publisher unknown]: 34-37.

Currie, R.G. 1984. Evidence for 18.6-year lunar nodal drought in western North America during the past millennium. Journal of Geophysiological Research. 89: 1295-1308.

Dew, L.A. 1972. Narrow gauge in the St. Francis Valley. The Bulletin of the National Railway Historical Society. 37(1): 6-12.

Dey, D.C.; Guyette, R.P. 1996a. Early fire history near Papineau Lake, Ontario. For. Res. Note 54. Sault Ste. Marie, ON: Ontario Forest Research Institute. 4 p.

Dey, D.C.; Guyette, R.P. 1996b. Fire history near an historic travel corridor in Ontario. For. Res. Rep. 140. Sault Ste. Marie, ON: Ontario Forest Research Institute. 9 p.

DeVivo, M.S. 1991. Indian use of fire and land clearance in the Southern Appalachians. In: Fire and the environment, ecological and cultural perspectives. Gen. Tech. Rep. SE-69. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Research Station: 306-310.

Dobyns, H.F. 1983. Their number become thinned. Knoxville, TN: University of Tennessee Press. 378 p.

Ellinghouse, C.R. 1978. Old Reynolds. Reynolds County Courier, P.O. Box 130, Ellington, MO 63638. 406 p.

Ellington Press. 1905. Advertisement and time table for the Missouri Southern Railroad.

Estes, E.T. 1970. Dendrochronology of black oak (*Quercus velutina* Lam.), white oak (*Quercus alba* L.), and shortleaf pine (*Pinus echinata* Mill.) in the central Mississippi Valley. Ecological Monographs. 40(3): 295-316.

Gerlach, R.L. 1986. Settlement patterns in Missouri. Columbia, MO: University of Missouri Press. 88 p.

Gilbert, J. 1996. The trail of tears across Missouri. Columbia, MO: University of Missouri Press. 122 p.

Grant, H.R. 1970. Missouri Southern: history of a shortline. Bull. 123. Columbia, MO: The Bulletin of the Railway and Locomotive Historical Society: 44-51.

Guyette, R.P. 1994. A dendrochemical perspective on the effects of climate change in the Ozark Highlands. In: Beniston, M., ed. Mountain environments in changing climates. London, UK: Routledge Publishing Co.: 259-269.

Guyette, R.P. 1995. A tree-ring history of wildland fire in the Current River watrershed. Columbia, MO: Missouri Department of Conservation Report. 74 p.

Guyette, R.P.; Cutter, B.E. 1994. Barium and manganese trends in tree-rings as monitors of sulfate deposition. Journal of Water, Air, and Soil Pollution. 73: 213-223.

Guyette, R.P.; Cutter, B.E. 1995. Water-use efficiency as monitored by dendrochemistry. In: Lewis, T.E., ed. Tree rings as indicators of ecosystem health. Boca Raton, FL: CRC Press: 95-122.

Guyette, R.P.; Cutter, B.E. 1997. Fire history, population, and calcium cycling in the Current River watershed. In: Pallardy, S.G.; Cecich, R.A.; Garrett, H.G.; Johnson, P.S., eds. Proceedings, 11th Central hardwood forest conference; 1997 March 23-26; Columbia, MO. Gen. Tech. Rep. NC-188. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 354-372.

Guyette, R.P.; Dey, D.C. 1995a. A dendrochronological fire history of Opeongo Lookout in Algonquin Park, Ontario. For. Res. Rep. 134. Sault Ste. Marie, ON: Ontario Forest Research Institute. 4 p.

Guyette, R.P.; Dey, D.C. 1995b. Determining fire history from old white pine stumps in an oak-pine forest in Bracebridge, Ontario. For. Res. Rep. 133. Sault Ste. Marie, ON: Ontario Forest Research Institute.

Guyette, R.P.; Dey, D. 1997a. Fire history of Huckleberry Hollow. For. Res. Pap. 1. Jefferson City, MO: Missouri Department of Conservation.

Guyette, R.P.; Dey, D. 1997b. Historic shortleaf pine abundance and fire frequency in a mixed oak - pine forest (MOFEP Sites 8). In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 136-149.

Guyette, R.P.; Rabeni, C.F. 1995. Climate response among growth increments of fish and trees. Oecologia. 104: 272-279.

Guyette, R.P.; Cutter, B.E.; Henderson, G.S. 1989. Long-term changes in molybdenum and sulfur concentrations in redcedar treerings. Journal of Environmental Quality. 18: 385-389.

Guyette, R.P.; Cutter, B.E.; Henderson, G.S. 1991. Long-term correlations between mining activity and levels of lead and cadmium in tree rings of redcedar. Journal of Environmental Quality. 20: 146-150.

Guyette, R.P.; Cutter, B.E.; Henderson, G.S. 1992a. Inorganic concentrations in the wood of eastern redcedar grown on different sites. Wood and Fiber Science. 24: 133-140.

Guyette, R.P.; Cutter, B.E.; Henderson, G.S. 1992b. Reconstructing soil pH from manganese concentrations in tree rings. Forest Science. 38: 727-737.

Guyette, R.P.; McGinnes, E.A., Jr.; LeDuc, S. 1982. Climatic history in the Ozark region as reconstructed from the tree rings of eastern redcedar and white oak. In: McGinnes, E.A., Jr., ed. Proceedings of the cedar glade symposium. Occas. Pap. 7. Columbia, MO: Missouri Academy of Science: 80-111.

Guyette, R.P.; McGinnes, E.A., Jr.; Probasco, G.E.; Evans, K.E. 1980. A climate history of Boone County, Missouri, from tree-ring analysis of eastern redcedar. Wood and Fiber. 12: 17-29.

Hill, L.G. 1949. History of the Missouri Lumber and Mining Company 1880-1909. Columbia, MO: University of Missouri. 289 p. Ph.D. dissertation.

Howard, J.H. 1981. Shawnee, the ceremonialism of a native Indian tribe and its cultural background. Athens, OH: Ohio University Press. 454 p.

Huddle, J.A.; Pallardy, S.G. 1996a. Effects of long-term annual and periodic burning on tree survival and growth in a Missouri Ozark oak-hickory forest. Forest Ecology and Managment. 82: 1-9.

Huddle, J.A.; Pallardy, S.G. 1996b. Effects of soil and stem base heating on survival, resprouting and gas exchange of *Acer* and *Quercus* seedlings. Tree Physiology. 16: 583-589.

Jamison, S.W. 1978. Subregional variability in Missouri tornado statistics. Columbia, MO: University of Missouri-Columbia. 86 p. M.S. thesis.

Jenkins, M.A.; Pallardy, S.G. 1995. The influence of drought on red oak group species growth and mortality in the Missouri Ozarks. Canadian Journal of Forest Research. 25: 1119-1127.

Jenkins, S.E.; Rebertus, A.J. 1994. Spatial demography of an oak savanna in the Ozarks. In: Fralish, J.S.; Anderson, R.C.; Ebinger, J.E.; Szafoni, R., III, eds. Proceeding of the North American conference on savannas and barrens; 1993 October 15; Normal, IL: Illinois State University: 107-111.

Jenkins, S.E.; Guyette, R.P.; Rebertus, A.J. 1997. Vegetation-site relationships and fire history of a savanna-glade-woodland mosaic in the Ozarks. In: Pallardy, S.G.; Cecich, R.A.; Garrett, H.G.; Johnson, P.S., eds. Proceedings 11th Central hardwood forest conference; 1997 March 23-26; Columbia, MO. Gen. Tech. Rep. NC-188. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 184-201.

Johnson, P.S. 1993. Perspectives on the ecology and silviculture of oak-dominated forests in the Central and Eastern States. Gen. Tech. Rep. NC-153. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 28 p.

Lynott, M.J. 1989. An archeological evaluation of the Gooseneck and Owls Bend sites: Ozark National Scenic Riverways, Southeast Missouri. Occas. Stud. in Anthropol. No. 23. Washington, DC: U.S. Department of the Interior, National Park Service, Midwest Archeological Center.

Marriott, A. 1974. Osage Indians II. New York, NY: Garland Publishing Inc. 270 p.

Mitchell, J.M.; Stockton, C.W.; Meko, D.M. 1979. Evidence of a 22 year rhythm of drought in the Western United States related to the Hale Solar Cycle since the 17th century. In: McCormac, B.M.; Seliga, T.A., eds. Solar terrestrial influences on weather and climate. Reidel Publishing Co. 346 p.

Nelson, J. 1994. Presettlement forests on the 5th Principle Meridian, Missouri Territory. In: Fralish, J.S.; Anderson, R.C.; Ebinger, J.E.; Szafoni, R., III, eds. Proceeding of the North American conference on savannas and barrens; 1993 October 15; Normal, IL: Illinois State University. 407 p.

Nigh, T.A. 1984. Sugar maple in Missouri's oak-hickory forests. Columbia, MO: University of Missouri-Columbia. 191 p. M.S. thesis.

Nigh, T.A.; Pallardy, S.G.; Garrett, H.E. 1985. Sugar maple-environment relationships in the River Hills and Central Ozark Mountains of Missouri. American Midland Naturalist. 114(2): 235-251.

Oakley, G. 1968. The Deserted Village, History of Grandin, Missouri, home of the world's largest lumber producer in 1900. Privately published. 38 p.

O'Brien, M.J. 1996. The story of Missouri archaeology. Columbia, MO: University of Missouri Press. 561 p.

Paulsell, L.K. 1957. Effects of burning on Ozark hardwood timberlands. Res. Bull. 640. Columbia, MO: University of Missouri Agricultural Experiment Station. 24 p.

Price, J.E.; Price, C.R. 1986. Archaeological investigations in the Ozark National Scenic Riverways, Project No. CAR-640. Columbia, MO: Archaeological Survey of Missouri.

Price, J.E.; Price, C.R.; Harris, S.E. 1976. An assessment of the cultural resources of the Fourche Creek Watershed. Columbia, MO: University of Missouri, Southeast Missouri Archaeological Research Facility.

Price, J.E.; Price, C.R.; Saucier, R.; Petula, T. 1983. Archeological investigations in the Ozark National Scenic Riverways, 1981-1982. Rep. 447. Southwest Missouri State University Center for Archeological Research.

Ponder, J. 1989. Grandin, Hunter, West Eminence and the Missouri Lumber and Mining Company. Doniphan, MO: Ponder Books. 145 p.

Ramenofsky, A.F. 1987. Vectors of death: the archaeology of European contact. Albuquerque, NM: University of New Mexico Press. 300 p.

Rebertus, A.J.; Meier, A.J. 1997. Mesoscale gap dynamics in oak-hickory forests of the Missouri Ozarks. Bulletin of the Torrey Botanical Club (manuscript in review).

Record, S.J. 1910. Forest conditions of the Ozark Region of Missouri. Bull. 89. Columbia, MO: University of Missouri, College of Agriculture, Agricultural Experiment Station in co-operation with the U.S. Department of Agriculture, Forest Service. 280 p.

Schoolcraft, H.R. 1821. Journal of a tour into the interior of Missouri and Arkansaw [sic]....performed in the year 1818 and 1819. London: Richard Phillips and Co.

Schroeder, M.J.; Buck, C.C. 1970. Fire weather. Agric. Handb. 360. Washington, DC: U.S. Department of Agriculture, Forest Service. 288 p.

Scowcroft, P.G. 1965. The effects of fire on the hardwood forests of the Missouri Ozarks. Columbia, MO: University of Missouri-Columbia. 126 p. M.S. thesis.

Short, E.J.B. 1934. The culture of the Osage Indians in Missouri. Columbia, MO: University of Missouri-Columbia. 111 p. M.S. thesis.

Shuey, J.A. 1994. Dancing with fire: oak barrens/savanna patch dynamics, management, and the Karner blue butterfly. In: Fralish, J.S.; Anderson, R.C.; Ebinger, J.E.; Szafoni, R., III, eds. Proceeding of the North American conference on savannas and barrens; 1993 October 15; Normal, IL: Illinois State University: 185-189.

Stahle, D.W. 1990. The tree-ring record of false springs in the south central USA. Tucson, AZ: Arizona State University. 272 p. Ph.D. dissertation.

Stevens, D.L., Jr. 1991. A homeland and a hinterland: the Current and Jacks Fork Riverways. Van Buren, MO: Historic Resource Study, Ozark National Riverways, National Park Service. 248 p.

Sutherland, E.K. 1997. History of fire in a southern Ohio second-growth mixed-oak forest. In: Pallardy, S.G.; Cecich, R.A.; Garrett, H.G.; Johnson, P.S., eds. Proceedings 11th Central hardwood forest conference; 1997 March 23-26; Columbia, MO. Gen. Tech. Rep. NC-188. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 172-183.

Swengel, A.B. 1994. Conservation of the prairie-savanna butterfly community. In: Fralish, J.S.; Anderson, R.C.; Ebinger, J.E.; Szafoni, R., III, eds. Proceeding of the North American conference on savannas and barrens; 1993 October 15; Normal, IL: Illinois State University: 133-138.

USDA Forest Service. 1942. Forest land management of Reynolds County, Missouri: a study of that part of Reynolds County outside the Clark National Forest. Study was conducted as a State W.P.A. Project sponsored by the University of Missouri Agricultural Experiment Station. 65 p.

Vance, E.D.; Henderson, G.S.; Blevins, D.G. 1983. Nonsymbiotic nitrogen fixation in an oak-hickory forest following long-term prescribed burning. Soil Science Society of America Journal. 47: 134-137.

Waldman, C. 1985. Atlas of the North American Indian. New York, NY: Facts on File. 276 p.

Walters, M.A. 1992. Soil carbon and nitrogen trends with varied land use histories. Columbia, MO: University of Missouri-Columbia. 93 p. M.S. thesis.

Welsch, T.M. 1972. Periodic fire and runoff and erosion in the Missouri Ozarks. Columbia, MO: University of Missouri-Columbia. 102 p. M.S. thesis.

Weslager, C.A. 1978. The Delaware Indian westward migration. Wallingford, PA: Middle Atlantic Press. 266 p.

Westin, S. 1992. Wildfire in Missouri. Jefferson City, MO: Missouri Department of Conservation. 161 p.

Wetteroff, J.J. 1993. Management and prediction of red oak decline in the Missouri Ozarks. Columbia, MO: University of Missouri-Columbia. 220 p. M.S. thesis.

Whitney, G.G. 1994. From coastal wilderness to fruited plain. New York, NY: Cambridge University Press. 451 p.

Wiegers, R.P. 1985. Osage culture change inferred from contact and trade with the Caddo and the Pawnee. Columbia, MO: University of Missouri-Columbia. 229 p. Ph.D. dissertation.

Wright, H.A.; Bailey, A.W. 1982. Fire ecology: United States and Southern Canada. New York, NY: Wiley-Interscience. 501 p.

Physical Environment of the Missouri Ozark Forest Ecosystem Project Sites

John Kabrick[1], Dennis Meinert[2], Tim Nigh[3], and B.J. Gorlinsky[4]

Abstract.—Summaries of the physical environment of the Missouri Ozark Forest Ecosystem Project (MOFEP) study area are provided at Ecological Section, Subsection, Landtype Association (LTA), Mark Twain National Forest Ecological Landtype (ELT), geolandform, soil map unit, and plot scales. MOFEP occurs within the Current River Hills Subsection of the Ozark Highlands Section. The Current River Hills Subsection encompasses the moderately rolling to steeply dissected hills of the Ozarks and contains oak-hickory and oak-pine forests. MOFEP sites 1-6 and 9 are in the Current River Oak Forest Breaks LTA, which has greater relief, more geologic strata, greater soil variation, and more mesic vegetation than sites 7 and 8, which are in the Current River Oak-Pine Woodland/Forest Hills LTA. Thirteen ELT's, 11 landforms, 3 geologic formations and underlying Pre-Cambrian bedrock, and more than 43 soil map units have been identified within MOFEP sites. This paper provides the geophysical context for interpreting data from the variety of research projects conducted on MOFEP and a framework for integrating results.

In this paper we summarize the physical environment of the Missouri Ozark Forest Ecosystem Project (MOFEP) study area. To provide a spatial context from broad ecological regions to local soil-landform environments, we use the USDA Forest Service - Ecological Classification System (ECS) framework (USDA Forest Service 1993) and local soil investigations. Summaries are provided at Ecological Section, Subsection, Landtype Association (LTA), Ecological Landtype (ELT), geolandform, soil map unit, and plot scales.

The hierarchical nature of the ECS framework is illustrated in table 1. Broad-scale ecoregions and subregions provide a general ecological context for MOFEP based on regional patterns in climate, geomorphology, soil, and vegetation. Local characteristics of landform, geology, associated soils, and vegetation are important for defining the lower, "working levels" in the classification: Landtype Associations, Ecological Landtypes, and Ecological Landtype Phases. These finer scale classifications are key to understanding patterns in environmental characteristics within and among MOFEP study sites.

We summarized broad-scale ecological information at the Section and Subsection levels using existing information compiled by Bailey (1980), McNab *et al.* (1995), and Keys *et al.* (1995). Landscapes (Landtype Associations) that encompass MOFEP were based upon an initial approximation by Nigh (1997). Important landform, geology, and soil characteristics that distinguish MOFEP sites and land units within sites are based upon an intensive MOFEP soil-landscape investigation (Meinert in prep.).

ECOLOGICAL SECTIONS AND SUBSECTIONS OF MOFEP

Ozark Highlands Section

The MOFEP study area is in the Ozark Highlands Section (fig. 1). The Ozark Highlands is an assemblage of maturely dissected, high plateaus; millennia of erosion have created variable topography and relief. High, flat to

[1] Research Forest Ecologist, Missouri Department of Conservation, 1110 S. College Avenue, Columbia, MO 65201.
[2] Soil Scientist, Missouri Department of Natural Resources, 114 W. Euclid, Sullivan, MO 63080.
[3] Ecologist, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.
[4] Forestry GIS Analyst, Missouri Department of Conservation, 1110 S. College Avenue, Columbia, MO 65201.

Table 1.—*National Hierarchical Framework for Ecological Classification (USDA-FS 1993) and application to MOFEP.*

Scale	Ecological units	Map scales	Major differentiating criteria	MOFEP types
Ecoregion	Domain	1:100 Million to 1:30 Million	Continental and Regional Climate Zones Broad Soil and Vegetation Lifeform Patterns	Humid Temperature Domain (2)
	Division			Hot Continental Division (22)
	Province			Moderately Humid Broadleaf Forest Province (222)
Subregion	Section	1:1 Million to 1:125,000	Regional and Subregional Ppt. and Temperature Geomorphology Major Soil Great Groups Potential Vegetation Formations	Ozark Plateau Section (222A)
	Subsection			Current River Hills Subsection (222 Af)
Landscape	Landtype Association (LTA)	1:100,000	Local Climate Landform/Topography Geologic Parent Materials Soil Associations Potential Vegetation Alliances	Current River Oak Forest Breaks Current River Oak-pine Woodland/Forest Hills
Land Unit	Landtype (ELT)	1:24,000	Landform/Topographic Position Geologic Parent Material Soil Series Potential Vegetation Associations	Developed initially by Miller (1981) for Mark Twain National Forest. Refinement of ELT's for MOFEP in process
	Landtype Phase (ELTP)			Being developed for MOFEP

gently rolling plateau remnants are dissected by dendritic and radial drainages. Crystal clear, spring-fed streams have cut deeply into the plateaus, forming moderately rolling hills with local relief of 200-450 ft (50-150 m), but occasionally up to 1,000 ft (300 m). Karst features, including caves, springs, and sinkholes, are common.

Bedrock stratigraphy is composed primarily of Ordovician and Cambrian dolomites and sandstones. Silurian, Devonian, Mississippian, and Pennsylvanian bedrock (limestone, chert, sandstone, shale) are less frequent and are concentrated around the margins of the Ozark Highlands Section. Pre-Cambrian rhyolite, andesite, granite, and gabbro are in the eastern part of the section, forming the highest hills.

Quaternary loess deposits are common on the uplands. Thin deposits on stable landforms overlie hillslope sediments and/or residuum. On steep or unstable landforms, loess has been eroded or incorporated locally into hillslope sediments. Valley bottoms contain Quaternary gravel, sand, silt, and clay alluvium.

Soils formed primarily in loess, hillslope sediments, residuum, or gravelly alluvium. Most soils in the section are highly weathered Ultisols and Alfisols with mesic soil temperature and humid soil water regimes (Soil Survey Staff 1996). Soils range from shallow unconsolidated materials over bedrock to very deep, highly weathered soils in hillslope sediments and/or residuum. Bedrock outcrops are common on sideslopes; fragipans are common in many soils throughout the section.

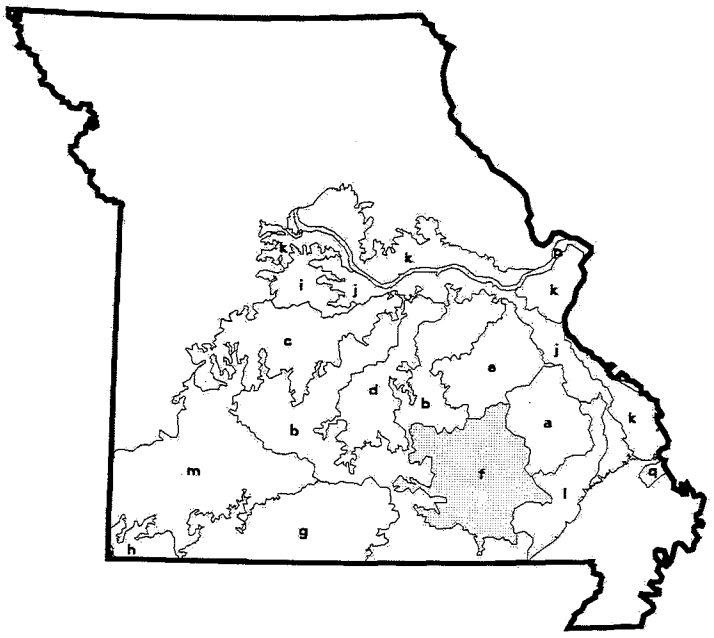
Natural vegetation of the Ozark Highlands consists mainly of oak-hickory and oak-shortleaf pine forests and woodlands, oak savannas, bluestem prairies, and glades. Bottomland and mixed upland hardwood forests occur in large valleys and on adjacent sideslopes. Forests and woodlands were originally common where topography was steeper, while savannas and prairies were on higher, more gently sloping surfaces.

Current River Hills Subsection

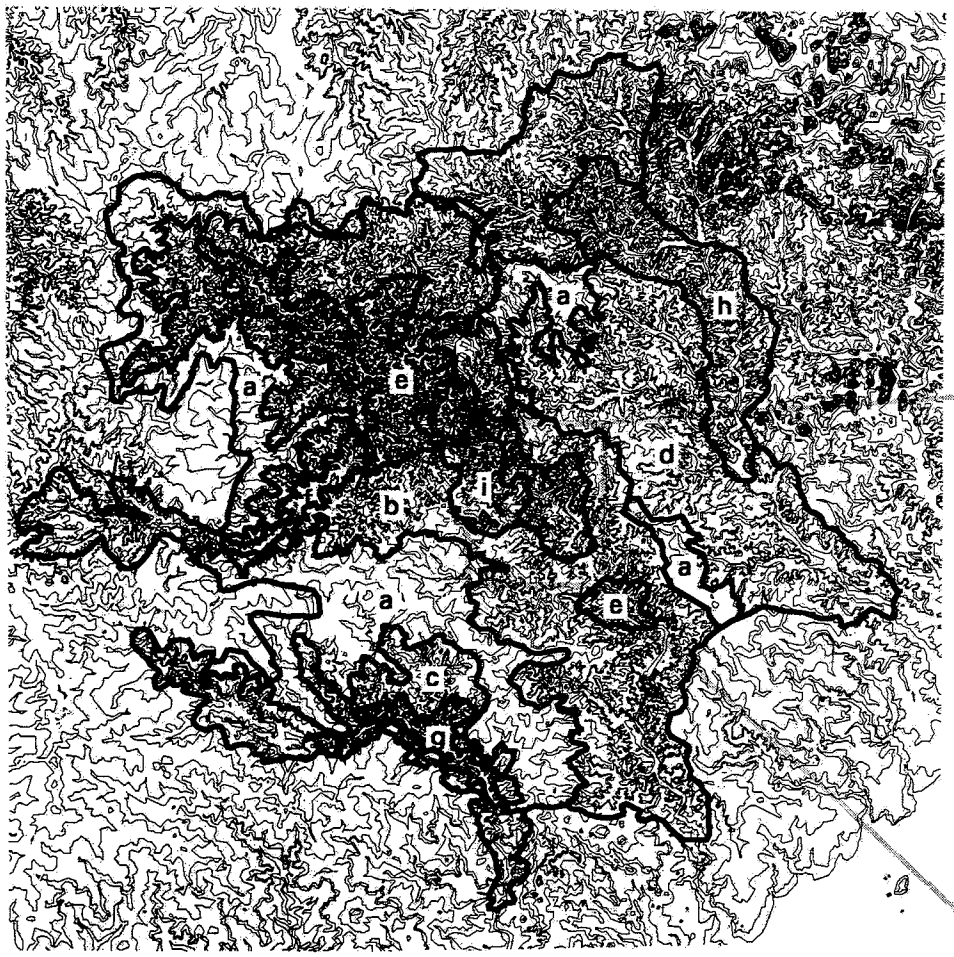
The Ozark Highlands Section (fig. 1) has been divided into 17 ecological subsections (Keys *et al.* 1995), based mainly on variations in relief, geologic parent materials, soils, and vegetation pattern. The MOFEP study area is in the center of the Current River Hills Subsection. This subsection includes the moderately rolling to steeply dissected hills associated with the Current, Eleven Point, and Black Rivers in the eastern Missouri Ozarks. Broad to narrow ridges give way to moderate and steeply sloping sideslopes and narrow, sinuous valley bottoms. Local relief ranges from 150 to over 450 ft (50-150 m). High, sheer, rock cliffs are common along rivers.

A. Ozark Highlands Subsections

a. St. Francis Knobs and Basins
b. Central Plateau
c. Osage River Hills
d. Gasconade River Hills
e. Meramec River Hills
f. Current River Hills
g. White River Hills
h. Elk River Hills
i. Prairie Ozark Border
j. Inner Ozark Border
k. Outer Ozark Border
l. Black River Ozark Border
m. Springfield Plain
n. Springfield Plateau
o. Mississippi River Alluvial Plain
p. Missouri River Alluvial
q. Illinois Ozarks



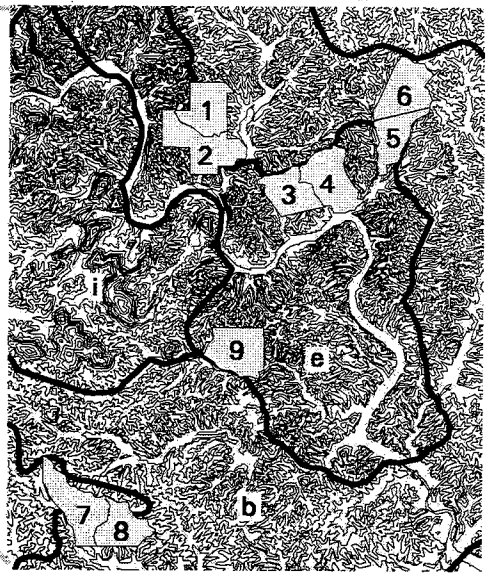
B. Landtype Associations in the Current River Hills Subsection



Landtype Associations

a. Current-Eleven Point Pine-Oak Woodland Dissected Plain
b. Current River Oak-Pine Woodland/Forest Hills
c. Eleven Point River Oak-Pine Woodland/Forest Hills
d. Black River Oak-Pine Woodland/Forest Hills
e. Current River Oak Forest Breaks
f. Jacks Fork River Oak-Pine Forest Breaks
g. Eleven Point Oak-Pine Forest Breaks
h. Black River Oak Forest Breaks
i. Eminence Igneous Glade/Oak Forest Knobs

C. Detail - MOFEP Study Sites



miles
0 10 20 30 40

miles
0 1 2 3 4

Figure 1.—*MOFEP study sites shown within ecological subsections and landtype associations.*

Bedrock stratigraphy includes Ordovician sandstone and cherty dolomites from the Roubidoux and Gasconade formations. Areas of Cambrian dolomite from the Eminence and Potosi formations occur nearer the Current and Black Rivers. A relatively small area of Pre-Cambrian igneous knobs occurs in the center of the Current River Valley.

Thin deposits of Quaternary loess are common on flatter, more stable landforms in this subsection. Most of the landscape is mantled in deeply weathered residual materials and hillslope sediments. Valley bottoms contain Quaternary alluvium.

Soils in the region have not been extensively inventoried or studied (Hammer 1997). They appear to be typical of the hilly subsections of the Ozarks. Most upland soils are highly weathered Ultisols and Alfisols, vary in texture and gravel content, range in depth to bedrock, and often contain fragipans. Most bottomland soils are less weathered and have formed in alluvium.

The Current River Hills Subsection is in the center of the largest, contiguous forest block in the Ozark Highlands and in the southern Midwest. Oak-hickory and oak-shortleaf pine are the most common forest types. Local areas of oak and oak-pine woodlands and savannas are on shallower soils and exposed slopes. Occasional glades occur on sideslopes, especially near the rivers. Bottomland and upland mixed hardwood forests are along the streams and adjacent slopes. Cleared pasture is a minor component of the subsection and is associated with bottomland soils and broader, loess-covered ridges.

Landtype Associations in the Current River Hills Subsection

The Current River Hills Subsection has been divided into nine Landtype Associations (LTA's) based on variations in landform, relief, geologic parent materials, soils, and vegetation patterns (fig. 1). The MOFEP study sites are in two of these LTA's - the Current River Oak Forest Breaks and the Current River Oak-Pine Woodland/Forest Hills. Characterization of the landforms, geology, and soil patterns of the MOFEP sites has further defined conditions associated with these LTA's.

The Current River Oak Forest Breaks (Breaks) LTA contains the steepest, most dissected lands near the river. Geologic erosion has incised Roubidoux, Gasconade, and Eminence dolomites, creating distinctive landform, soil, and vegetation patterns. This LTA has narrow ridges and steep sideslopes with 300-450 ft (100-150 m) local relief, narrow sinuous valleys, numerous cliffs, caves, and springs. In contrast, the Current River Oak-Pine Woodland/Forest Hills (Hills) LTA has broad to narrow ridges and moderately steep sideslopes with local relief less than 300 ft (100 m). Valleys are generally broader and less sinuous than in the Breaks LTA. The Roubidoux and Gasconade formations make up most of the geologic parent materials. Both LTA's are mantled by forests of oak and shortleaf pine-oak with occasional glade and woodland openings. The Hills LTA contains more scarlet oak and less white oak than the Breaks LTA. Before turn-of-the-century logging, shortleaf pine was more abundant in the Hills LTA. Today, approximately 15 percent of the Hills LTA is in open pasture.

MOFEP ECOLOGICAL LANDTYPES DERIVED FROM THE MARK TWAIN NATIONAL FOREST DEFINITIONS

Thirteen ecological landtypes defined by Miller (1981) are on MOFEP sites (table 2). Ecological landtypes representing sideslopes (17 and 18) and ridges (11) are the most extensive and collectively occupy 90 percent of the study area (table 3). All ELT's include more than one soil series and range across aspect and slope classes. Initial ELT mapping on MOFEP was conducted with very little soils information and was based primarily on landform and aspect identified on topographic maps and further refined by interpreting aerial photographs. Moreover, landforms used in MOFEP ELT's are broadly defined and may contain one or more geomorphic surface. For example, "ridges" may be subdivided further into summits, shoulders, and shoulder ridges, and "sideslopes" may contain benches. This kind of variation occurring within ELT's defined by Miller (1981) is described in greater detail below.

Table 2.—*Mark Twain National Forest ELT definitions for MOFEP based upon those of Miller (1981)*

ELT	Definition
3	**Landform:** High Flood Plain, Low Terrace; **Aspect:** Neutral; **Percent Slope:** 0-4; **Soil Series:** Ashton, Secesh, Huntington, Gladden, Razort, Elk; **Vegetation Community:** Mesic bottomland forest
5	**Landform:** Upland Waterway; **Aspect:** Neutral; **Percent Slope:** 0-4; **Soil Series:** Midco, Elsah, Cedargap; **Vegetation Community:** Dry bottomland forest
6	**Landform:** Upland Waterway; **Aspect:** Neutral; **Percent Slope:** 0-4; **Soil Series:** Midco, Elsah, Cedargap; **Vegetation Community:** Dry-mesic bottomland forest
7	**Landform:** Toe Slope; **Aspect:** All; **Percent Slope:** 0-14; **Soil Series:** Clairborne, Peridge, Mindale, Viraton, Crider; **Vegetation Community:** Mesic forest
11	**Landform:** Ridge; **Aspect:** Neutral; **Percent Slope:** 0-8; **Soil Series:** Clarksville, Coulstone, Poynor, Doniphan; **Vegetation Community:** Dry chert forest
15	**Landform:** Flat; **Aspect:** Neutral; **Percent Slope:** 0-8; **Soil Series:** Captina, Macedonia, Viraton; **Vegetation Community:** Dry chert forest
17	**Landform:** Side Slope; **Aspect:** South and West; **Percent Slope:** 8-99; **Soil Series:** Clarksville, Coulstone, Poynor, Doniphan, Ocie; **Vegetation Community:** Dry chert forest
18	**Landform:** Side Slope; **Aspect:** North and East; **Percent Slope:** 8-99; **Soil Series:** Clarksville, Coulstone, Poynor, Doniphan, Ocie; **Vegetation Community:** Dry-mesic chert forest, Dry-mesic sand forest
19	**Landform:** Side Slope; **Aspect:** South and West; **Percent Slope:** 8-99; **Soil Series:** Bardley, Opequon, Gatewood; **Vegetation Community:** Glade savanna
20	**Landform:** Side Slope; **Aspect:** North and East; **Percent Slope:** 8-99; **Soil Series:** Bardley, Opequon, Gatewood; **Vegetation Community:** Dry mesic limestone forest
21	**Landform:** Side Slope; **Aspect:** All; **Percent Slope:** 5-99; **Soil Series:** Gasconade, Rockland; **Vegetation Community:** Dolomite glade, Limestone glade
22	**Landform:** Side Slope; **Aspect:** All; **Percent Slope:** 5-99; **Soil Series:** Gasconade, Rockland; **Vegetation Community:** Xeric limestone forest
23	**Landform:** Side Slope; **Aspect:** All; **Percent Slope:** 5-99; **Soil Series:** Gasconade, Rockland; **Vegetation Community:** Dry limestone forest

Table 3.—Area and (percent) of MOFEP sites in hectares by Mark Twain National Forest ELT.

ELT	Site																			
	1		2		3		4		5		6		7		8		9		Totals	
3	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	1	(0.3)	0	(0.0)	1	(<0.1)
5	25	(6.5)	0	(0.0)	12	(3.3)	43	(8.9)	32	(10.1)	13	(2.9)	21	(4.1)	39	(11.4)	31	(6.7)	216	(5.6)
6	0	(0.0)	15	(2.9)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	15	(0.4)
7	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	3	(0.5)	2	(0.6)	6	(1.3)	11	(0.3)
11	66	(17.0)	100	(19.3)	38	(10.4)	65	(13.5)	45	(14.3)	66	(15.0)	88	(17.6)	73	(21.6)	72	(15.5)	613	(16.1)
15	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	28	(5.6)	12	(3.6)	0	(0.0)	40	(1.1)
17	129	(33.1)	230	(44.7)	171	(47.4)	192	(40.0)	101	(32.5)	187	(42.4)	217	(43.2)	120	(35.2)	218	(47.2)	1565	(41.2)
18	169	(43.4)	165	(32.0)	103	(28.6)	146	(30.5)	87	(27.7)	152	(34.4)	137	(27.3)	70	(20.4)	129	(27.9)	1158	(30.4)
19	0	(0.0)	0	(0.0)	4	(1.1)	34	(7.1)	32	(10.1)	19	(4.2)	0	(0.0)	0	(0.0)	0	(0.0)	89	(2.3)
20	0	(0.0)	0	(0.0)	33	(9.2)	0	(0.0)	17	(5.3)	5	(1.1)	0	(0.0)	0	(0.0)	0	(0.0)	55	(1.4)
21	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	1	(0.1)	0	(0.0)	0	(0.0)	1	(<0.1)
22	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	15	(4.3)	0	(0.0)	15	(0.4)
23	0	(0.0)	6	(1.1)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	8	(1.6)	9	(2.6)	6	(1.4)	29	(0.8)
Totals	389		516		361		480		314		442		503		341		462		3808	

LANDFORMS, GEOLOGY, AND SOILS OF THE MOFEP STUDY AREA

A detailed landform, geology, and soil mapping project initiated in the MOFEP study region in July 1994 (Meinert in prep.) revealed that initial ELT's (Miller 1981) were too broadly defined and too coarsely delineated to describe or predict meaningful variations in soil and plant distributions. Meinert's (in prep.) detailed landform, geology, and soil mapping project was used to identify sub-Landtype Association and plot-level characteristics. These will ultimately lead to refined ELT definition and mapping.

Landform, geology, and soil information from MOFEP study sites was collected in two phases. First, key geologic strata, landforms, and slope classes within landforms (collectively referred to as "geolandforms") potentially affecting soil distributions were identified and mapped. The second part of the mapping process identified the range and distribution of important soil properties within each geolandform. Slope and aspect measurements were made, and landforms were noted in the field during mapping. Soil borings were made where necessary to identify soil map unit boundaries. Properties that distinguished soil map units were depth to bedrock, drainage class, texture of horizons, and presence and mineralogical character of residual clays.

The landforms identified in the MOFEP study area are described in table 4. Landforms are important because they locally affect water distribution, soil parent material movement, and consequently, soil development. Landforms relatively high in elevation are sources of subsurface water, nutrients, and eroded sediment in lower landforms. Moreover, the upslope and downslope shape of landforms affects water and sediment movement. Shoulders and shoulder ridges are convex areas high in the landscape that tend to lose both surface water and sediments to backslopes below. Lower backslopes and footslopes are concave and receive water and sediments. Sinkholes occurring on summit landforms are concave and accumulate eroded silty sediments from slightly higher elevations around them. In addition, the shape of a landform along the contour (linear, convex, or concave) also influences the degree of water and sediment movement. For example, water is focused on landforms that are concave across slope (Soil Survey Staff 1993). These surfaces generally accumulate sediment although they can erode during intense flows. Water and sediment are diffused on surfaces that are convex across slope (Soil Survey Staff 1993).

Roubidoux, Gasconade, and Eminence are the geologic formations within the MOFEP study area. These formations and their important members are illustrated in figure 2. The composition of these formations influences the character of the soil parent materials. Strata within these formations affect hillslope sediment textures. Sandier textures are associated with sandstone in the Roubidoux formation and the Gunter member of the Gasconade formation. The lower Gasconade formation contains less chert than the Roubidoux and Upper Gasconade. Residuum from dolomites of all formations is clayey, but the depth to clay and clay mineralogy vary by geologic formation and landform.

Strata within these formations also affect landform shape or occurrence in the MOFEP study region. Mid slope structural benches in the Breaks LTA occur primarily on the Gunter sandstone member because the Gunter is more resistant to weathering than the surrounding strata. The Cryptozoan Reef chert bed of the Upper Gasconade formation controls the occurrence of structural benches in mid slope and low slope positions and the elevation of summits and ridges in high slope positions. Sinkholes are most common in the Roubidoux formation and form where underlying upper Gasconade dolomites partially dissolved, allowing Roubidoux sandstone to collapse into the cavity.

The geologic strata and landforms were used to hierarchically and systematically stratify the landscape. There was considerable variation in soil depths, fragipan occurrence, drainage class, soil family level classification, base saturation, and degree of rock outcropping within each geolandform. Subsequently, important soil characteristics were used to further subdivide geolandforms into soil map units. Forty-three map units were developed for the MOFEP study area to accommodate some of this variation; the more common units are illustrated in figure 3. However, considerable soil variation occurs *within* soil map units and is described in the soil mapping report (Meinert in prep.).

Table 4.—*Landforms in the MOFEP study region*

Landform	Description
Alluvial Fan	A low, outspread mass of loose soil materials and/or rock material, commonly with gentle slopes, shaped like an open fan or a segment of a cone, deposited by a stream at the junction of a narrow drain with a higher order drain.
Backslope	The landscape position that forms the steepest inclined surface and principal element of many hillslopes. Slopes > 20%. Contains sideslope, noseslope, and headslope components.
Bench	A narrow, nearly level to slightly sloping platform breaking the slope continuity. Typically occurs on backslope positions in the Ozarks where underlying bedrock is more resistant to weathering than layers above or below. Slopes 0-20%.
Floodplain	The nearly level plain that borders a stream and is subject to inundation under floodstage conditions. Slopes 0-4%.
Footslope	The landscape position that forms the inner, inclined surface at the base of a hillslope. It is a transition zone, commonly concave in profile. Slopes 0-4%.
Shoulder	The landscape position that forms the upper most inclined surface near the top of a hillslope. It is commonly convex in shape and comprises the transition from summit to backslope. Slopes 8-20%.
Shoulder Ridge	A long, narrow elevation of the land surface, usually sharp crested and convex with steepening sides and forming an extended upland between valleys. Slopes 8-20%.
Sinkhole	A closed depression formed either by solution of the surficial bedrock or by collapse of underlying caves.
Strath Terrace	Erosional surfaces cut into bedrock and thinly mantled with stream deposits.
Summit	The topographically highest hillslope position of a hillslope profile and exhibiting a nearly level surface. Slopes 0-8%.
Terrace	One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream, and representing the dissected remnants of an abandoned floodplain, stream bed, or valley floor produced during a former state of erosion or deposition.

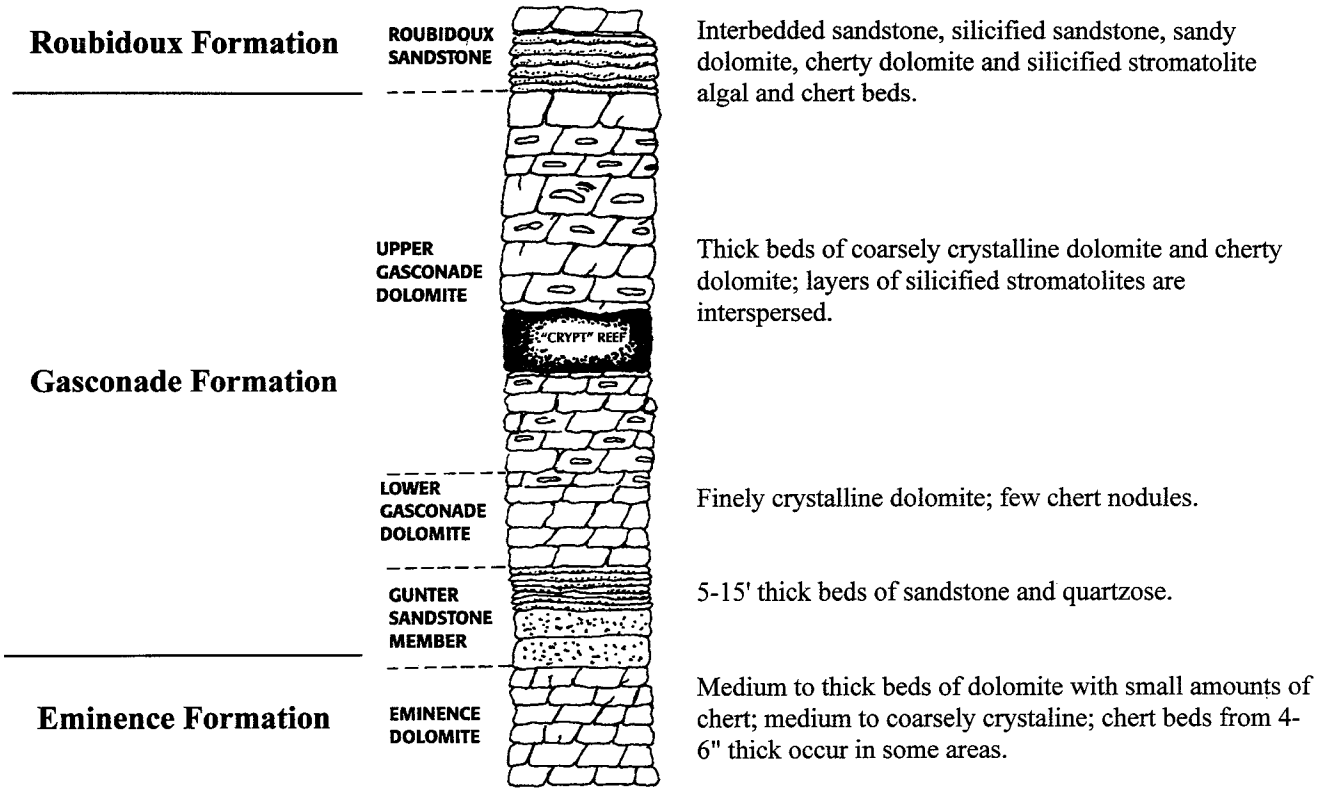


Figure 2.—*Bedrock formations and key members in the MOFEP study region. Pre-Cambrian rhyolite intrusions occur on site 9 but are not shown in this figure.*

One to four backhoe excavations were made in each major soil map unit for detailed soil characterization. Soil excavations were subjectively located within mapping units to represent soil conditions occurring within major map units on MOFEP sites.

Soils were described and sampled by horizons. Samples were sent to the University of Missouri Soil Characterization Laboratory for analysis of particle size distribution, extractable acidity, extractable aluminum, extractable bases, cation exchange capacity, base saturation, organic carbon content, and pH. Laboratory data are summarized by Meinert (in prep.).

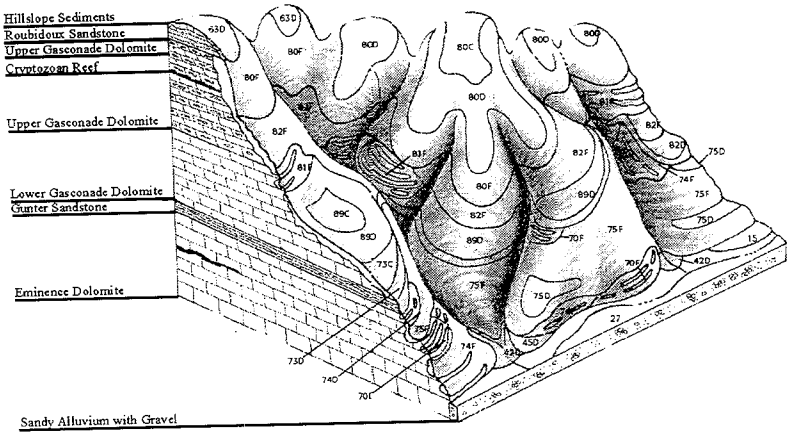
Map units were delineated in the field on aerial photographs, and soil maps were subsequently digitized by Meinert (in prep.) and Missouri Department of Conservation personnel. Soil maps for all MOFEP sites are shown in figure 4.

SOILS AND GEOLANDFORMS OF MOFEP PLOTS

Within each of the 648 MOFEP overstory plots (Brookshire and Hauser 1993, Kabrick *et al.* 1997, Grabner *et al.* 1997), several topographic, geomorphic, geologic, and soil variables were measured (table 5). Average, minimum, and maximum slope and aspect were measured with a clinometer and compass; elevation was estimated from a USGS 7.5' topographic map. The landform was noted. The Mark Twain National Forest definitions (Miller 1981) were used to determine ELT. Meinert (1999) refined the Mark Twain's ELT definitions for MOFEP sites; the refined ELT was also determined at each plot.

A soil pit was excavated by hand in the plot center. Excavation depths typically ranged from 50 to 75 cm; an auger and tile probe were

Current River Oak Forest Breaks



Geology	Landform	Soil Characteristics	Map Unit
Roubidoux	Sinkholes	Very deep soils; moderately well drained; fine-silty to fine-loamy; low base saturation	4
	Summits	Very deep soil with fragipan at 20 to 26"; moderately well to well drained; fine-loamy; low base saturation	61C
	Summits	Moderately to very deep soil with intermittent fragipan; moderately well to well drained; loamy-skeletal/clayey and loamy-skeletal; low base saturation.	63C
	Shoulder/ Shoulder Ridges	Moderately to very deep soil with intermittent fragipan; moderately well to well drained; loamy-skeletal/clayey and loamy-skeletal; low base saturation.	63D
	Backslopes	Moderately to very deep soil with intermittent fragipan; moderately well to well drained; loamy-skeletal/clayey and loamy-skeletal; low base saturation.	63F
Upper Gasconade	Summits	Very deep soil with fragipan at 20 to 26"; moderately well drained; fine-loamy; low base saturation	61C
	Summits	Very deep soil with intermittent fragipan; moderately well to well drained; loamy-skeletal/clayey and loamy-skeletal; low base saturation.	80C
	Shoulder/ Shoulder Ridges	Very deep soil with intermittent fragipan; moderately well to well drained; loamy-skeletal/clayey and loamy-skeletal; low base saturation.	80D
	Backslopes	Very deep soil with few intermittent fragipans on lower side slopes; well drained; loamy-skeletal and loamy-skeletal/clayey; low base saturation.	80F
	Backslopes	Very deep soil with intermittent fragipans; well drained; fine-loamy; low base saturation.	83F
	Benches (Cryp Reef)	Very deep soil with few intermittent fragipans at 20 to 40"; moderately well drained; fine-loamy; low to medium base saturation.	72C, 72D
Lower Gasconade	Shoulder Ridges	Shallow soils, well drained; loamy-skeletal; high base stauration; >50% rock outcrop.	71D
	Shoulder Ridges	Shallow to moderately deep soils; moderately well to well drained; very fine; high base saturation; 10 to 50% rock outcrop.	81D
	Shoulder Ridges	Deep to very deep soils; well drained; loamy-skeletal/clayey and loamy skeletal; low to high base saturation.	82D
	Backslopes	Shallow soils, well drained; loamy-skeletal; high base stauration; >50% rock outcrop.	71F
	Backslopes	Shallow to moderately deep soils; moderately well to well drained; very fine; high base saturation; 10 to 50% rock outcrop.	81F
	Backslopes	Deep to very deep soils; well drained; loamy-skeletal/clayey and loamy skeletal; low to high base saturation.	82F

Figure 3.—*Geolandforms and soil map units by Landtype Association on MOFEP study sites.*

Current River Oak-Pine Woodland/Forest Hills

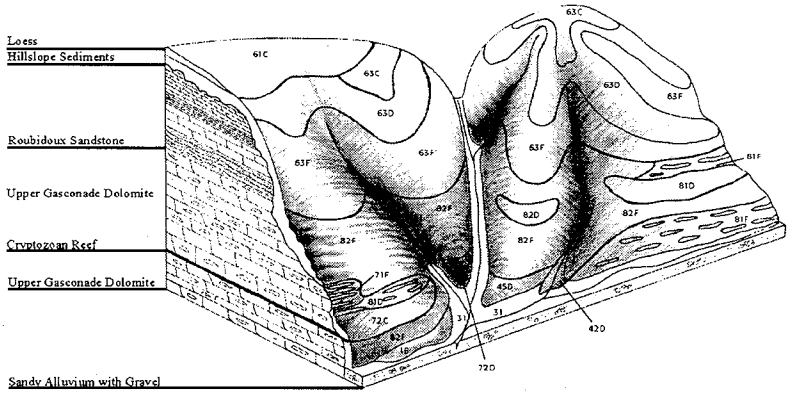


Figure 3. (Continued.)

Geology	Landform	Soil Characteristics	Map Unit
Lower Gasconade (Continued)	Benches	Deep to very deep; moderately well drained; loamy-skeletal/clayey and very-fine; low to high base saturation.	89C
	Benches	Deep to very deep; moderately well drained; loamy-skeletal/clayey and very-fine; low to high base saturation.	89D
	Benches	Very deep soils with intermittent fragipans at 20 to 40"; moderately well drained; fine-loamy; low to medium base saturation.	73C
	Benches	Very deep soils with intermittent fragipans at 20 to 40"; moderately well drained; loamy skeletal and loamy-skeletal/clayey; low to medium base saturation.	73D
Eminence/ Gunter	Shoulder Ridges	Shallow soils; well drained; very fine; high bases; >50% rock outcrop.	70D
	Shoulder Ridges	Shallow to deep soils; well drained; very fine; high base saturation; 10 to 50% rock outcrops	74D
	Shoulder Ridges	Deep to very deep soils; well drained; loamy-skeletal/clayey and loamy skeletal; medium to high base saturation.	75D
	Backslopes	Shallow soils; well drained; loamy-skeletal; high bases; >50% rock outcrop.	70F
	Backslopes	Shallow soils; well drained; very fine; high base saturation; 10 to 50% rock outcrop.	74F
	Backslopes	Deep to very deep soils; well drained; loamy-skeletal/clayey and loamy skeletal; medium to high base saturation	75F
Pre Cambrian	Backslopes	Moderately deep soils; well drained; loamy-skeletal; low base saturation.	95F
Hillslope Sediments	Footslopes	Very deep soils; moderately well drained and well drained; fine-loamy; low base saturation.	45D
Alluvium	Strath Terraces	Very deep soils; moderately well drained; fine-loamy; low to medium base saturation.	41D
	Terraces	Very deep soil; well drained; fine-loamy to loamy-skeletal; medium base saturation.	15
	Terraces	Very deep soils; somewhat excessively drained; loamy-skeletal; coarse-loamy; low to medium base saturation.	18
	Alluvial Fans	Very deep soils; well drained; loamy-skeletal; low to medium base saturadion.	42D
	Floodplains	Very deep soils; excessively well drained; loamy-skeletal; low to medium base saturation.	31
	Floodplains	Very deep soils; well drained; loamy-skeletal; medium base saturation.	27

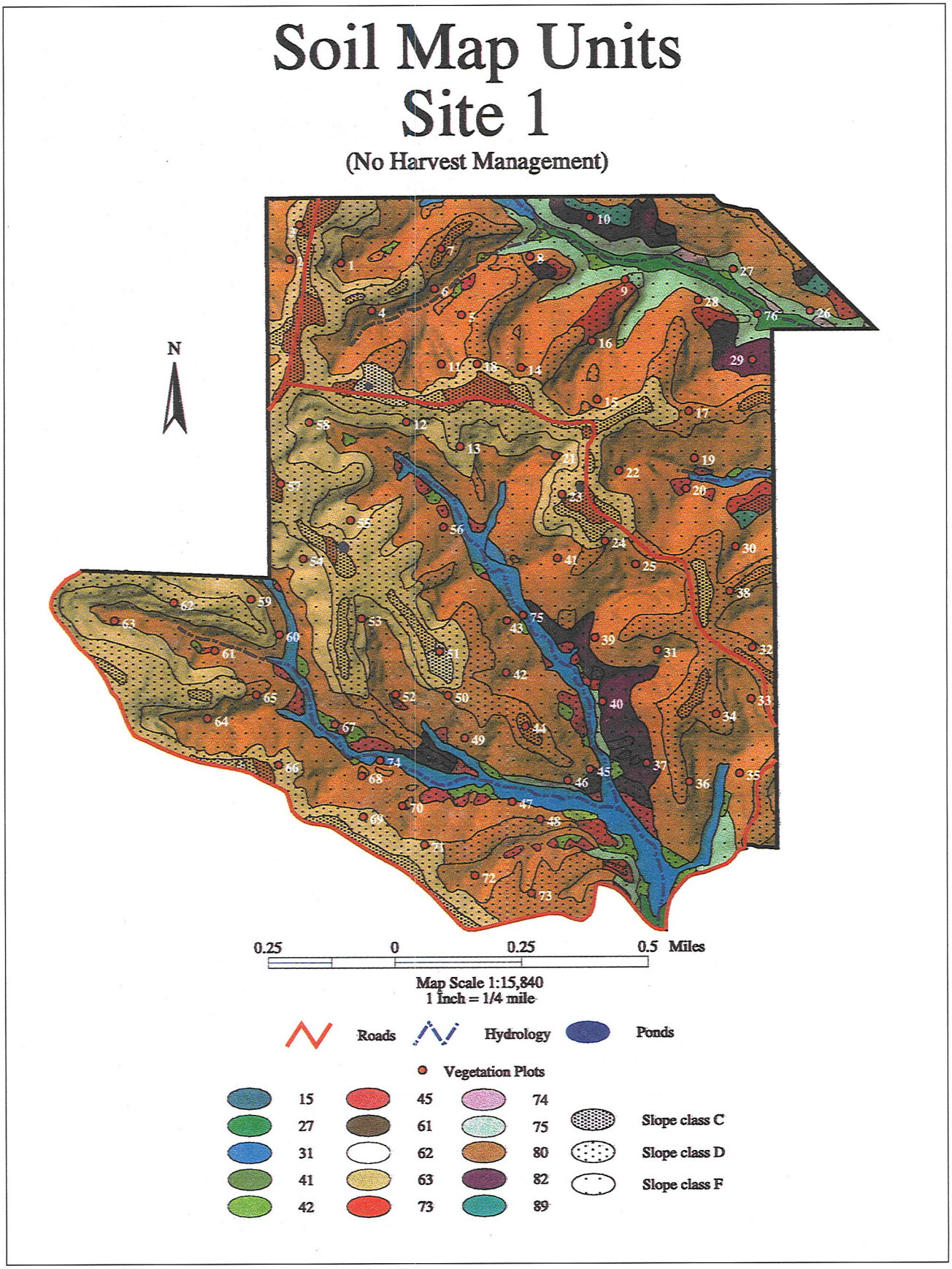


Figure 4A.—*Soil map units on MOFEP site 1. Numbered map units are defined in figure 3.*

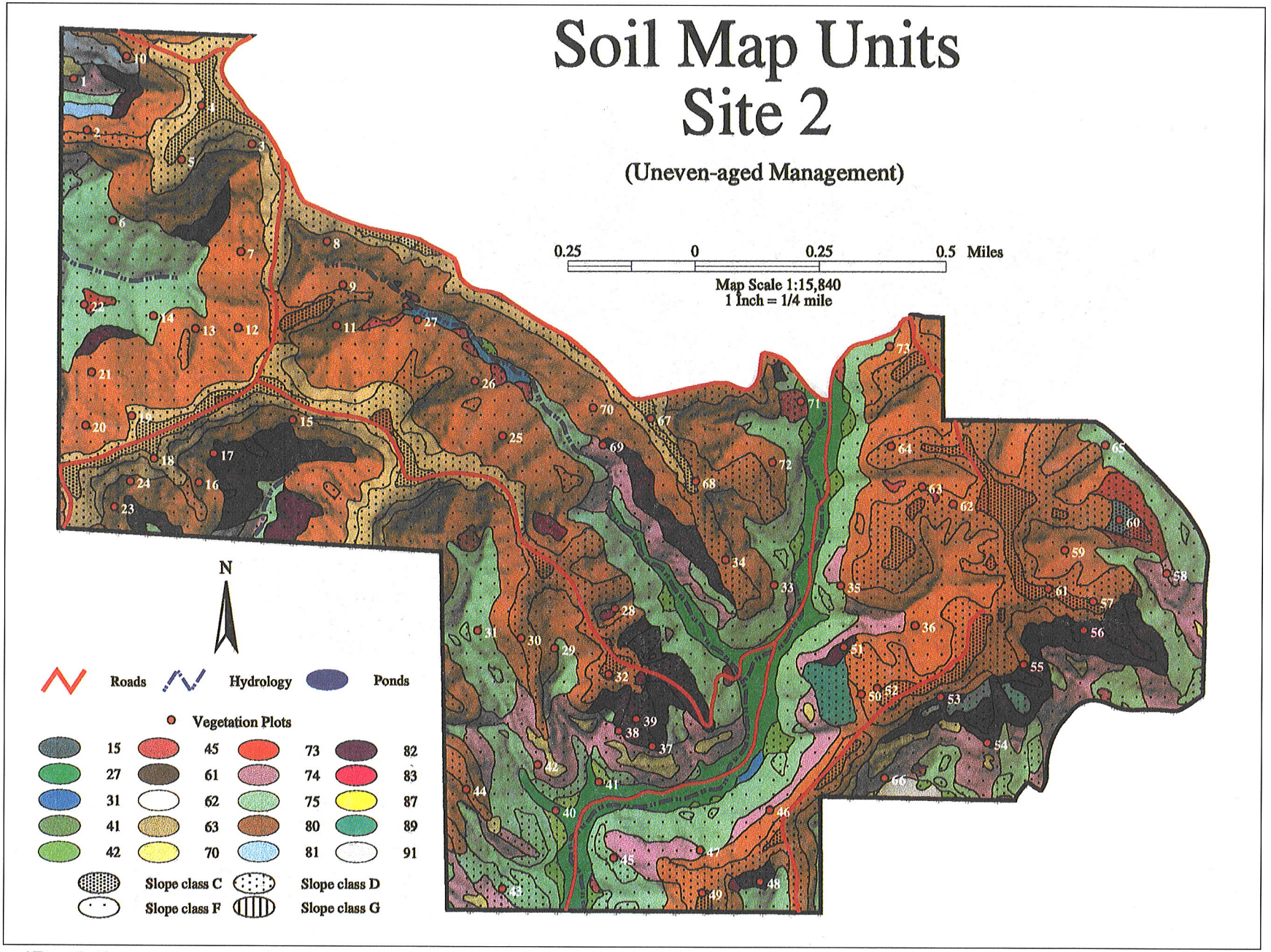


Figure 4B.—*Soil map units on MOFEP site 2. Numbered map units are defined in figure 3.*

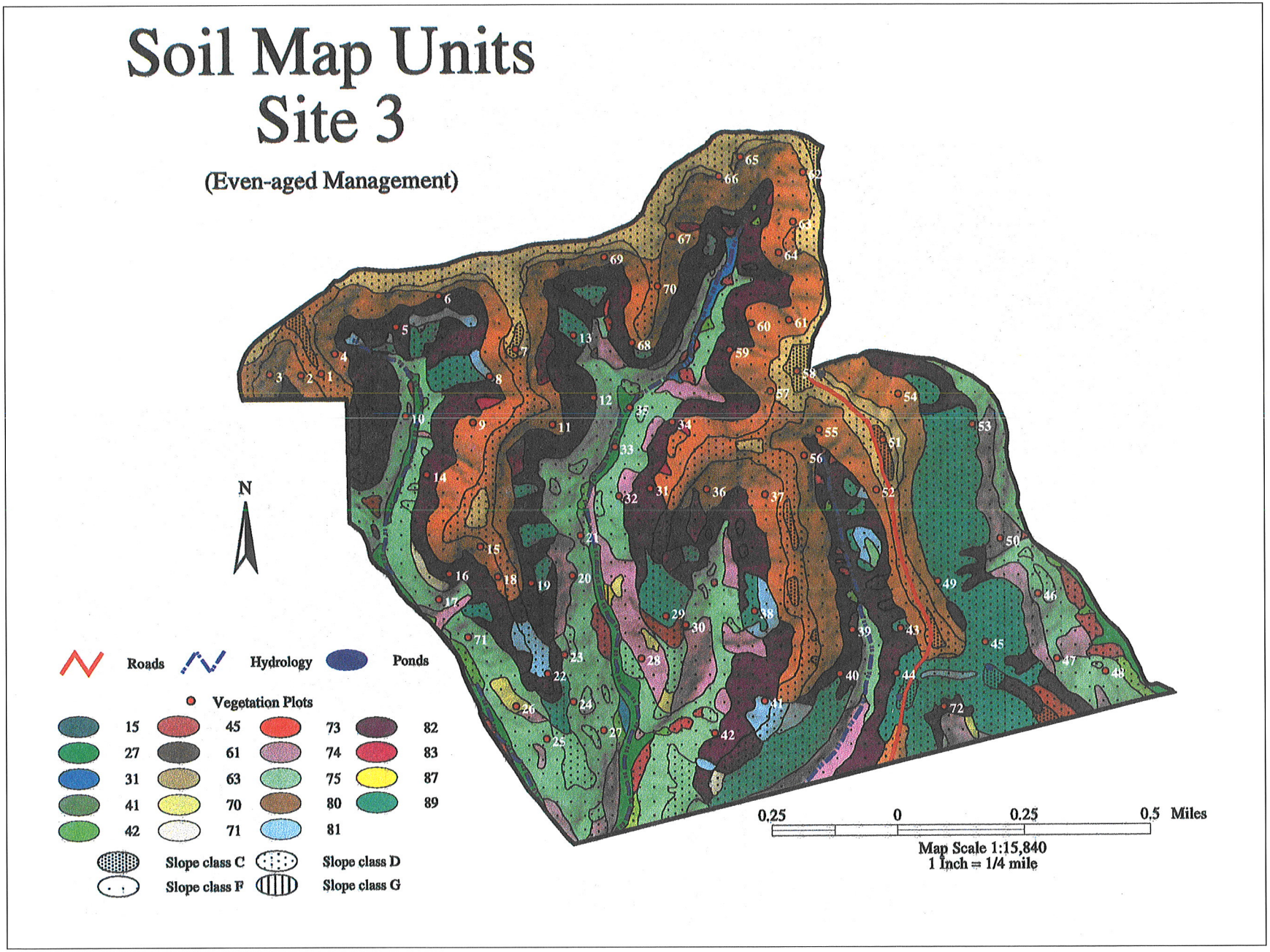


Figure 4C.—*Soil map units on MOFEP site 3. Numbered map units are defined in figure 3.*

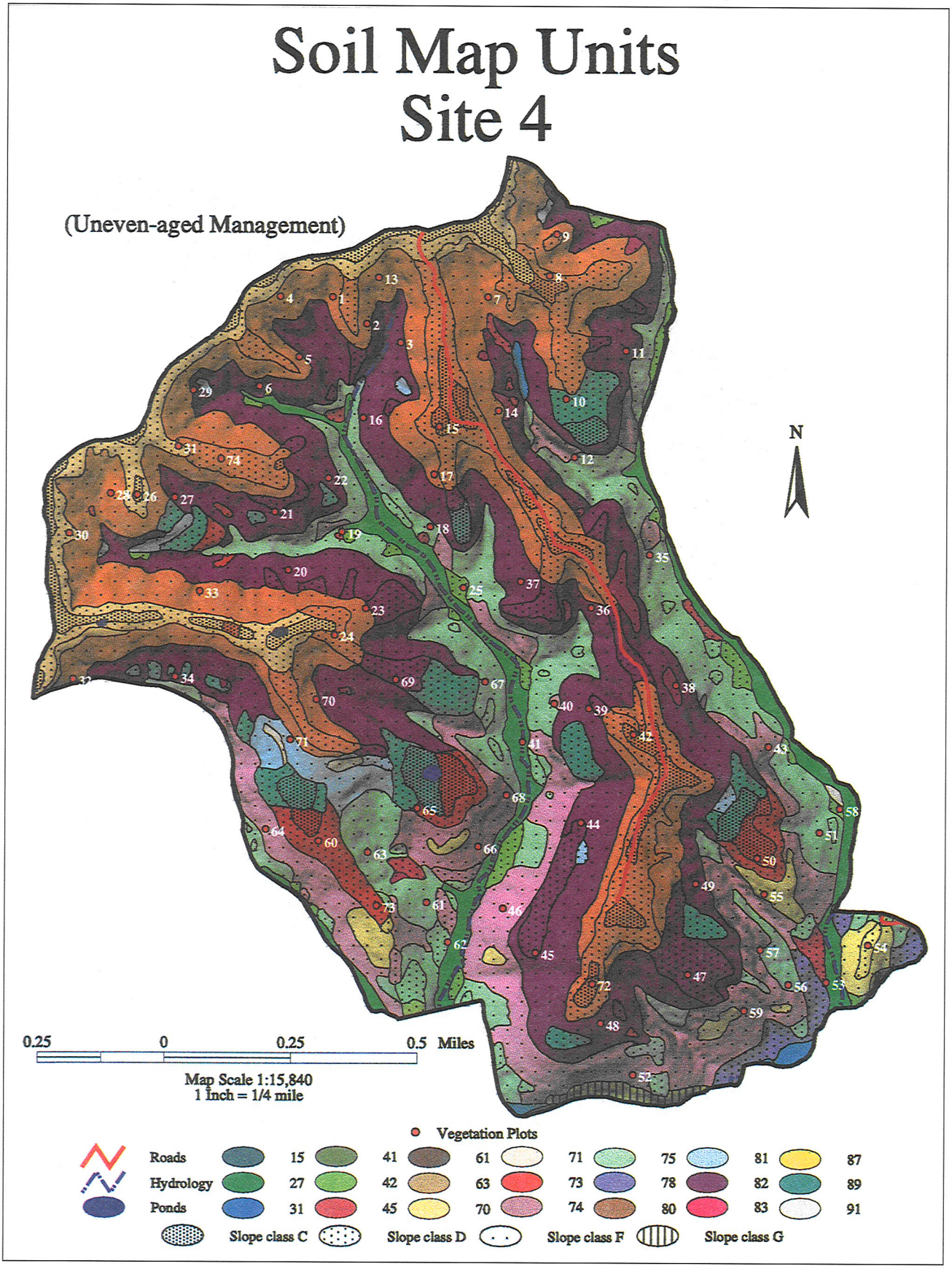


Figure 4D.—*Soil map units on MOFEP site 4. Numbered map units are defined in figure 3.*

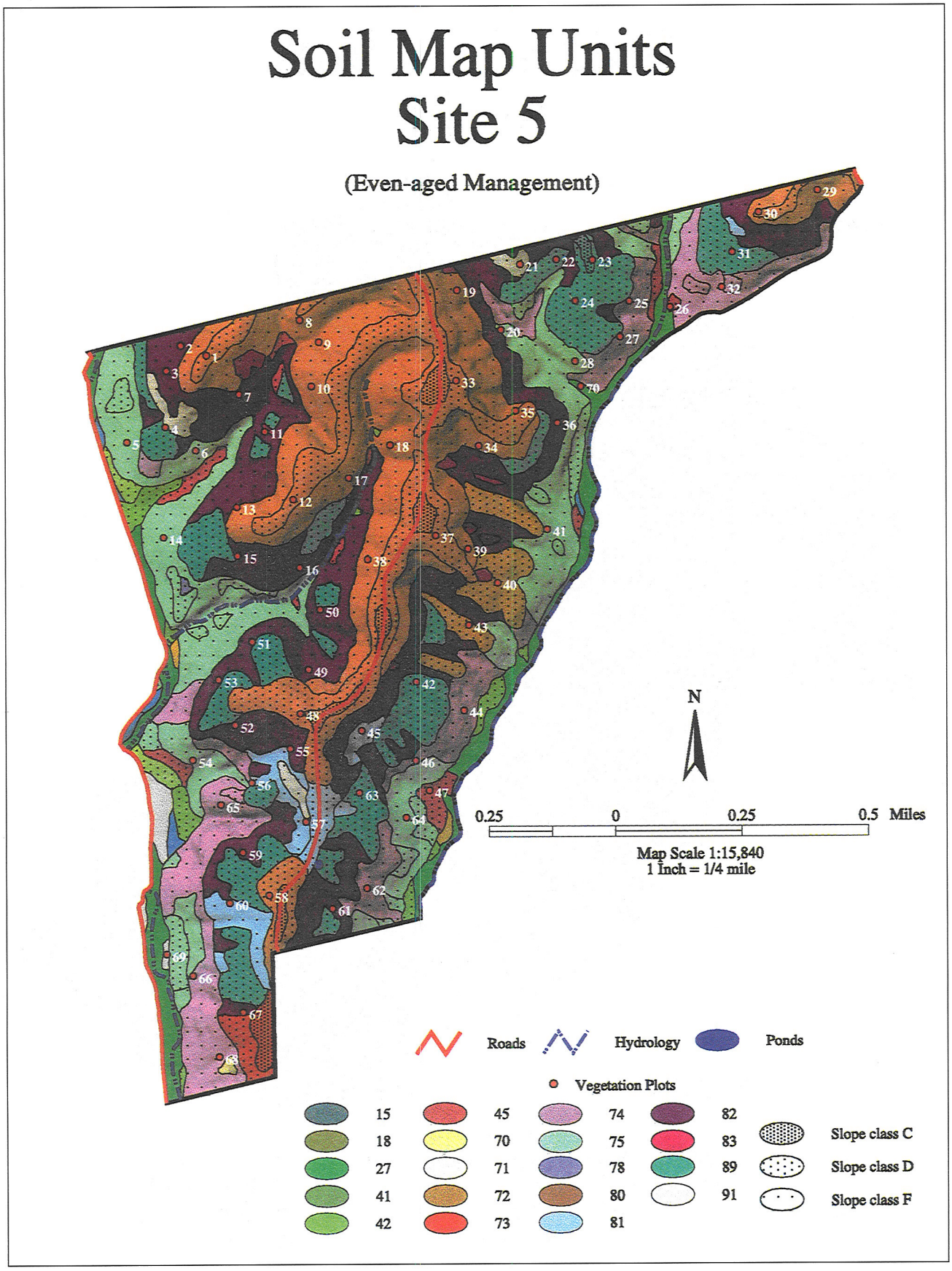


Figure 4E.—*Soil map units on MOFEP site 5. Numbered map units are defined in figure 3.*

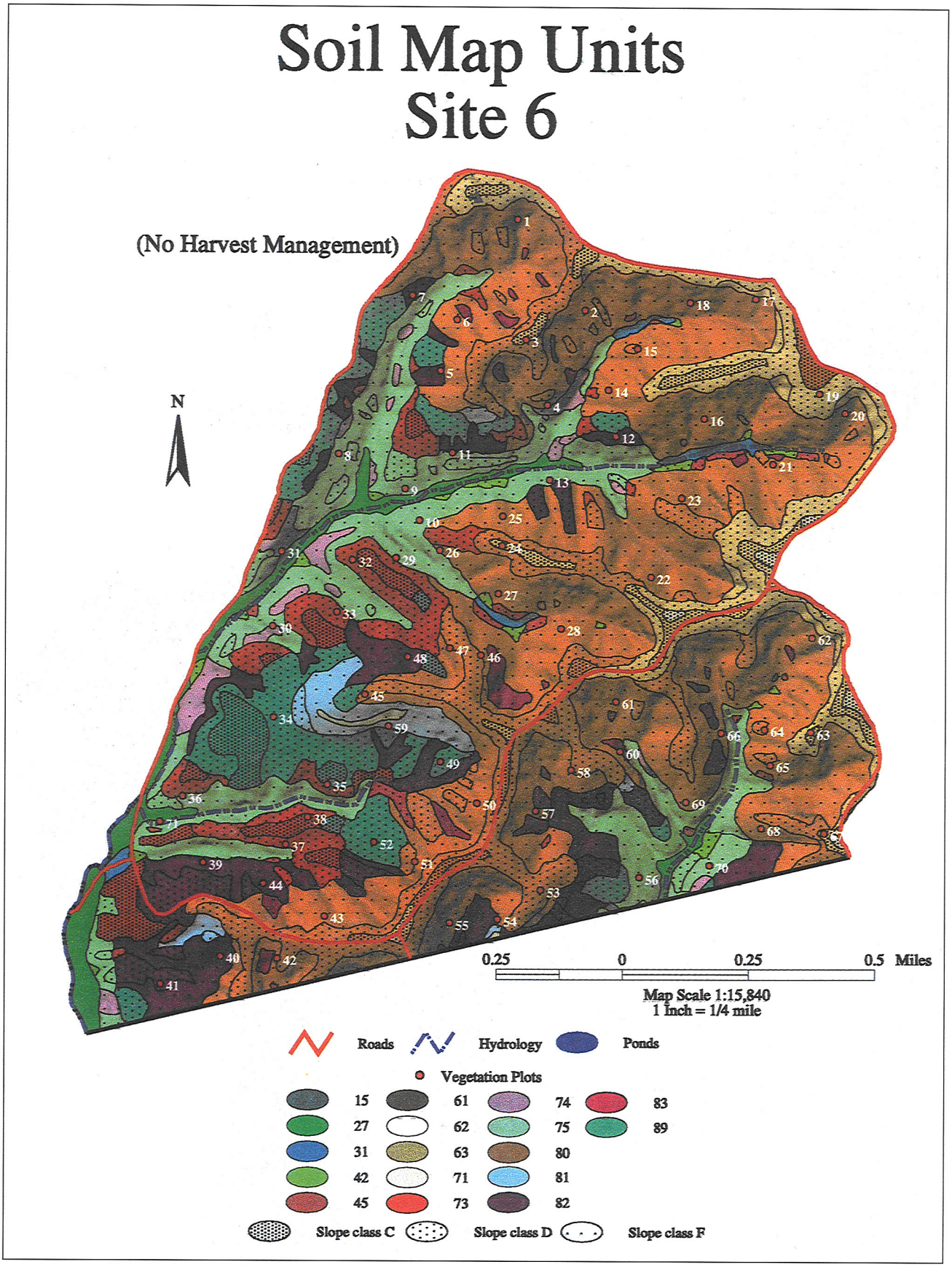


Figure 4F.—*Soil map units on MOFEP site 6. Numbered map units are defined in figure 3.*

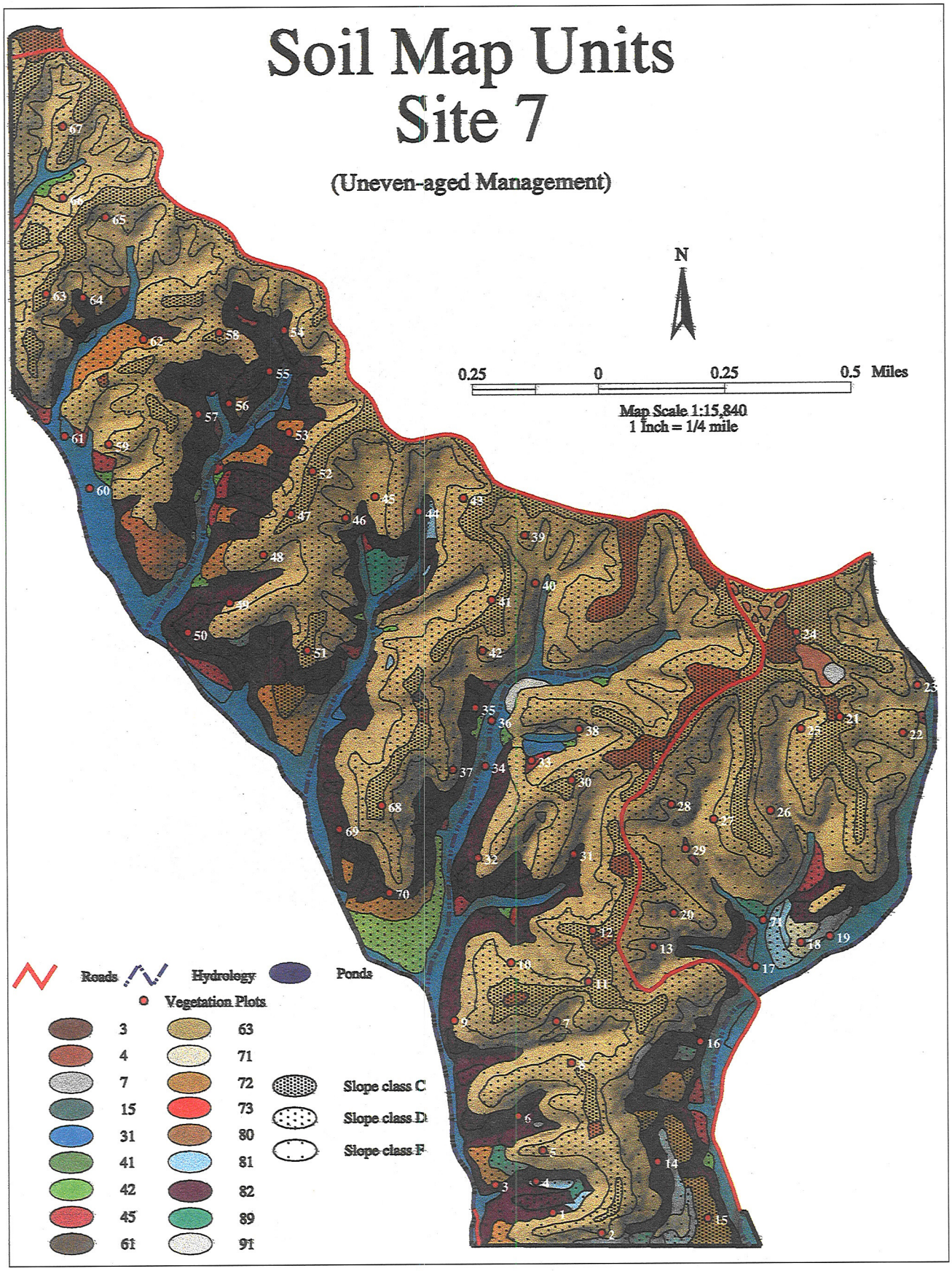


Figure 4G.—*Soil map units on MOFEP site 7. Numbered map units are defined in figure 3.*

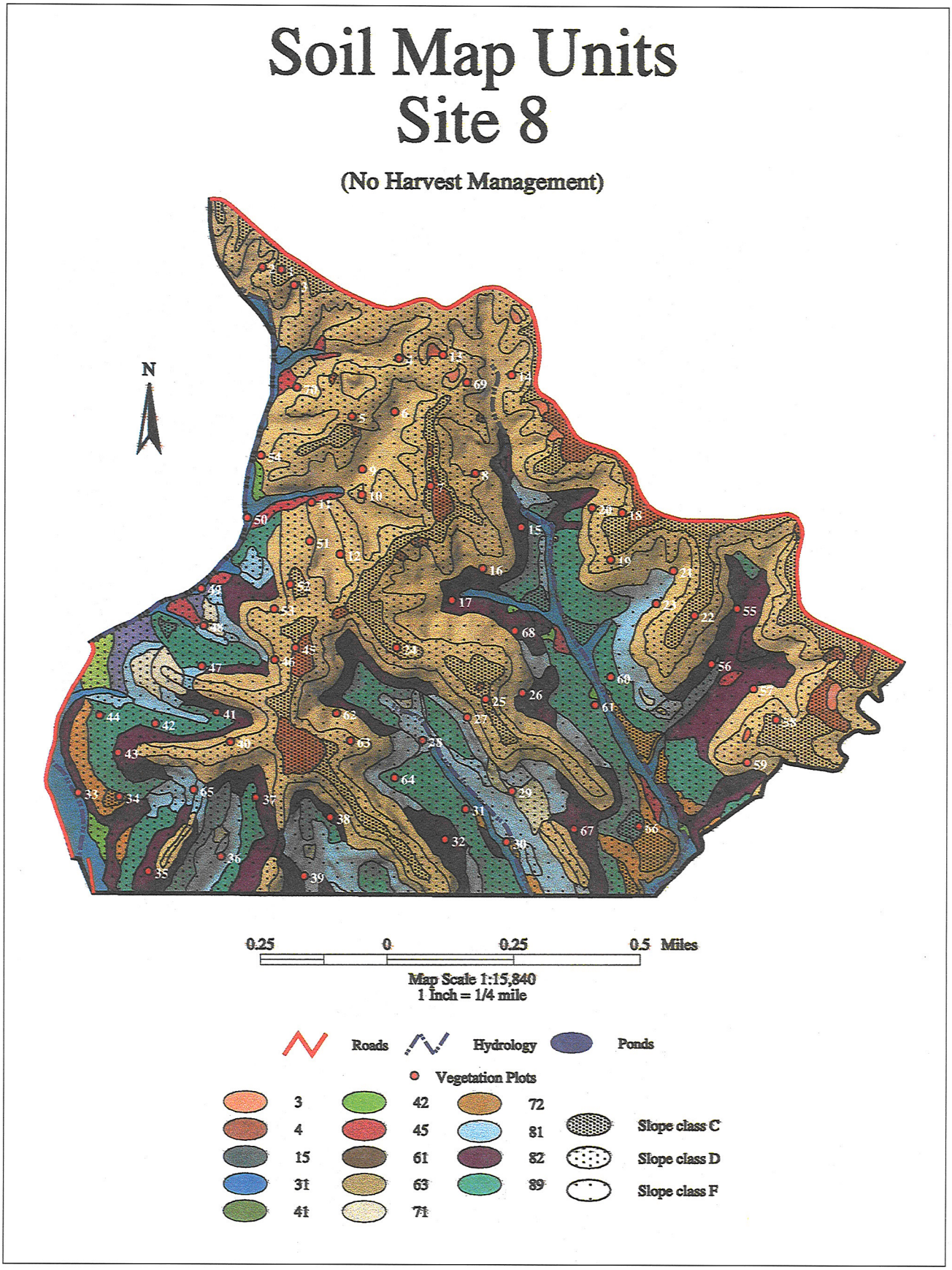


Figure 4H.—*Soil map units on MOFEP site 8. Numbered map units are defined in figure 3.*

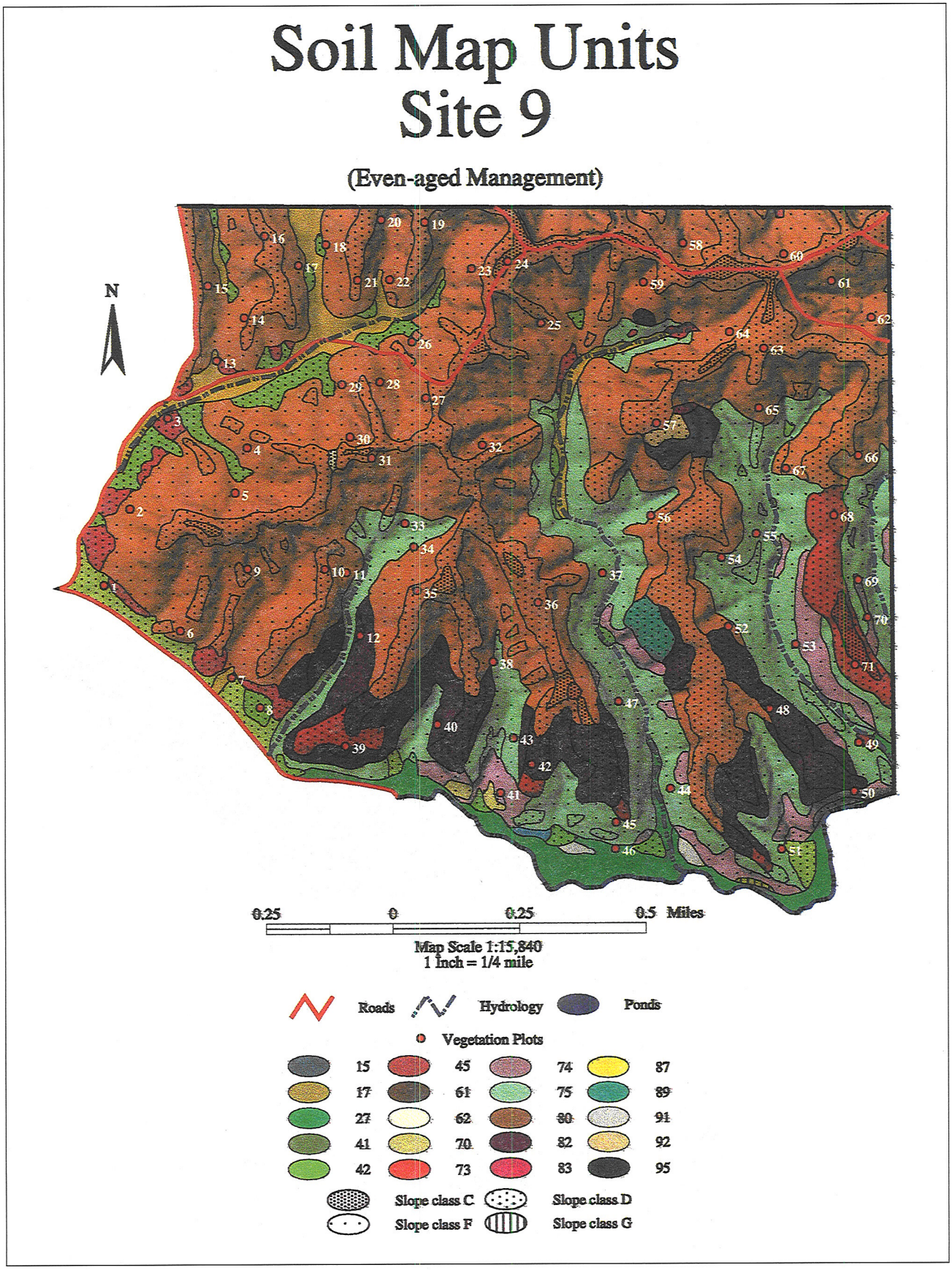


Figure 41.—*Soil map units on MOFEP site 9. Numbered map units are defined in figure 3.*

Table 5.—*Environmental characteristics collected in the 648 vegetation plots on MOFEP sites.*

Variable Code	Description	Explanation
Site	MOFEP site number	Numbers 1-9
Plot	Plot number	Numbers 1-76
Block	MOFEP experimental block designation	Numbers 1-3
Treatment	MOFEP experimental treatment designation	Characters: EVEN-AGE UNEVEN-AGE NO HARVEST
Landtype Association	Landtype association in which plot is located	Character BREAKS Current River Breaks HILLS Current River Hills
Ecological Landtype	Ecological landtype defined by Miller (1981) and modified by Meinert	One to four digit number
Original Ecological Landtype	ELT as defined by Miller (1981) and initially applied to MOFEP sites prior to Meinert's mapping effort	One or two digit number
Geolandform	Combination of geologic strata and landform in which plot occurs. Geologic strata defined in figure 2; Landform positions defined in table 4.	Characters; first two or three characters are geology, remaining two or three characters are landform position: Geology: EM Eminence GE Gunter-Eminence GU Gunter LGA Lower Gasconade PC Precambrian RO Roubidoux UGA Upper Gasconade Landform Positions: AF Alluvial Fan BS Backslope BN Bench FP Floodplain FS Footslope SH Shoulder SHR Shoulder Ridge SK Sinkhole ST Strath Terrace SU Summit TR Terrace
Soil Map Unit	Land unit defined and mapped by Meinert. This unit was primarily identified and mapped by soil characteristics although vegetation was also considered.	Refer to figure 3 for definitions
Slope (%)	Slope at plot center	One or two digit number
Min Slope (%)	Lowest slope within plot	One or two digit number
Max Slope (%)	Highest slope within plot	One or two digit number
Aspect (deg)	Aspect at plot center	One to three digit number
Min Aspect (deg)	Lowest aspect within plot	One to three digit number
Max Aspect (deg)	Highest aspect within plot	One to three digit number
Aspect Class	Aspect class in which plot occurs	Characters EXPOSED 160-249 degrees NEUTRAL-EAST 70-159 degrees NEUTRAL-WEST 250-339 degrees PROTECTED 340-69 degrees
Min Elevation (ft)	Low range of elevation in plot	Three or four digit number (feet above sea level)

(table 5 continued on next page)

(table 5 continued)

Max Elevation (ft)	High range of elevation in plot	Three or four digit number (feet above sea level)
Landform	Landform position on which plot occurs as defined in table 4.	Landform Positions: Alluvial Fan Backslope Bench Floodplain Footslope Shoulder Shoulder Ridge Sinkhole Strath Terrace Summit Terrace
Slope Position	Plot location within backslope landform positions	Characters: UPPER UPPER-MIDDLE MIDDLE LOWER-MIDDLE LOWER
Landform Geometry 1	Represents the shape of the geomorphic position in the upslope and downslope directions	Characters: LINEAR CONVEX CONCAVE STAIRSTEPPED
Landform Geometry 2	Represents the shape of the geomorphic position along the contour	Characters: LINEAR CONVEX CONCAVE CORRUGATED
Geologic Strata 1	Geologic formation within which the plot lies or the upper formation if the plot straddles two more strata (defined in figure 2).	Characters: EMINENCE GUNTER L-GASCONADE (lower Gasconade) PRECAMBRIAN ROUBIDOUX U-GASCONADE (upper Gasconade)
Geologic Strata 2	Second geologic formation for plots straddling geologic boundary. Geologic strata are defined in figure 2.	Characters: EMINENCE GUNTER L-GASCONADE (lower Gasconade) PRECAMBRIAN ROUBIDOUX U-GASCONADE (upper Gasconade)
Geologic Strata 3	Third geologic parent material for plots straddling geologic boundaries. Geologic strata are defined in figure 2.	Characters: EMINENCE GUNTER L-GASCONADE (lower Gasconade) PRECAMBRIAN ROUBIDOUX U-GASCONADE (upper Gasconade)
Surface	Surface mineral soil horizon (usually an A horizon) characteristics; first number is thickness, second is modifier; third is texture class; each separated with a hyphen. Example: 05-2-01, five inches of very gravelly silt loam.	Thickness is in inches Modifier Codes: 0 No Modifier (<15% gravel and/or cobbles) 1 Gravelly (15-35%) 2 Very Gravelly (35-60%) 3 Extremely Gravelly (>60%) 4 Cobbly (15-35%) 5 Very Cobbly (35-60%) 6 Extremely Cobbly (>60%) Texture Class Codes: 01 Silt Loam 02 Loam 03 Silty Clay Loam 04 Clay Loam 05 Silty Clay 06 Clay 07 Sandy Clay 08 Sandy Clay Loam 09 Sandy Loam 10 Loamy Sand 11 Sand 12 Bedrock
Subsurface	Subsurface soil horizon (usually an E horizon) characteristics; first number is thickness, second is modifier; third is texture class; each separated with a hyphen.	
Subsoil	Subsoil horizon (usually a B horizon) characteristics; first number is thickness, second is modifier; third is texture class; each separated with a hyphen.	
Subsoil2	Second subsoil horizon (usually a 2B horizon) in second parent material; also indicates lithologic discontinuity; first number is thickness, second is modifier; third is texture class; each separated with a hyphen.	
Depth to clay	Depth to high concentration of clay	One or two digit number (inches)

(table 5 continued on next page)

(table 5 continued)

Classification	Soil classification according to Soil Taxonomy; classification levels are Family, Subgroup, Great Group, Suborder and Order	Five-digit number; digits correspond to classifications below: Family: 0 Fine-loamy/clayey 1 Coarse-loamy 2 Loamy sand/Clayey 3 Fine-loamy 4 Loamy-skeletal 5 Clayey-skeletal 6 Sandy-skeletal 7 Fine 8 Very Fine 9 Clayey Subgroup 0 Cumulic 1 Typic 2 Aquic 3 Lithic 4 Mollic 5 Fragic 6 Humic 7 Oxyaquic 8 Ultic 9 Umbric Great Group 1 Pale 2 Hapl 3 Frag 4 Ud 5 Dystr 6 Argi 7 Eutro Suborder 1 Udic 2 Aquic 3 Fluv 4 Ochr Order 1 Ultisol 2 Alfisol 3 Mollisol 4 Entisol 5 Inceptisol
Soil Series	Name of the soil series which most closely represents the soil described in the plot	Series name; for official series description, see: http:// www.statlab.iastate.edu/soils/osd/
Variable Depth to Bedrock	Indicates that depth to bedrock in the plot ranges from 0 to >48 inches	TRUE or FALSE (TRUE indicates soil is variable in depth to bedrock)
Rock Outcrop	Type of rock outcrop in plot	0 None in plot 1 Dolomite 2 Sandstone
Outcrop %	Percentage of rock outcrop within plot	0 None in plot 1 <10% 2 10-50% 3 >50%
Slump or slide	The presence of soil slump or slide (mass movement) within plot	TRUE FALSE
Windthrow	Percentage of plot surface area containing windthrow pits and mounds	0 None in plot 1 <2% 2 2-5% 3 5 -10% 4 >10%
Surface Stoniness	Percentage of plot surface area containing stones or boulders	0 < 0.01% 1 0.01-0.1% 2 0.1-3% 3 3-15% 4 15-50% 5 50-90%
Date Measured	Date when plot was sampled	month/day/year
Notes	Abbreviated notes taken at plot. Detailed notes can be obtained from D. Meinert	N/A

used to obtain additional soil information to depths of 120 cm. In locations where bedrock was encountered at depths less than 120 cm, soil information was collected to the depth of bedrock. The surface, subsurface, and subsoil genetic horizons were described. Horizon thicknesses and depths to residual clays were measured to the nearest inch. Texture classes and gravel content were estimated in the field. Soils were classified according to Soil Taxonomy (Soil Survey Staff 1996). Classification was based upon estimated soil characteristics rather than upon laboratory data. Ranges in depths to bedrock were estimated by probing several locations per plot. Percent rock outcrop, windthrow, and stoniness estimates were made by visually inspecting the ground surface within each vegetation plot. It was noted if plots crossed geologic, landform, or soil boundaries. In each plot, characteristics of contrasting soils were recorded when present.

The physical characteristics for all plots are included in Appendix B. Plot distributions by Mark Twain National Forest ELT and by landform, geologic stratigraphy, aspect class, and soil map unit are shown in tables 6 through 10, respectively. Because plots were randomly allocated to stands within sites, numbers of plots per ELT, landform, geologic stratigraphy, aspect class, and soil map unit are roughly proportional to their respective areas. Ecological Landtypes 11, 17, and 18 are the most extensive (table 3) and have the greatest numbers of plots (table 6). Backslopes are the most extensive landform (table 7). The Gasconade formation is the most extensive on sites 1-6 and 9; Roubidoux is more extensive on sites 7 and 8. Consequently, the soils common to backslopes on these formations (63 and 80) are also the most extensive (table 10). Aspect classes (table 9) appear to be equally distributed. Of the 648 MOFEP vegetation plots, only 310 are internally uniform in landform, geology, and soil map unit.

LANDFORM, GEOLOGY, AND SOIL PATTERNS WITHIN LANDTYPE ASSOCIATIONS AND AMONG MOFEP SITES

Landtype Association summaries (Nigh 1997), the detailed soil maps and summaries (Meinert in prep.), and plot data provided opportunities to compare and contrast MOFEP sites by environmental characteristics. As pointed out earlier, MOFEP sites occur within two distinct Landtype Associations: the Current River Oak

Table 6.—*Count of plots by dominant Mark Twain National Forest ELT (Miller 1981) and site*

	Site									
ELT	1	2	3	4	5	6	7	8	9	Total
3	0	0	0	0	0	0	0	0	0	0
5	2	1	2	6	4	1	4	7	3	30
6	1	2	0	0	0	0	0	0	0	3
7	0	0	0	0	0	0	2	1	3	6
11	13	15	7	10	9	6	10	8	12	90
15	0	0	0	0	0	0	2	3	0	5
17	27	31	30	29	26	37	27	19	31	257
18	33	22	22	24	22	25	23	22	21	214
19	0	0	4	5	8	2	0	0	0	19
20	0	0	7	0	1	0	0	0	0	8
21	0	0	0	0	0	0	1	3	0	4
22	0	0	0	0	0	0	0	3	0	3
23	0	2	0	0	0	0	2	4	1	9
Total	76	73	72	74	70	71	71	70	71	648

Table 7.—*Count of plots by landform and site. Refer to table 4 for landform definitions.*

Landform	Site									Total
	1	2	3	4	5	6	7	8	9	
Summit	4	5	3	7	1	4	12	7	4	47
Sinkhole	0	0	0	0	0	0	0	1	0	1
Shoulder	9	8	0	0	2	2	8	6	0	35
Shoulder Ridge	7	7	4	5	6	5	9	2	7	52
Backslope	52	48	55	51	42	51	32	40	49	420
Bench	0	2	8	6	15	7	3	10	4	55
Alluvial Fan	0	0	0	3	0	0	0	0	0	3
Footslope/Strath Terrace	1	1	0	1	2	0	1	1	4	11
Terrace	0	0	0	0	0	0	1	0	0	1
Floodplain	3	2	2	1	2	1	5	3	3	22
Total	76	73	72	74	70	71	71	70	71	648

Table 8.—*Count of plots by geologic formation and members for each site. Refer to figure 2 for definitions of each strata.*

Stratigraphy	Site									Total
	1	2	3	4	5	6	7	8	9	
Roubidoux Formation	24	6	5	2	0	5	51	48	0	141
Gasconade Formation										
Upper Gasconade	46	45	30	22	23	39	20	22	48	295
Lower Gasconade	4	11	22	24	30	17	0	0	10	118
Gunter	1	2	0	5	5	6	0	0	3	22
Eminence Formation	1	9	15	21	12	4	0	0	9	71
Precambrian Formation	0	0	0	0	0	0	0	0	1	1
Total	76	73	72	74	70	71	71	70	71	648

Table 9.—*Count of plots by aspect class and site*

Aspect Class	Site									Total
	1	2	3	4	5	6	7	8	9	
Exposed (160-249^0)	18	16	19	21	18	24	12	14	19	161
Neutral-east (70-159^0)	22	24	24	18	19	12	18	9	16	162
Neutral-west (250-339^0)	8	14	14	9	17	14	15	19	19	129
Protected (340-69^0)	28	19	15	26	16	21	26	28	17	196
Total	76	73	72	74	70	71	71	70	71	648

Forest Breaks LTA (sites 1-6, and 9) and the Current River Oak-Pine Woodland/Forest Hills LTA (sites 7 and 8). Soil mapping efforts revealed distinctive patterns in landforms, geology, and soils between these LTA's and among MOFEP sites (figs. 3 and 4). MOFEP sites 1-6, and 9 are in the Breaks LTA. This LTA is characterized by greater incision into bedrock than in the Hills LTA, largely due to proximity to the Current River. Local relief is 300-450 ft (100-150 m). Narrow, undulating ridges, steep backslopes, and narrow sinuous valleys are typical of landforms in the Breaks LTA. The Roubidoux formation is restricted to the highest summits and ridges. The Gasconade formation makes up most of the secondary ridges and backslopes. Structural benches supported by the Gunter sandstone are common in midslope positions. Lower backslopes are commonly in the Eminence formation. Quaternary loess deposits are confined mainly to isolated summits or broad benches. Roubidoux hillslope sediments mantle narrow ridges. Roubidoux and Upper Gasconade hillslope sediments mantle upper backslopes. Lower backslopes are mantled by Lower Gasconade and Eminence hillslope sediments and/or residuum. Relatively narrow, alluvial floodplains have Quaternary alluvial deposits consisting of gravel, sand, and to a lesser degree silts. While water-losing stretches of stream are common in the Roubidoux and the Upper Gasconade stream reaches, water-gaining streams are common in reaches of the Lower Gasconade and Eminence formations.

Very deep, loamy-skeletal soils with low base saturations in Roubidoux and Upper Gasconade hillslope sediments and residuum are common to ridges and upper backslopes in the Breaks LTA (figs. 3 and 4; map units 63 and 80). Soils with higher base saturations and greater subsoil clay content occur in the Lower Gasconade and Eminence formations (figs. 3 and 4; map units 75 and 82). Variable depth, relatively shallow soils with bedrock outcrops occur frequently within the Breaks LTA, especially in the Lower Gasconade and Eminence formations (figs. 3 and 4; map units 70, 71, 74, and 81). Gunter benches have deep soils with high clay contents and high base saturations on upslope positions (figs. 3 and 4; map unit 89) and lower clay contents and base saturations on downslope positions (figs. 3 and 4; map unit 73). Footslopes, terraces, and floodplains commonly have very deep, colluvial and alluvial soils with textures, drainage classes and base saturations that vary with parent material (figs. 3 and 4; map units 15, 18, 27, 31, 41, 42, and 45).

Sites 7 and 8 are within the Hills LTA, which has less relief (150-250 ft; 50-80 m) and less geologic complexity than the Breaks LTA. Slopes are generally shorter and valley bottoms are wider and less sinuous than in the Breaks. The Roubidoux and Upper Gasconade formations make up all of the Hills landscape. Broad, flat ridges commonly are mantled by Quaternary loess. Narrower ridges and upper backslopes are mantled by weathered Roubidoux hillslope sediments. Middle and lower backslopes are mantled with Upper Gasconade hillslope sediments and/or residuum. The Cryptozoan Reef chert beds form structural benches on the lower slopes or underlie valley bottoms in this LTA. Most stream reaches are water-losing.

Table 10.—*Count of plots by geolandform, soil map unit, and site. Multiple map unit codes were used for plots that crossed into multiple map units. Geology is shown in figure 2. Landforms are described in table 4. Map units are summarized in figure 3.*

Geolandform	Soil Map Unit	Site									Total
		1	2	3	4	5	6	7	8	9	
Roubidoux Sinkhole	4	0	0	0	0	0	0	0	1	0	1
Alluvial Terrace	15	0	0	0	0	0	0	1	0	0	1
Upland Drainage	27	1	2	2	1	2	1	0	1	1	11
Floodplain	31	2	0	0	0	0	0	5	2	2	11
Alluvial Fan	42d	0	0	0	3	0	0	0	0	0	3
Footslopes	45d	1	1	0	1	2	0	1	1	4	11
Roubidoux Summit	61c	1	0	1	0	0	0	2	1	0	5
Roubidoux Summit	63c	1	0	1	1	0	2	10	6	0	21
Roubidoux Shoulders and Shoulder Ridges	63d	8	4	0	0	0	2	11	8	0	33
Roubidoux/Upper Gasconade Shoulders and Shoulder Ridges	63d/80d	1	0	0	0	0	1	0	0	0	2
Roubidoux Backslopes	63f	9	1	3	1	0	0	17	19	0	50
Robidoux/Upper Gasconade Backslopes	63f/80f	2	0	0	0	0	0	0	0	0	2
Roubidoux/Upper Gasconade Backslope	63f/82f	0	0	0	0	0	0	5	7	0	12
Eminence/Gunter Shoulder/Shoulder Ridge	70d	0	0	0	1	0	0	0	0	0	1
Eminence Backslope	70f	0	1	1	0	0	0	0	0	0	2
Upper Gasconade Shoulder/Shoulder Ridge	71d	0	0	0	0	0	0	1	0	0	1
Lower Gasconade Backslope	71f	0	0	1	0	1	0	0	1	0	3
Gasconade Bench	72d	0	0	0	0	0	0	1	0	0	1
Lower Gasconade Bench	73c	0	0	0	3	0	0	1	3	1	8
Lower Gasconade Bench	73d	0	0	1	0	2	1	0	0	1	5
Lower Gasconade Bench/Eminence Backslope	73d/75f	0	0	0	0	0	2	0	0	0	2
Eminence Shoulder/Shoulder Ridge	74d	0	0	0	0	1	0	0	0	1	2
Eminence Backslope	74f	0	3	6	11	6	2	0	0	1	29
Lower Gasconade/Eminence Backslope	74f/82f	0	1	0	0	0	0	0	0	0	1
Eminence Backslope/Lower Gasconade Bench	74f/89d	0	1	0	0	1	0	0	0	0	2
Eminence Shoulder/Shoulder Ridge	75d	0	1	1	1	0	2	0	0	0	6
Eminence Shoulder/Shoulder Ridge/Backslope	75d/75f	0	0	1	0	0	0	0	0	0	1

(*table 10 continued on next page*)

(table 10 continued)

Eminence Backslope	75f	1	5	5	7	6	5	0	0	11	40
Eminence/Lower Gasconade Backslope	75f/73f	0	0	0	0	0	1	0	0	0	1
Eminence Backslope/Lower Gasconade Bench	75f/74f/89d	0	0	0	0	1	0	0	0	0	1
Eminence/Upper Gasconade Backslope	75f/80f	1	4	0	0	0	0	0	0	2	7
Eminence Backslope/Lower Gasconade shoulder Ridge	75f/82d	0	0	0	0	0	1	0	0	0	1
Eminence/Lower Gasconade Backslope	75f/82f	0	0	0	0	0	2	0	0	0	2
Eminence Backlsope/Lower Gasconade Bench	75f/89d	1	0	0	0	1	0	0	0	0	2
Upper Gasconade Summit	80c	2	5	1	6	1	2	0	0	4	21
Upper Gasconade Shoulder/Shoulder Ridge	80d	7	7	2	2	7	1	0	0	6	32
Upper Gasconade Backslope	80f	31	25	23	14	11	31	0	0	29	164
Upper Gasconade/Roubidoux Backslopes	80f/63f	2	0	0	0	0	0	0	0	0	2
Upper Gasconde/Eminence Backslope	80f/75f	1	0	0	0	0	1	0	0	1	3
Upper and Lower Gasconade Backslope	80f/82f	0	0	0	0	0	1	0	0	0	1
Upper Gasconade Backslope/Lower Gasconade Bench	80f/89d	0	0	1	0	0	0	0	0	0	1
Lower Gasconade Shoulder/Shoulder Ridge	81d	0	0	1	0	0	1	0	1	0	3
Lower Gasconade Backslope	81f	0	1	1	0	1	1	0	2	0	6
Lower Gasconade Backslope	81f/82f	0	0	1	0	0	0	0	0	0	1
Upper Gasconade Backslope and Bench/Roubidoux Backslope	81f/82f/63f/89d	0	0	0	0	0	0	0	1	0	1
Lower Gasconade Shoulder/Shoulder Ridge	82d	0	4	1	2	1	1	4	0	2	15
Upper Gasconade/Roubidoux Shoulder/Shoulder Ridge	82d/63d	0	0	0	0	0	0	1	0	0	1
Lower Gasconade Shoulder Ridge/Eminence Backslope	82d/75f	0	0	0	0	0	1	0	0	0	1
Lower Gasconade Backslope	82f	2	3	10	18	13	4	8	5	1	64
Upper Gasconade/Roubidoux Backslope	82f/63f	0	0	0	0	0	0	1	5	0	6
Lower Gasconade/Eminence	82f/75f	0	0	0	0	0	1	0	0	3	4

(table 10 continued on next page)

(table 10 continued)

Backslope											
Upper/Lower Gasconade Backslope	82f/80f	1	2	1	0	1	1	0	0	0	6
Upper Gasconade Backslope	83f	0	1	0	0	0	0	0	0	0	1
Lower Gasconade Bench	89c	0	1	0	0	1	0	1	0	0	3
Lower Gasconade Bench	89d	0	0	7	2	9	3	0	6	0	27
Lower Gasconade Bench/Eminence Backslope	89d/75f	1	0	0	0	2	0	0	0	0	3
Precambrian	95f	0	0	0	0	0	0	0	0	1	1
	Total	76	73	72	74	70	71	71	70	71	648

There are fewer soil map units in the Hills than in the Breaks. Broad summits capped with silt, only rarely found in the Breaks, are more common in the Hills LTA. Soils on these broad summits are deep and loamy and have low base saturations and fragipans (figs. 3 and 4; map unit 61). Moderately and very deep, loamy-skeletal soils with low base saturations (figs. 3 and 4; map unit 63) make up a majority of the soils in the Hills. Surface horizon textures are a little sandier in the Hills LTA because sandstone in the Roubidoux is more extensive. In contrast to the Breaks LTA, deep, loamy-skeletal/clayey soils with moderate to high base saturations (figs. 3 and 4; map unit 82) in the Hills LTA occur in the Upper Gasconade. Soils on the Cryptozoan Reef benches are very deep, fine-loamy and have occasional fragipans (figs. 3 and 4; map unit 72). Variable depth soils with frequent bedrock outcrops (figs. 3 and 4; map units 71 and 81) are less common in the Hills LTA, but do occur in the Gasconade formation.

CONCLUSIONS

The physical environment of MOFEP sites varies considerably among and within sites. Much of this variation occurs predictably and is explained by hierarchically stratifying the landscape into ecological sections, subsections, LTA's, ELT's, geolandforms, soil units, and aspect classes. Understanding the physical environment is critical for interpreting the present distribution of flora and fauna on MOFEP sites and for interpreting harvest treatment responses throughout MOFEP's duration. This paper provides the geophysical context for interpreting data from the variety of research projects conducted on MOFEP as well as a framework for integrating their results. Concepts developed through the MOFEP soil-geolandform investigation are being used to refine ELT's within MOFEP sites and elsewhere in the Current River Hills Subsection.

ACKNOWLEDGMENTS

We thank Mr. Brian Brookshire, Dr. David Hammer, and Dr. Carl Mise for reviewing this manuscript and making helpful suggestions. We also thank T.J. Shives for assisting with figures and tables.

LITERATURE CITED

Bailey, R.G. 1980. Descriptions of the ecoregions of the United States. Misc. Publ. 1391. Washington, DC: U.S. Department of Agriculture. 77 p.

Brookshire, B.L.; Hauser, C. 1993. The Missouri Ozark Forest Ecosystem Project. In: Gillespie, Andrew R.; Parker, George R.; Pope, Phillip E.; Rink, George, eds. Proceedings, 9th Central Hardwood Forest conference; 1993 March 8-10; West Lafayette, IN. Gen. Tech. Rep. NC-161. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 289-307.

Grabner, J.K.; Larsen, D.R.; Kabrick, J.M. 1997. An analysis of MOFEP ground flora: pre-treatment conditions. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 169-197.

Hammer, R.D. 1997. Missouri Ozark Forest soils: perspectives and realities. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 106-121.

Kabrick, J.M.; Larsen, D.R.; Shifley, S.R. 1997. Analysis of pre-treatment woody vegetation and environmental data for the Missouri Ozark Forest Ecosystem Project. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 150-168.

Keys, J.E., Jr.; Carpenter, C.A.; Hook, S.; Koenig, F.; McNab, H.W.; Russell, W.; Smith, M.L. 1995. Ecological units of the Eastern United States: first approximation. Atlanta, GA: U.S. Department of Agriculture, Forest Service. 83 p., plus map.

McNab, H.W.; Avers, P.E., comps. 1994. Ecological subregions of the United States: section descriptions. Washington, DC: U.S. Department of Agriculture, Forest Service.

Meinert, D.M. In prep. The soils of the MOFEP study area. Jefferson City, MO: Missouri Department of Conservation, Forestry Division. 157 p.

Miller, M.R. 1981. Ecological land classification subsystem—a basic inventory system for planning management of the Mark Twain National Forest. Rolla, MO: U.S. Department of Agriculture, Forest Service, Mark Twain National Forest. 56 p.

Nigh, T.A. 1997. Landtype associations of the lower Ozark Region. Draft map and descriptions. Missouri Ecological Classification System Project. Columbia, MO: University of Missouri-Columbia School of Natural Resources. 8 p.

Soil Survey Staff. 1993. Soil survey manual. USDA-NRCS Handb. 18. Washington, DC: U.S. Department of Agriculture, Forest Service, Natural Resources Conservation Service. 437 p.

Soil Survey Staff. 1996. Keys to soil taxonomy. 7th ed. USDA-NRCS. Washington, DC: U.S. Department of Agriculture, Forest Service, Natural Resource Conservation Service. 644 p.

USDA Forest Service. 1993. Natural hierarchical framework of ecological units. Washington, DC: U.S. Department of Agriculture, Forest Service, ECOMPA. 28 p.

Composition and Structure of Woody Forest Vegetation in the Missouri Ozark Forest Ecosystem Project

Stephen R. Shifley[1], Lynn M. Roovers[1], Randy G. Jensen[2], David R. Larsen[3]

Abstract.—In 1991-92, 645 0.5-ac vegetation monitoring plots were established on the nine Missouri Ozark Forest Ecosystem Project (MOFEP) sites. Plots were remeasured in 1994-95 and three additional plots were established. Prior to harvest treatments plots had a mean density of 480 trees/ac with a basal area of 95 ft^2/ac and mean stocking of 87 percent. White oak, black oak, and scarlet oak each made up approximately 20 percent of the live basal area, but relative importance of the 48 observed woody species varied by ecological landtype. There were 12 snags per ac ≥4.5 in. dbh, or 8 percent of the number of live trees in that size class. The reported values provide an important baseline characterization of woody vegetation to support the long-term ecosystem research underway on the MOFEP sites. For the eastern Ozarks, these data also provide a comprehensive profile of upland oak forest composition and structure. Many observed characteristics contrast with conditions for other oak forests in the Central Hardwood region.

The Missouri Ozark Forest Ecosystem Project (MOFEP) vegetation inventory documents the condition of the woody and herbaceous vegetation on the nine MOFEP sites. The inventory includes 648 plots that were permanently established to measure initial forest conditions and to monitor changes in forest vegetation following implementation of harvest treatments (Brookshire *et al.* 1997; Brookshire and Dey, this volume). Permanent inventory and monitoring plots were established and measured for the first time in 1991 and 1992; each plot was remeasured at least once before harvest treatments were implemented in 1996.

The initial inventories provide a quantitative description of forest vegetation that will be used as a baseline to analyze forest changes in response to treatment. Additionally, the initial forest vegetation conditions at MOFEP serve as an almanac of typical forest conditions in mature southeast Ozark forests that have been largely undisturbed for the past 40 years. The vegetation inventory at MOFEP provides a point of reference against which to compare forest conditions in other regions or for sites with different land-use histories. Measurements of vegetation composition and structure will continue to be analyzed directly (e.g., Kabrick *et al.* 1997, Shifley *et al.* 1995), and they will also have value as covariates in analyses of the response of wildlife populations and mast production to harvest treatments (e.g., Brookshire and Shifley 1997). The overstory vegetation inventory plots also incorporate subsamples for down wood (Herbeck, this volume) and herbaceous vegetation (Grabner, this volume).

Woody vegetation summary statistics presented in this paper provide a comprehensive profile of the woody vegetation, including species composition, size structure, and the variability within and among the MOFEP sites before treatment. Summaries for each of the nine MOFEP sites and for ecological landtypes (ELT's) across sites provide a general reference to initial conditions at the beginning of the MOFEP experiment. Detailed summary statistics for individual plots can be found in Appendix C. This information serves as a principal reference for those scientists and managers who will need to use the MOFEP vegetation

[1] Research Forester and Geographer, respectively, USDA Forest Service, North Central Research Station, 202 Anheuser-Busch Natural Resources Building, University of Missouri, Columbia, MO 65211-7260.
[2] Forester, Missouri Department of Conservation, Route 2, Box 198, Ellington, MO 63638.
[3] Associate Professor, School of Natural Resources, 203 Anheuser-Busch Natural Resources Building, University of Missouri, Columbia, MO 65211.

data in the future. The detailed data collection protocols summarized in this paper and itemized in Appendix A can be used to further analyze specific components of the woody vegetation inventory in even greater detail. Herbaceous vegetation and coarse woody debris were also monitored on the forest inventory plots, and details of those inventories are described in later sections of this General Technical Report (Grabner, this volume; Herbeck, this volume).

METHODS

Field Inventory

Before the vegetation inventory plots were installed, each of the nine MOFEP sites was mapped by ecological landtype (ELT) and by geolandform (Meinert *et al.* 1997; Kabrick *et al.*, this volume). Forest stands ranging from 0.4 to 154 ac in size were also identified and mapped on each MOFEP site (see fig. 2 in Brookshire and Dey, this volume). In the office, initial vegetation inventory plot positions were randomly assigned within each site until each stand received at least one plot. Additional plots were randomly located within ecological landtypes that were underrepresented on an area basis. During plot establishment, some plots were eliminated if they fell on or adjacent to disturbed areas such as trails, roads, food plots, or site boundaries. When practical and necessary, plot locations were shifted slightly to move the plot away from small disturbed areas or to ensure that the entire plot was within a single stand and a single ELT (Brookshire and Dey, this volume). In 1991-92, 645 vegetation plots were established. Three additional plots were added in 1995 to intensify sampling in bottomland areas, resulting in 70 to 76 plots at each site (table 1). Additional details of plot selection and placement can be found in Brookshire and Dey (this volume) and Appendix A.

Plot locations were permanently marked to facilitate change detection by continually monitoring the same locations. After the initial establishment of plots in 1991 and 1992, each plot was remeasured at least once before 1995 (table 2).

The vegetation inventory plots were 0.5 ac in size with nested subplots for sampling woody vegetation at least 1 m tall and herbaceous vegetation of any size (fig. 1). A series of subplots were used to inventory vegetation of successively smaller sizes. Live trees ≥4.5 in. dbh and standing dead trees at least 8 ft tall and ≥4.5 in. dbh were tallied on the 0.5-ac main plot, but only live trees were inventoried on the smaller subplots. Trees ≥1.5 in. and <4.5 in. dbh were tallied on each of the four 0.05-ac subplots. Trees ≥3.3 ft in height and <1.5 in. dbh were tallied on each of the four 0.01-ac subplots.

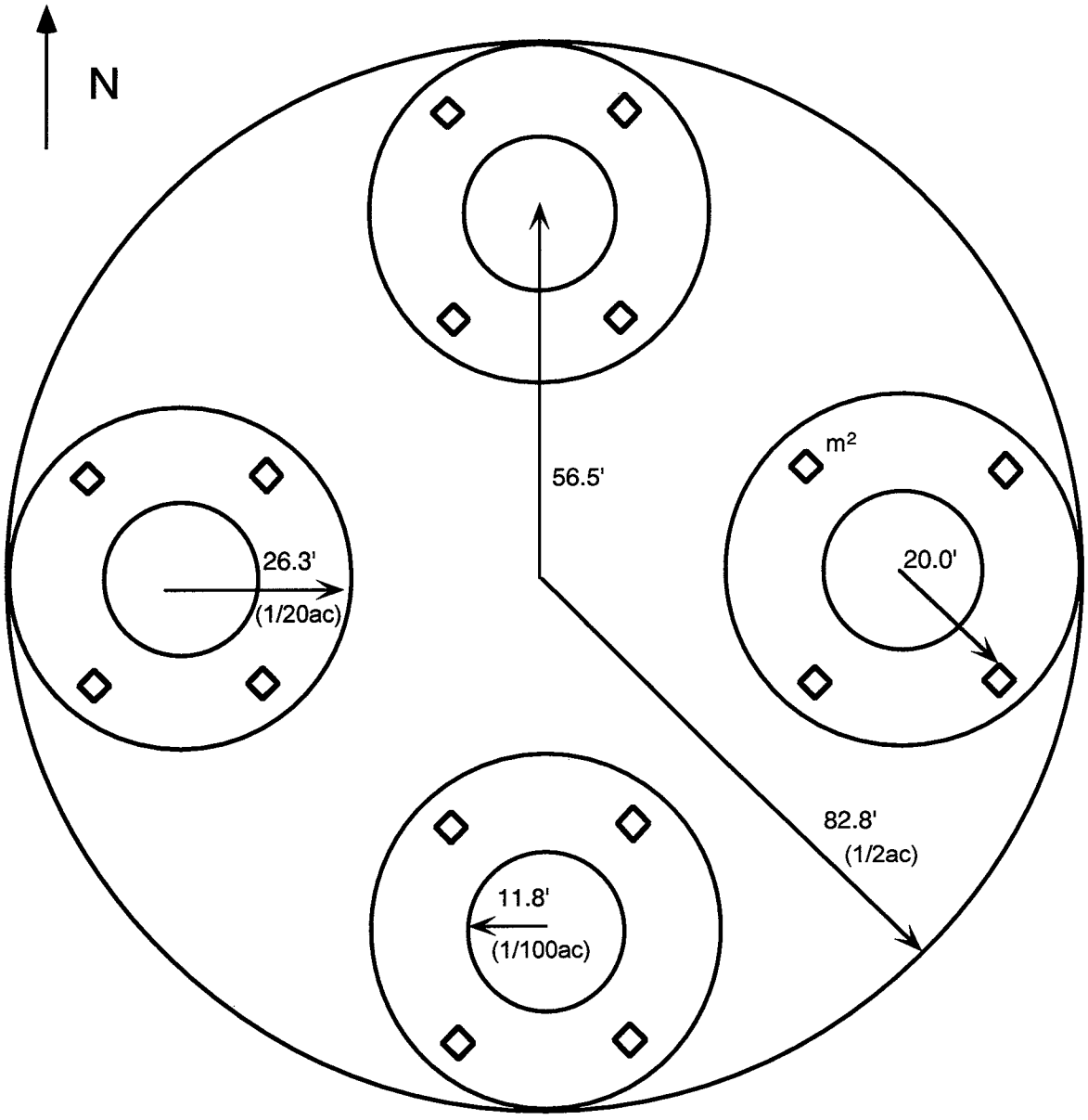
Species and dbh were recorded for every live tree tallied on the main plot or the subplots. Crown condition and the number and size of cavities were recorded for trees ≥4.5 in. dbh. Total height was also measured on a subset of trees ≥4.5 in. dbh (table 3). All trees (live or dead) on the 0.5-ac main plot were identified with aluminum tags for future remeasurement. Each plot was also photographed. Specific inventory details, including categories and coding used to inventory tree characteristics, are in the inventory field instructions in Appendix A.

Down dead wood was tallied on four 56.5-ft line transects that run from the center of the main plot to the center of each of the four subplots (fig. 1). Sampling protocols for down wood are also summarized in the field instructions (Appendix A). Details on the down wood inventory are provided by Herbeck (this volume).

Analysis

Inventory information was primarily recorded using electronic field data recorders and downloaded to electronic computer files. Data for all measurements before 1995 were subjected to a series of edit check for valid codes, valid data ranges, and missing values. Errors in recording were corrected where possible and treated as missing values where corrections were not possible. Two observations per thousand had data values that were erroneous or suspicious. More than 96,000 individual tree records are included in the MOFEP database.

Inventory samples were expanded to per acre values and summarized to get several estimates of density for each plot. Basal area, number of trees, and stocking percent were calculated for trees ≥4.5 in. dbh and for trees ≥1.5 in. dbh. Stocking was calculated for individual trees using equations of Gingrich



Size Limits for plots and sublots

1/2	acre includes woody vegetation ≥ 4.5" DBH
1/20	acre includes woody vegetation ≥ 1.5" and < 4.5" DBH
1/100	acre includes woody vegetation ≥ 1 m tall and < 1.5" DBH
1m²	for herbaceous and woody vegetation < 1m tall

Down, dead wood transects

56.5' transects (4 per plot) used to measure down dead wood ≥ 2" diameter and ≥ 2' in length

Figure 1.—*MOFEP vegetation plot design. Live and standing dead trees ≥4.5 in. (11 cm) dbh were tallied on the 0.5-ac (0.2-ha) main plot. Live trees ≥1.5 in. (4 cm) and <4.5 in. (11 cm) dbh were tallied on each of the four 0.05-ac (0.02-ha) subplots. Live trees ≥3.3 ft (1 m) in height and <1.5 in. (11 cm) dbh were tallied on each of the four 0.01-ac (0.004-ha) subplots. Down dead wood was tallied on four 56.5-ft (17.2 m) line transects that run from the center of the main plot to the center of each of the four subplots. Herbaceous vegetation was inventoried on the sixteen 1-m² (10.8 ft²) subplots.*

(1967), Rogers (1982), and Stout *et al.* (1987), and summed to get stocking percent per acre. Cubic and board foot volume per acre were estimated from local volume equations for the Mark Twain National Forest (table 4) (Richard Hesse, pers. comm.). Those volume equations required only species and dbh for computation of volume estimates for each tree. Although volume tables based on observed tree heights or local volume equations based on site index (e.g., Hahn and Hansen 1991) are likely more precise than the local volume equations used, the ones used could be applied uniformly to the MOFEP inventory data without requiring additional information on tree height (not available for most trees) or site index (not available for all plots).

Growth, or more specifically change, was computed for each plot as the difference between the most recent measurement (usually 1995, see table 1 and Appendix C) and the initial measurement (usually 1991 or 1992, see table 1 and Appendix C). The remeasurement interval differed among plots so the observed growth was divided by the number of growing seasons between measurements. The resulting estimate of annual growth can be compared among plots having different remeasurement intervals. Plots were measured throughout the growing season. Plots measured before June 1 were considered to be measured before that year's growing season, and plots measured June 1 or later were considered to be measured after that year's growth was complete. The actual dates of measurement provided in Appendix C can be used to compute the exact periodic change in basal area and number of trees between measurement dates for each plot.

The density of snags (i.e., standing dead trees) was calculated by plot. The numbers of natural and excavated cavities for both live and dead trees ≥4.5 in. dbh were also computed.

Summary statistics for each plot are reported in Appendix C. Additional summaries by site and ELT were prepared from the plot summary statistics and from the data for individual trees. Importance values (or importance percents) for individual species on each site were computed as the mean of the relative basal area and the relative number of trees.

RESULTS AND DISCUSSION

Structural Characteristics by Site

An overview of initial conditions at the MOFEP sites is provided by the composite summary of mean plot characteristics (table 5). For most reported characteristics, there is little difference in the means among sites. Statistical analysis of differences among MOFEP sites and groups of sites has been broadly addressed in Brookshire and Shifley (1997) and in detail for the woody vegetation data by Kabrick *et al.* (1997).

When plots were measured in 1991-92, most were well stocked with mean basal area of 95 ft^2/ac and mean stocking of 87 percent (table 5). This is consistent with the age and disturbance history of these sites. There was, however, considerable variation among plots (tables 5 and 6) with a range in basal area from 7 to 150 ft^2/ac and a similar range in stocking percent. One-third of the trees per acre were ≥4.5 in. dbh, but they constituted 86 percent of the basal area. Basal area increased an average of 1 ft^2/ac annually between 1992 and 1995, while the number of trees decreased an average of nine per acre annually. The estimated mean cubic and board foot volume were 1,233 and 6,000 per acre, respectively. This is approximately double the average cubic foot volume and triple the average board foot volume for timberland in Missouri (Hahn and Spencer 1991). Although stand age was not measured as part of this inventory, subsequent work indicates that the majority of overstory trees are between 50 and 70 years old. Individual trees older than 100 years occur on all sites; a few are older than 140 years.

Standing dead trees ≥4.5 in. dbh were 6 percent of the corresponding number of live trees. Those snags had a basal area of 5 ft^2/ac or 8 percent of the corresponding basal area of live trees. This condition is typical of other mature forests in the Missouri Ozarks (Shifley *et al.* 1997).

On average, there were nine natural cavities and one excavated cavity per acre. Information about cavity size and location along the tree bole was also recorded and can be analyzed separately in considerable detail.

The total number of trees by dbh class followed a negative exponential curve (fig. 2). Because diameter distributions for sites 1 through 6 were very similar, they are plotted as a single line to make the graph more readable. The Peck Ranch site (experimental block 3, Sheriff and He 1997) had diameter distributions that were relatively flat for trees between 8 and 15 in. dbh when compared to the other sites. Numerical rather than graphical summaries of the frequency of trees by diameter class are included in tables 7 through 16.

Species Composition by Site

White oak, black oak, and scarlet oak dominated the MOFEP sites; typically, these species each constituted 20 percent or more of the live basal area for each site (tables 7-16). They were followed by shortleaf pine, post oak, and the hickories in importance. Of the 48 tree species that occurred, 39 had importance values of less than 1 percent.

Black, scarlet, and white oaks (usually in that order) dominated the larger diameter classes on all nine MOFEP sites. However, in diameter classes smaller than 8 in. dbh, white oaks were generally more abundant than other species. This can best be seen in diagrams showing the relative abundance of the major species by dbh class (fig. 3). Development of adequate advance oak regeneration is often a concern in upland oak forests in the Eastern United States (e.g., Smith 1992). The age structure of oaks in the understory of the

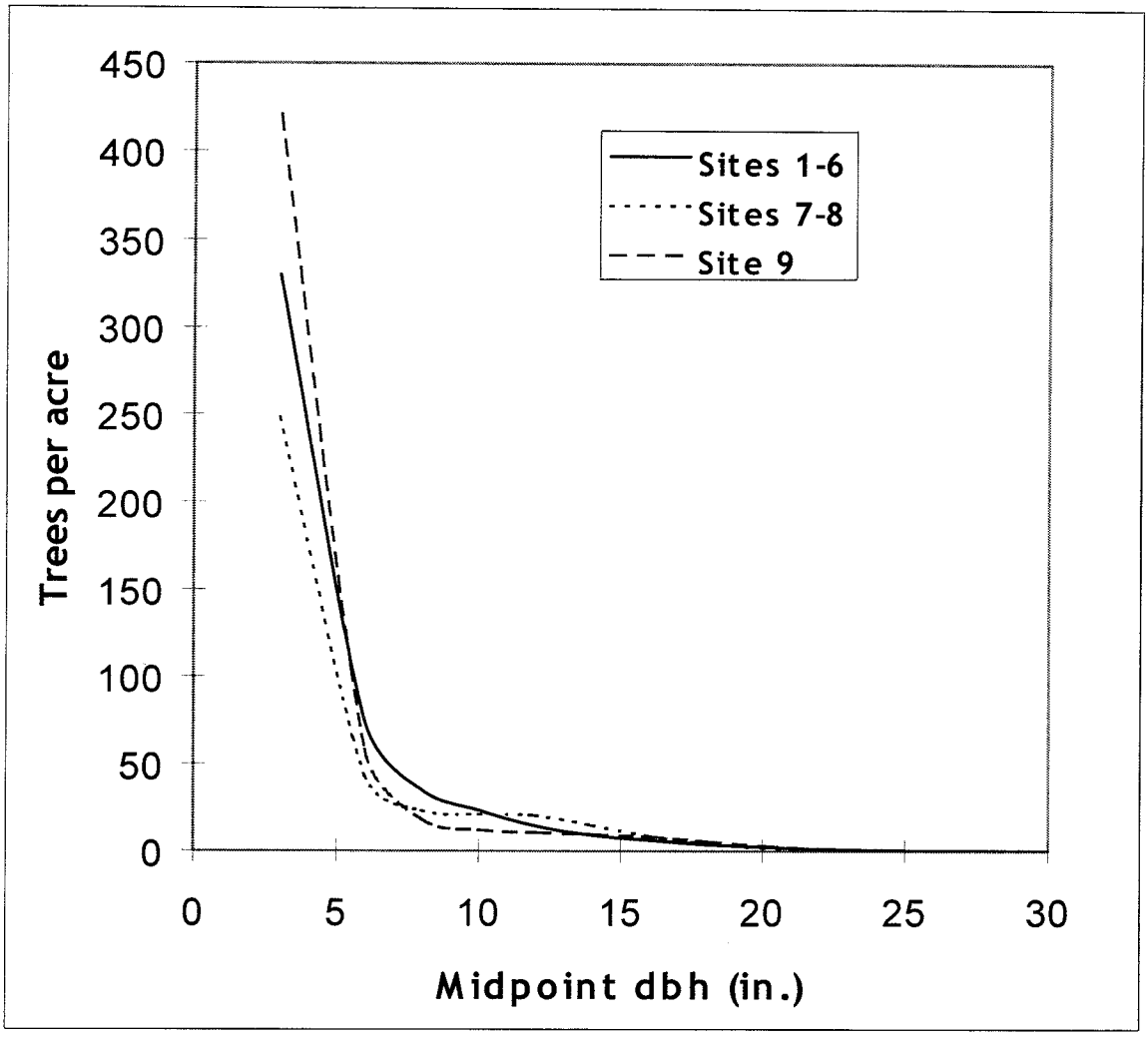


Figure 2.—*Number of trees by dbh class for MOFEP sites. Values for sites 1 through 6 and for sites 7 and 8 were similar and the average of those sites is plotted as a single line. Curves for sites 7, 8, and 9 (Peck Ranch sites) were notably different from the other sites, with relatively flat diameter distribution curves between 8 and 12 in.*

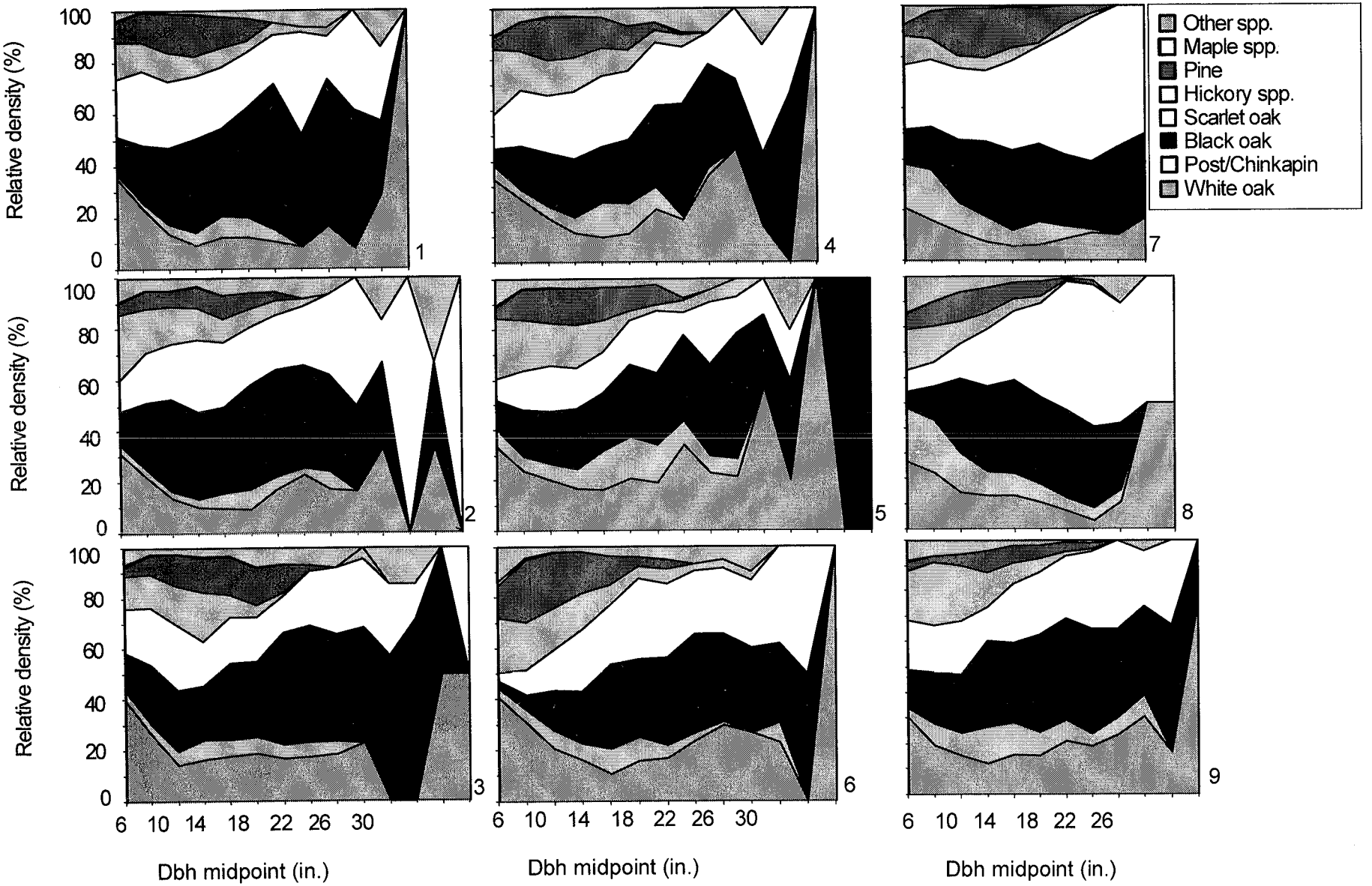


Figure 3.—*Relative density of major species groups by dbh class for MOFEP sites 1 through 9. Filled area for any given species indicates the proportion of trees of that species in the indicated dbh class. The total number of trees by dbh class decreased exponentially with increasing dbh class as shown in figure 2.*

MOFEP sites is not known, but in these fully stocked Ozark forests understory oaks are relatively abundant. Oaks between 1.5 and 4.5 in. dbh averaged 214 per acre.

Species Composition by ELT

The vegetation plots occurred on 11 different ecological landtypes (table 1). However, five of these ELT's had fewer than 10 plots. ELT's 17 (South and West Slope Dry Chert Forest) and 18 (North and East Slope Dry-mesic Chert Forest) each included about one-third of all the vegetation plots (table 1).

For most ELT's, oak species made up 50 percent or more of the relative density (tables 17-27). White, scarlet, and black oaks dominated on most plots. There were, however, some obvious differences by ELT. The dry limestone forests (ELT's 22 and 23) were dominated by post oak and had high relative densities of blackjack oak, chinkapin oak, and dogwood compared to other ELT's (tables 26 and 27). The most mesic ecological landtype (ELT 7, table 18) also had abundant dogwood, but mockernut hickory was the dominant overstory tree followed closely by white, black, and scarlet oaks. Post oak made up only about 6 percent of the basal area on ELT 7. However, because sample sizes for ELT's 7, 22, and 23 were small, the tabulated values for those ELT's are more suitable for indicating general trends in species composition than for conducting quantitative analyses of differences among ELT's.

Sample sizes for ELT's 17 (South and West Slope Dry Chert Forest) and 18 (North and East Slope Dry-mesic Chert Forest) were greater than 200 plots. These ELT's were remarkably similar in their relative densities of white, scarlet, and black oak. These species each accounted for about 20 percent of the basal area on ELT's 17 and 18 (tables 21 and 22). Differences were apparent for other species, however. On ELT 17 (South and West Slope Dry Chert Forest) shortleaf pine accounted for 13 percent of the basal area, while on ELT 18 (North and East Slope Dry-mesic Chert Forest) pine was only 3 percent of the basal area. On ELT 18 the hickories were much more prominent, and mockernut, pignut, and black hickory each accounted for 4 or 5 percent of the total basal area.

CONCLUSIONS

Together, tables 5 through 27 and Appendix C provide a comprehensive picture of the initial state of woody vegetation on the MOFEP study sites. Summaries by site and ecological landtype are included as well as details for individual vegetation inventory plots. This information provides an important baseline from which to monitor vegetation change after the MOFEP harvest treatments. The woody vegetation data summaries also serve as important covariates for analyses of other ecological conditions under investigation as part of the overall MOFEP experiment (see Brookshire and Shifley 1997).

In addition to their importance as part of the long-term documentation of the MOFEP experiment, the summaries in this paper and in Appendix C report the species composition and size structure for a large cross section of mature Ozark upland oak forests. Ozark oak forests differ from many other eastern oak forests in the relative ease with which oak species can be regenerated on many sites. The summaries by species and size class illustrate the abundance of oak species in the understory and the number and size of competitors. Although these data do not provide age structures, it is clear that oaks are abundant in the understory of all MOFEP study sites and on most ecological landtypes.

Finally, the observations reported here and in Appendix C provide information about variation in measured characteristics among plots, among sites, and among ecological landtypes. Knowledge of typical variation among sample units aids in the design of future sample surveys and indicates where supplemental sampling may be necessary to obtain desired levels of precision for specific variables.

LITERATURE CITED

Brookshire, Brian L.; Dey, Daniel C. 2000. Establishment and data collection of vegetation-related studies on the Missouri Ozark Forest Ecosystem Project study sites. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and

inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 1-18.

Brookshire, Brian L.; Hauser, Carl. 1993. The Missouri Ozark Forest Ecosystem Project. In: Gillespie, Andrew R.; Parker, George R.; Pope, Phillip E.; Rink, George, eds. Proceedings, 9th Central hardwood forest conference; 1993 March 8-10; West Lafayette, IN. Gen. Tech. Rep. NC-161. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 289-307.

Brookshire, Brian L.; Jensen, Randy; Dey, Daniel C. 1997. The Missouri Ozark Forest Ecosystem Project: past, present, and future. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 1-25.

Brookshire, Brian L.; Shifley, Stephen R., eds. 1997. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 378 p.

Gingrich, S.F. 1967. Measuring and evaluating stand density in upland hardwood forests in the Central States. Forest Science. 13: 38-53.

Grabner, Jennifer K. 2000. Ground layer vegetation in the Missouri Ozark Forest Ecosystem Project: pre-treatment species composition, richness, and diversity. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 70-106.

Hahn, Jerold T.; Hansen, Mark. H. 1991. Cubic and board foot volume models for the Central States. Northern Journal of Applied Forestry. 8: 47-57.

Hahn, Jerold T.; Spencer, John S. 1991. Timber resource of Missouri, statistical report, 1989. Resour. Bull. NC-119. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 123 p.

Herbeck, Laura A. 2000. Analysis of down wood volume and percent ground cover for the Missouri Ozark Forest Ecosystem Project. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 124-133.

Kabrick, John M.; Larsen, David R.; Shifley, Stephen R. 1997. Analysis of pre-treatment woody vegetation and environmental data for the Missouri Ozark Forest Ecosystem Project. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 150-168.

Kabrick, John; Meinert, Dennis; Nigh, Tim; Gorlinsky, B.J. 2000. Physical environment of the Missouri Ozark Forest Ecosystem Project sites. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 41-70.

Meinert, Dennis; Nigh, Tim; Kabrick, John M. 1997. Landforms, geology and soils of the MOFEP study area. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 56-68.

Miller, Mack R. 1981. Ecological land classification terrestrial subsystem: a basic inventory system for planning and management on the Mark Twain National Forest. Rolla, MO: U.S. Department of Agriculture, Forest Service, Eastern Region. 56 p.

Rogers, R. 1982. Guides for thinning shortleaf pine. In: Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station: 217-255.

Sheriff, Steven L.; He, Zhuqiong. 1997. The experimental design of the Missouri Ozark Forest Ecosystem Project. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 26-40.

Shifley, Stephen R.; Brookshire, Brian L.; Larsen, David R.; Herbeck, Laura A. 1997. Snags and down wood in Missouri old-growth and mature second-growth forests. Northern Journal of Applied Forestry. 14: 165-172.

Shifley, Stephen R.; Roovers, Lynn M.; Brookshire, Brian L. 1995. Structural and compositional differences between old-growth and mature second-growth forests in the Missouri Ozarks. In: Gottschalk, Kurt W.; Fosbroke, Sandra L.C., eds. Proceedings, 10th Central hardwood forest conference; 1995 March 5-8; Morgantown, WV. Gen. Tech. Rep. NE-197. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station: 23-36.

Smith, David Wm. 1992. Oak regeneration: the scope of the problem. In: Loftis, David L.; McGee, Charles E., eds. Oak regeneration: serious problems, practical solutions; 1992 September 8-10; Knoxville, TN. Gen. Tech. Rep. SE-84. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station: 40-52.

Stout, S.L.; Marquis, D.A.; Ernst, R.L. 1987. A relative density measure for mixed-species stands. Journal of Forestry. 85(7): 45-47.

Table 1.--*Number and percent of plots by site and ecological landtype (ELT). See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes*

Site	ELT 5 Upland Waterway Dry Bottomland Forest	ELT 7 Toe Slope Mesic Forest	ELT 11 Ridge Dry Chert Forest	ELT 15 Flat Dry Chert Forest	ELT 17 South and West Slope Dry Chert Forest	ELT 18 North and East Slope Dry-mesic Chert Forest	ELT 19 South and West Slope Glade Savanna	ELT 20 North and East Slope Dry-mesic Limestone Forest	ELT 21 Side Slope Dolomite or Limestone Glade	ELT 22 Side Slope Xeric Limestone Forest	ELT 23 Side Slope Dry Limestone Forest	Total by site
	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)	no. (%)
1	3 (4)	0 (0)	13 (17)	0 (0)	26 (34)	34 (45)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	76 (100)
2	2 (3)	0 (0)	16 (22)	0 (0)	31 (42)	22 (30)	0 (0)	0 (0)	0 (0)	0 (0)	2 (3)	73 (100)
3	2 (3)	0 (0)	7 (10)	0 (0)	33 (46)	21 (29)	3 (4)	6 (8)	0 (0)	0 (0)	0 (0)	72 (100)
4	6 (8)	0 (0)	10 (14)	0 (0)	29 (39)	24 (32)	5 (7)	0 (0)	0 (0)	0 (0)	0 (0)	74 (100)
5	4 (6)	0 (0)	9 (13)	0 (0)	26 (37)	22 (31)	8 (11)	1 (1)	0 (0)	0 (0)	0 (0)	70 (100)
6	1 (1)	0 (0)	6 (8)	0 (0)	38 (54)	24 (34)	2 (3)	0 (0)	0 (0)	0 (0)	0 (0)	71 (100)
7	4 (6)	2 (3)	10 (14)	2 (3)	27 (38)	23 (32)	0 (0)	0 (0)	1 (1)	0 (0)	2 (3)	71 (100)
8	7 (10)	1 (1)	8 (11)	3 (4)	19 (27)	22 (31)	0 (0)	0 (0)	3 (4)	3 (4)	4 (6)	70 (100)
9	3 (4)	3 (4)	12 (17)	0 (0)	31 (44)	21 (30)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	71 (100)
Total	32 (5)	6 (1)	91 (14)	5 (1)	260 (40)	213 (33)	18 (3)	7 (1)	4 (1)	3 (0)	9 (1)	648 (100)

Table 2.--*Number of plots for MOFEP sites 1 through 9 and dates of measurement*

Site	Number of plots	Plots measured per year
1	76	1991 (73) 1994 (8) 1995 (68)
2	73	1991 (73) 1994 (8) 1995 (65)
3	72	1991 (43) 1992 (29) 1994 (8) 1995 (69)
4	74	1992 (74) 1994 (9) 1995 (69)
5	70	1992 (70) 1994 (8) 1995 (70)
6	71	1992 (71) 1994 (8) 1995 (63)
7	71	1991 (71) 1994 (8) 1995 (63)
8	70	1990 (45) 1991 (25) 1994 (8) 1995 (64)
9	71	1991 (71) 1994 (8) 1995 (64)
All sites	648	1990 (45) 1991 (356) 1992 (244) 1994 (72) 1995 (595)

Table 3.--*Summary of variables collected for each plot and subplot*

Plot descriptive data	0.5-ac plot (for trees ≥4.5 in. dbh)	0.05-ac subplot (for stems 1.5 ≤ x < 4.5 in. dbh)	0.01-acre subplot (for stems ≥1 m ht and <1.5 in. dbh)	Down wood transect (56.5 ft)
Site number	Plot number	Tree dbh	Tree species	Coverage
Plot number	Tree number	Tree species	Tree size class	Maximum diameter
Stand number	Tree species			Length size class
Ecol. landtype	Tree dbh			Decay class
Meas. date	Tree canopy class			Species
Reference trees	Tree condition			
% slope	Cavity type			
Aspect	Cavity size class			
Slope position	Cavity location			

Table 4.--*Volume equations used to compute cubic and board foot volume per tree. The general form of the equation is* $Volume = b_1(1-exp(b_2D)^{b3})$ *where D is tree dbh in inches. Coefficients* b_1, b_2, *and* b_3 *vary by species and volume units as shown in the table. Cubic foot volume was computed for trees ≥ 4.5 in. dbh. Board foot volume was computed for trees ≥ 8 in. dbh.*

	Species	Cubic foot volume per tree			Board foot volume per tree		
Species	code	b_1	b_2	b_3	b_1	b_2	b_3
E. redcedar	68	4.3191200e+00	-1.11110	1783.45494	25.34209	-0.06270	0.14877
Shortleaf pine	110	3.2485542e+08	-0.00010	2.51603	482.48560	-0.14840	9.36793
Hickory spp.	400-408	1.3623078e+03	-0.01576	2.70481	411.01498	-0.14382	9.20755
White oak	802	2.3113499e+07	-0.00022	2.45450	367.75495	-0.12749	7.10153
Scarlet oak	806	2.4832176e+06	-0.00080	2.61777	785.48618	-0.08831	5.51207
N. red oak	833	8.9639840e+01	-0.10669	5.92693	498.07199	-0.12580	7.52303
Post oak	835	2.0524150e+02	-0.03185	2.66777	189.94708	-0.17810	9.36492
Black oak	837	3.9928022e+08	-0.00010	2.58491	653.68544	-0.09000	5.49038
All others		9.8412200e+00	-1.11110	1191.44354	220.46504	-0.37800	193.17976

Table 5.--*Mean of plot attributes for MOFEP sites 1 through 9, 1991-92. Standard deviations are shown in parentheses.*

Site (n plots)	Live trees ≥1.5 in. dbh					Live trees ≥4.5 in. dbh						
	Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Annual density change (trees/ac)	Annual basal area change (ft^2/ac)	Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd.ft/ac)	Annual density change (trees/ac)	Annual basal area change (ft^2/ac)
Site 1 (76)	514 (90)	95 (11)	89 (9)	-15.5 (12.9)	1.2 (1.0)	183 (36)	81 (11)	70 (9)	1170 (208)	5299 (1463)	-0.7 (1.6)	1.8 (0.7)
Site 2 (73)	557 (102)	96 (12)	91 (10)	-22.5 (15.2)	0.8 (1.2)	176 (36)	80 (14)	69 (11)	1164 (258)	5295 (1683)	0.0 (1.7)	1.6 (1.1)
Site 3 (72)	500 (72)	99 (16)	90 (13)	-20.2 (15.6)	-0.2 (1.7)	169 (36)	85 (17)	71 (13)	1270 (296)	6055 (1753)	-1.5 (2.0)	0.5 (1.6)
Site 4 (74)	499 (87)	96 (16)	88 (11)	15.04 (58.1)	2.1 (2.9)	167 (35)	82 (18)	69 (14)	1217 (324)	5771 (2116)	-0.7 (2.7)	1.4 (1.6)
Site 5 (70)	498 (88)	96 (12)	88 (10)	-6.6 (15.9)	1.3 (1.0)	160 (33)	82 (12)	68 (10)	1214 (224)	5768 (1388)	-0.3 (1.0)	1.5 (0.7)
Site 6 (71)	429 (91)	100 (12)	87 (9)	-1.59 (16.8)	2.1 (5.3)	160 (39)	89 (12)	73 (9)	1372 (250)	6726 (1618)	0.8 (8.6)	2.2 (5.3)
Site 7 (71)	389 (137)	91 (15)	81 (12)	-9.54 (14.8)	0.6 (2.5)	140 (42)	81 (15)	67 (12)	1281 (293)	6701 (2032)	-1.1 (4.6)	0.9 (2.6)
Site 8 (70)	379 (118)	92 (13)	81 (11)	-4.95 (13.7)	0.5 (1.3)	133 (37)	83 (14)	68 (11)	1281 (258)	6730 (1779)	-1.3 (1.7)	0.5 (1.2)
Site 9 (71)	546 (168)	88 (12)	84 (9)	-17.7 (18.6)	0.3 (1.0)	126 (31)	73 (15)	60 (11)	1134 (278)	5741 (2002)	-0.1 (1.7)	0.7 (1.1)
All sites (648)	480 (125)	95 (14)	87 (11)	-9.26 (26.8)	1.0 (2.5)	157 (41)	82 (15)	68 (11)	1233 (275)	6000 (1848)	-0.5 (3.7)	1.2 (2.3)

Site (n plots)	Dead trees ≥4.5 in. dbh		Down wood			Dens	
	Density (trees/ac)	Basal area (ft^2/ac)	% coverage	Volume (ft^3/ac)	Surface area (ft^2/ac)	Natural/ac	Excavated/ac
Site 1 (76)	11 (7)	4.0 (3.1)	1.8 (1.0)	194 (127)	1126 (619)	7 (6)	2 (3)
Site 2 (73)	10 (6)	4.2 (2.9)	1.5 (0.9)	155 (103)	965 (479)	9 (7)	1 (3)
Site 3 (72)	9 (6)	4.0 (3.3)	1.6 (1.1)	302 (266)	1691 (1082)	12 (7)	1 (2)
Site 4 (74)	9 (7)	3.7 (3.1)	1.7 (1.4)	107 (67)	733 (424)	9 (6)	0 (1)
Site 5 (70)	9 (6)	4.1 (3.0)	1.7 (1.4)	153 (106)	966 (506)	10 (6)	0 (1)
Site 6 (71)	13 (6)	7.3 (4.5)	2.9 (1.6)	429 (427)	2190 (1794)	6 (5)	0 (1)
Site 7 (71)	17 (11)	7.4 (5.9)	1.6 (1.1)	225 (312)	1369 (1526)	5 (5)	1 (3)
Site 8 (70)	20 (12)	9.7 (6.3)	1.6 (1.2)	250 (166)	1623 (852)	8 (7)	0 (1)
Site 9 (71)	6 (5)	3.8 (3.7)	1.2 (1.0)	355 (259)	1492 (885)	15 (8)	1 (2)
All sites (648)	12 (9)	5.3 (4.6)	1.7 (1.3)	241 (244)	1351 (1063)	9 (7)	1 (2)

Table 6.--*Observed range of sampled plot attributes for MOFEP sites 1 through 9*

Site (n plots)	Live trees ≥1.5 in. dbh					Live trees ≥4.5 in. dbh						
	Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Annual density change (trees/ac)	Annual basal area change (ft^2/ac)	Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd.ft/ac)	Annual density change (trees/ac)	Annual basal area change (ft^2/ac)
Site 1 (76)	299 - 814	77 - 120	69 -109	-77.7 - 5.8	-3.4 - 3.4	98 - 254	61 - 108	51 -97	833 - 1688	2504 - 9325	-5.0 - 3.3	-0.7 - 3.4
Site 2 (73)	313 - 867	55 - 124	61 -112	-62.0 - 15.5	-3.5 - 3.5	86 - 262	31 - 110	29 -88	367 - 1918	766 - 9796	-3.0 - 4.7	-2.9 - 3.2
Site 3 (72)	344 - 668	25 - 127	30 -108	-62.8 - 50.3	-6.2 - 2.3	52 - 262	13 - 117	13 -91	169 - 1863	241 - 10373	-8.0 - 2.0	-5.3 - 3.0
Site 4 (74)	323 - 836	47 - 150	52 -126	-103.5 - 197.5	-6.8 - 12.1	102 - 262	30 - 139	27 -111	386 - 2264	590 - 11532	-12.7 - 6.0	-6.7 - 3.3
Site 5 (70)	285 - 708	40 - 124	39 -113	-35 - 62.8	-1.4 - 5.0	64 - 246	29 - 110	24 -92	360 - 1924	1608 - 10344	-2.5 - 2.5	-0.8 - 2.5
Site 6 (71)	229 - 686	75 - 136	65 -108	-62.8 - 53.5	-1.4 - 44.9	86 - 292	60 - 124	50 -94	681 - 2031	2395 - 9917	-2.7 - 71.0	-1.9 - 45.2
Site 7 (71)	84 - 905	7 - 133	8 -107	-54.0 - 18.5	-4.2 - 17.9	14 - 250	5 - 125	4 -87	66 - 2157	182 - 12298	-7.5 - 31.0	-3.8 - 18.5
Site 8 (70)	144 - 700	38 - 123	40 -103	-55.0 - 23.8	-4.8 - 2.4	78 - 254	27 - 116	25 -90	289 - 2047	616 - 10218	-6.0 - 5.0	-4.8 - 2.2
Site 9 (71)	214 - 980	56 - 113	62 -106	-90.6 - 15.6	-3.9 - 2.5	72 - 204	36 - 109	35 -89	435 - 1725	420 - 9736	-4.4 - 4.0	-4.4 - 2.3
All sites (648)	84 - 980	7 - 150	8 -126	-103.5 - 197.5	-6.8 - 44.9	14 - 292	5 - 139	4 -111	66 - 2264	182 - 12298	-12.7 - 71.0	-6.7 - 45.2

Site (n plots)	Dead trees ≥4.5 in. dbh		Down wood			Dens	
	Density (trees/ac)	Basal area (ft^2/ac)	% coverage	Volume (ft^3/ac)	Surface area (ft^2/ac)	Natural/ac	Excavated/ ac
Site 1 (76)	0 - 32	0.0 - 15.0	0.3 - 4.8	52 - 400	391 - 2420	0 - 24	0 - 18
Site 2 (73)	0 - 32	0.0 - 10.9	0.1 - 4.7	17 - 351	146 - 1712	0 - 32	0 - 16
Site 3 (72)	0 - 26	0.0 - 15.3	0.0 - 5.7	28 - 886	214 - 4028	0 - 26	0 - 8
Site 4 (74)	0 - 30	0.0 - 11.2	0.2 - 6.4	21 - 212	171 - 1437	0 - 34	0 - 6
Site 5 (70)	0 - 32	0.0 - 10.7	0.0 - 7.0	41 - 390	396 - 1763	0 - 28	0 - 4
Site 6 (71)	0 - 30	0.0 - 18.4	0.3 - 6.6	27 - 1391	232 - 5358	0 - 26	0 - 2
Site 7 (71)	0 - 56	0.0 - 35.5	0.0 - 5.3	48 - 1153	408 - 5840	0 - 22	0 - 20
Site 8 (70)	0 - 50	0.0 - 26.3	0.1 - 5.8	71 - 620	651 - 3235	0 - 26	0 - 6
Site 9 (71)	0 - 24	0.0 - 17.1	0.0 - 4.3	44 - 927	392 - 2465	0 - 34	0 - 8
All sites (648)	0 - 56	0.0 - 35.5	0.0 - 7.0	17 - 1391	146 - 5840	0 - 34	0 - 20

Table 7.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 1, 1991-92. Importance value is the mean of the relative density and relative basal area.*

Species	Density (trees/ac) by dbh class (in.)																Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	84.04	29.32	9.62	3.40	1.29	1.01	0.68	0.30	0.11	0.14	0.03	0.05	-	-	-	0.03	130.01	18.74	25.24	19.64	22.44	21.38
Black oak	8.22	12.15	9.23	7.56	5.15	2.85	2.38	1.64	0.58	0.47	0.19	0.05	-	-	-	-	50.48	26.27	9.80	27.54	18.67	27.28
Scarlet oak	15.14	18.60	11.86	6.49	3.45	2.00	1.21	0.55	0.52	0.14	0.14	0.05	-	-	-	-	60.15	21.30	11.68	22.33	17.00	24.70
Flowering dogwood	80.68	1.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.33	3.02	15.98	3.16	9.57	0.59
Black hickory	41.37	5.73	2.03	1.75	0.55	0.27	0.08	0.11	0.03	0.03	-	0.03	-	-	-	-	51.97	5.40	10.09	5.66	7.87	5.20
Shortleaf pine	3.90	6.38	4.79	3.86	2.27	1.04	0.49	-	-	-	-	-	-	-	-	-	22.75	8.68	4.42	9.10	6.76	10.30
Mockernut hickory	28.29	3.26	1.32	0.58	0.19	0.14	0.08	-	-	-	-	-	-	-	-	-	33.85	2.80	6.57	2.94	4.75	2.54
Blackgum	29.79	1.04	0.03	0.08	0.14	0.16	0.16	0.14	0.08	0.05	-	-	-	-	-	-	31.68	2.24	6.15	2.35	4.25	1.31
Post oak	4.52	1.45	0.90	0.93	0.71	0.71	0.44	0.14	-	-	-	-	-	-	-	-	9.81	3.47	1.90	3.64	2.77	3.41
Red maple	19.79	0.52	0.05	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	20.42	0.72	3.96	0.75	2.36	0.25
Pignut hickory	7.05	3.01	1.23	0.52	0.38	0.19	0.08	0.03	-	-	-	-	-	-	-	-	12.51	2.18	2.43	2.28	2.35	2.62
Sassafras	4.38	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.49	0.18	0.87	0.19	0.53	0.04
Serviceberry	2.12	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.18	0.08	0.42	0.08	0.25	0.02
Blackjack oak	0.27	0.25	0.08	0.11	0.03	0.03	-	-	-	-	-	-	-	-	-	-	0.77	0.21	0.15	0.22	0.18	0.25
Persimmon	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48	0.01	0.09	0.02	0.05	-
Black walnut	-	0.05	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	0.14	0.05	0.03	0.06	0.04	0.07
Carolina buckthorn	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	0.01	0.05	0.01	0.03	-
Rusty blackhaw	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	0.01	0.04	0.01	0.02	-
Eastern redcedar	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	0.01	0.04	0.01	0.02	-
Grape	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	<0.01	0.04	<0.01	0.02	-
Black cherry	0.07	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	0.01	0.02	0.01	0.01	0.01
Slippery elm	0.07	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	0.01	0.02	0.01	0.01	0.01
Redbud	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	0.01	0.01	0.01	0.01	-
White ash	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.01
Total	331.16	83.63	41.21	25.34	14.22	8.41	5.62	2.90	1.32	0.82	0.36	0.19	-	-	-	0.03	515.21	95.41	100.00	100.00	100.00	100.00

Table 8.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 2, 1991-92. Importance value is the mean of the relative density and relative basal area.*

	Density (trees/ac) by dbh class (in.)															Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	61.71	25.70	7.84	3.18	1.42	0.79	0.52	0.58	0.44	0.14	0.08	0.05	-	0.03	-	102.48	17.38	18.40	18.14	18.27	20.42
Black oak	9.18	10.82	9.45	8.25	4.85	2.71	2.22	1.40	0.77	0.30	0.16	0.05	-	0.03	-	50.19	25.62	9.01	26.73	17.87	27.30
Scarlet oak	9.32	9.86	6.99	4.99	4.03	2.03	1.23	0.71	0.44	0.25	0.25	0.03	0.03	-	0.03	40.16	18.31	7.21	19.10	13.16	19.83
Flowering dogwood	92.81	2.05	0.08	0.03	-	-	-	-	-	-	-	-	-	-	-	94.97	3.55	17.05	3.70	10.38	0.81
Pignut hickory	39.32	9.32	2.66	0.90	0.68	0.19	0.05	-	0.03	-	-	-	-	0.03	-	53.18	5.67	9.55	5.92	7.73	6.36
Black hickory	44.52	6.25	1.64	1.04	0.55	0.30	0.14	0.14	-	-	-	-	-	-	-	54.58	4.91	9.80	5.12	7.46	4.87
Mockernut hickory	33.70	5.23	1.53	1.29	0.52	0.19	0.19	0.05	0.03	-	-	-	-	-	-	42.74	4.40	7.67	4.59	6.13	4.47
Shortleaf pine	6.58	3.59	2.38	1.42	1.15	0.74	0.36	0.11	-	-	-	-	-	-	-	16.33	4.89	2.93	5.10	4.02	5.61
Blackgum	22.33	1.15	0.14	0.16	0.25	0.47	0.22	0.16	0.14	0.03	-	-	-	-	-	25.04	2.72	4.50	2.83	3.67	1.99
Post oak	3.90	1.51	0.52	0.44	0.44	0.36	0.38	0.16	0.05	0.05	-	-	-	-	-	7.82	2.61	1.40	2.72	2.06	2.63
Chinkapin oak	4.04	1.40	0.52	0.22	0.05	0.14	0.03	-	-	-	-	-	-	-	-	6.40	0.91	1.15	0.95	1.05	1.12
Sassafras	7.60	0.52	0.05	-	-	-	-	-	-	-	-	-	-	-	-	8.18	0.43	1.47	0.45	0.96	0.23
Black walnut	0.96	0.74	0.47	0.44	0.14	0.03	0.03	0.03	-	0.03	-	0.03	-	-	-	2.88	0.97	0.52	1.01	0.76	1.12
Red maple	6.64	0.22	0.03	-	-	-	-	-	-	-	-	-	-	-	-	6.89	0.24	1.24	0.25	0.74	0.09
Winged elm	5.27	0.38	0.05	0.03	-	-	-	-	-	-	-	-	-	-	-	5.74	0.27	1.03	0.28	0.65	0.19
Blackjack oak	2.47	0.82	0.38	0.08	0.05	-	0.03	-	-	-	-	-	-	-	-	3.84	0.50	0.69	0.52	0.60	0.63
White ash	2.60	0.38	0.22	0.08	0.03	0.08	0.05	-	-	-	-	-	-	-	-	3.45	0.47	0.62	0.49	0.56	0.47
Slippery elm	3.01	0.38	0.11	0.25	-	-	-	-	-	-	-	-	-	-	-	3.75	0.36	0.67	0.38	0.52	0.36
Carolina buckthorn	4.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.86	0.11	0.87	0.12	0.49	-
Eastern redcedar	2.26	0.38	0.16	0.03	0.03	-	-	-	0.03	-	-	-	-	-	-	2.89	0.30	0.52	0.31	0.41	0.31
Grape	3.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.49	0.07	0.63	0.07	0.35	-
Sugar maple	1.30	0.52	0.08	0.08	0.03	-	-	-	-	-	-	-	-	-	-	2.01	0.22	0.36	0.23	0.30	0.31
Serviceberry	2.53	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	2.56	0.08	0.46	0.08	0.27	0.01
Persimmon	2.05	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	2.19	0.09	0.39	0.09	0.24	0.05
Rusty blackhaw	1.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.85	0.05	0.33	0.05	0.19	-
Redbud	1.16	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.30	0.07	0.23	0.07	0.15	0.05
Hackberry	1.10	0.08	-	0.03	-	-	-	-	-	-	-	-	-	-	-	1.21	0.06	0.22	0.06	0.14	0.05
Bitternut hickory	0.21	0.08	0.16	0.05	0.03	0.03	-	-	-	-	-	-	-	-	-	0.56	0.16	0.10	0.17	0.13	0.19
Shagbark hickory	0.14	0.25	0.16	0.05	0.03	-	-	-	-	-	-	-	-	-	-	0.63	0.14	0.11	0.15	0.13	0.22
Red mulberry	0.55	0.22	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	0.82	0.09	0.15	0.09	0.12	0.11
Ironwood	0.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.82	0.02	0.15	0.02	0.09	-
Black cherry	0.27	0.22	0.05	-	-	-	-	-	-	-	-	-	-	-	-	0.55	0.07	0.10	0.07	0.08	0.11
Gumbelina	0.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.68	0.03	0.12	0.03	0.08	-
Paw paw	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48	0.01	0.09	0.01	0.05	-
Plum	0.41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.41	0.01	0.07	0.01	0.04	-
Hawthorn	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	0.01	0.05	0.01	0.03	-
American elm	0.07	0.03	0.05	-	-	-	-	-	-	-	-	-	-	-	-	0.15	0.02	0.03	0.02	0.03	0.04
Kentucky coffeetree	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	0.01	0.02	0.01	0.02	-
American hornbeam	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.02	<0.01	0.01	-
American sycamore	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	0.01	0.01	0.01	0.01	-
Winged sumac	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Poison ivy	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Pin oak	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	<0.01	0.01	0.01	0.01
Water oak	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	<0.01	0.01	0.01	0.01
Total	380.96	82.44	35.81	23.07	14.27	8.05	5.45	3.34	1.92	0.79	0.49	0.16	0.03	0.08	0.03	556.90	95.84	100.00	100.00	100.00	100.00

Table 9.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 3, 1991-92. Importance value is the mean of the relative density and relative basal area.*

	Density (trees/ac) by dbh class (in.)															Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	90.56	29.44	9.11	3.42	2.03	1.53	1.17	0.69	0.56	0.19	0.14	-	-	0.03	0.03	138.89	22.78	27.80	23.06	25.43	25.00
Black oak	4.38	11.03	8.00	5.69	2.61	2.58	1.83	1.86	1.47	0.44	0.28	0.11	0.14	0.03	-	40.46	24.90	8.10	25.20	16.65	25.14
Scarlet oak	9.79	13.14	7.81	6.06	2.17	1.56	1.08	0.61	0.69	0.28	0.17	0.06	0.03	-	0.03	43.46	17.89	8.70	18.10	13.40	20.12
Flowering dogwood	73.75	1.47	0.08	-	-	-	-	-	-	-	-	-	-	-	-	75.31	2.88	15.08	2.92	9.00	0.60
Mockernut hickory	27.71	3.33	1.69	1.53	0.72	0.31	0.08	0.03	-	-	-	-	-	-	-	35.40	4.03	7.09	4.07	5.58	4.03
Shortleaf pine	2.15	2.58	2.61	2.94	1.67	1.31	0.92	0.47	0.08	-	-	-	-	-	-	14.74	8.00	2.95	8.10	5.53	8.35
Black hickory	22.22	2.92	1.61	1.33	0.89	0.19	0.08	0.03	-	-	0.03	-	-	-	-	29.31	3.80	5.87	3.84	4.85	3.82
Blackgum	20.49	0.94	0.28	0.14	0.22	0.17	0.36	0.22	0.22	0.08	-	0.03	0.03	-	-	23.18	3.09	4.64	3.13	3.89	2.24
Pignut hickory	15.97	3.22	1.22	0.75	0.64	0.22	0.14	-	-	-	-	-	-	-	-	22.17	2.95	4.44	2.99	3.71	3.16
Post oak	2.43	1.83	1.14	0.92	0.94	0.56	0.36	0.22	0.19	0.06	-	-	-	-	-	8.65	4.10	1.73	4.15	2.94	4.18
Winged elm	13.19	0.36	0.08	0.03	-	-	-	-	-	-	-	-	-	-	-	13.67	0.48	2.74	0.49	1.61	0.19
Red maple	10.00	0.64	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	10.72	0.48	2.15	0.49	1.32	0.29
Sassafras	7.99	0.31	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	8.38	0.39	1.68	0.40	1.04	0.16
Chinkapin oak	4.44	0.75	0.22	0.33	0.03	-	0.06	-	-	-	-	-	-	-	-	5.83	0.66	1.17	0.67	0.92	0.69
White ash	3.19	0.47	0.03	0.06	0.08	0.03	-	0.06	-	-	-	-	-	-	-	3.92	0.43	0.78	0.43	0.61	0.39
Slippery elm	2.85	0.42	0.14	0.08	-	0.03	0.03	-	-	-	-	-	-	-	-	3.54	0.32	0.71	0.32	0.51	0.34
Hawthorn	4.38	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	4.40	0.13	0.88	0.13	0.50	0.01
Sugar maple	1.94	0.14	0.08	-	0.06	0.03	0.03	-	-	-	-	-	-	-	-	2.28	0.24	0.46	0.25	0.35	0.19
Carolina buckthorn	2.01	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	2.04	0.05	0.41	0.05	0.23	0.01
Blackjack oak	-	0.11	0.08	0.14	0.14	0.03	-	-	-	-	-	-	-	-	-	0.50	0.27	0.10	0.27	0.18	0.30
Gumbelina	1.32	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	1.43	0.07	0.29	0.07	0.18	0.04
Grape	1.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.53	0.03	0.31	0.03	0.17	-
Black walnut	0.69	0.22	0.03	0.08	-	-	-	-	-	-	-	-	-	-	-	1.03	0.13	0.21	0.13	0.17	0.16
American elm	1.32	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	1.35	0.04	0.27	0.04	0.16	0.01
Serviceberry	1.18	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	1.24	0.06	0.25	0.06	0.15	0.02
Red mulberry	0.90	0.08	0.06	-	-	-	-	-	-	-	-	-	-	-	-	1.04	0.07	0.21	0.07	0.14	0.06
Ironwood	1.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	0.03	0.22	0.03	0.13	-
Redbud	1.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	0.03	0.21	0.03	0.12	-
Persimmon	0.76	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	0.85	0.03	0.17	0.03	0.10	0.03
Shellbark hickory	-	0.08	-	0.06	0.08	0.03	-	-	-	-	-	-	-	-	-	0.25	0.14	0.05	0.14	0.10	0.16
American sycamore	-	-	-	0.03	0.03	0.03	0.06	-	-	-	-	-	-	-	-	0.14	0.15	0.03	0.15	0.09	0.13
Eastern redcedar	0.14	0.08	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.25	0.03	0.05	0.03	0.04	0.05
American hornbeam	0.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.01	0.07	0.01	0.04	-
Rusty blackhaw	0.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.01	0.07	0.01	0.04	-
Black cherry	0.14	0.03	-	0.03	-	-	-	-	-	-	-	-	-	-	-	0.19	0.02	0.04	0.02	0.03	0.03
Hackberry	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.28	0.01	0.06	0.01	0.03	-
Overcup oak	-	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	0.03	0.03	0.01	0.03	0.02	0.03
Honeylocust	-	0.03	-	0.03	-	-	-	-	-	-	-	-	-	-	-	0.06	0.02	0.01	0.02	0.02	0.03
Shagbark hickory	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	0.03	0.02	0.01	0.02	0.01	0.02
Blueberry	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Honeysuckle	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Kentucky coffeetree	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	<0.01	0.01
Total	330.69	74.00	34.42	23.69	12.33	8.58	6.22	4.19	3.22	1.06	0.61	0.19	0.19	0.06	0.06	499.53	98.81	100.00	100.00	100.00	100.00

Table 10.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 4, 1991-92. Importance value is the mean of the relative density and relative basal area.*

	Density (trees/ac) by dbh class (in.)														Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	Density (trees/ac)	Basal are (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	72.03	23.22	8.27	4.35	1.84	0.97	0.62	0.73	0.41	0.30	0.22	0.03	-	0.03	113.00	19.36	22.65	20.17	21.41	22.06
Scarlet oak	13.18	9.38	7.38	5.57	4.19	2.73	1.49	0.86	0.54	0.11	0.14	0.08	0.03	-	45.66	19.71	9.15	20.55	14.85	21.28
Black oak	8.04	4.70	5.68	5.16	3.59	2.16	1.41	1.11	1.05	0.35	0.14	0.05	0.05	-	33.50	18.96	6.71	19.76	13.24	18.90
Flowering dogwood	77.09	1.14	0.05	0.03	-	-	-	-	-	-	-	-	-	-	78.31	2.79	15.70	2.90	9.30	0.48
Mockernut hickory	35.07	8.30	2.24	1.35	0.84	0.30	0.24	0.11	0.05	-	-	-	-	-	48.50	6.04	9.72	6.29	8.01	6.73
Pignut hickory	26.22	8.03	2.03	1.22	0.76	0.59	0.16	0.03	0.05	-	-	-	-	-	39.08	5.44	7.83	5.67	6.75	6.43
Shortleaf pine	1.76	3.35	3.70	4.22	2.51	1.16	0.51	0.11	-	-	-	-	-	-	17.32	8.35	3.47	8.70	6.09	9.66
Blackgum	22.16	1.59	0.22	0.24	0.24	0.22	0.19	0.16	0.19	0.08	-	0.03	-	-	25.32	2.90	5.08	3.02	4.05	2.23
Post oak	4.26	2.00	0.68	0.70	0.78	1.16	0.57	0.30	0.03	0.03	-	-	-	-	10.50	4.40	2.10	4.58	3.34	4.41
Chinkapin oak	8.38	1.84	0.54	0.49	0.19	0.19	0.11	-	-	-	-	-	-	-	11.73	1.66	2.35	1.73	2.04	1.75
Black hickory	5.47	1.08	0.68	0.81	0.43	0.19	0.05	0.03	-	-	-	-	-	-	8.74	1.74	1.75	1.82	1.78	1.89
Winged elm	8.45	0.89	0.14	0.03	-	-	-	-	-	-	-	-	-	-	9.50	0.49	1.90	0.51	1.21	0.43
Slippery elm	6.01	1.00	0.32	0.14	0.03	0.03	-	-	-	-	-	-	-	-	7.53	0.64	1.51	0.66	1.09	0.71
White ash	4.39	1.00	0.38	0.14	0.05	0.03	0.05	-	0.03	-	-	-	-	-	6.07	0.77	1.22	0.80	1.01	0.87
Red maple	7.30	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	7.43	0.24	1.49	0.25	0.87	0.06
Sassafras	6.96	0.08	0.03	-	-	-	-	-	-	-	-	-	-	-	7.07	0.27	1.42	0.28	0.85	0.04
Sugar maple	3.18	0.38	0.08	0.05	0.05	-	-	-	0.03	-	-	-	-	-	3.77	0.33	0.76	0.34	0.55	0.31
Black walnut	1.62	0.68	0.32	0.08	0.03	0.05	0.03	0.03	-	-	-	-	-	-	2.84	0.49	0.57	0.52	0.54	0.63
Carolina buckthorn	3.72	-	-	-	-	-	-	-	-	-	-	-	-	-	3.72	0.09	0.74	0.10	0.42	-
Redbud	3.24	0.03	-	-	-	-	-	-	-	-	-	-	-	-	3.27	0.11	0.66	0.11	0.38	0.01
Bitternut hickory	1.01	0.62	0.14	0.03	-	0.03	-	-	-	-	-	-	-	-	1.82	0.25	0.37	0.26	0.31	0.37
Eastern redcedar	1.76	0.16	0.05	-	-	-	-	-	-	-	-	-	-	-	1.97	0.13	0.40	0.14	0.27	0.09
Red mulberry	1.49	0.19	0.05	0.03	0.03	-	-	-	-	-	-	-	-	-	1.78	0.13	0.36	0.13	0.24	0.14
Persimmon	2.09	0.03	-	-	-	-	-	-	-	-	-	-	-	-	2.12	0.06	0.43	0.06	0.24	0.01
Grape	1.89	-	-	-	-	-	-	-	-	-	-	-	-	-	1.89	0.04	0.38	0.04	0.21	-
Gumbelina	1.42	0.11	-	-	-	-	-	-	-	-	-	-	-	-	1.53	0.07	0.31	0.08	0.19	0.04
Blackjack oak	0.20	0.24	0.05	0.05	0.05	-	0.05	-	-	-	-	-	-	-	0.66	0.22	0.13	0.23	0.18	0.26
Hawthorn	1.22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	0.03	0.24	0.03	0.14	-
Rusty blackhaw	0.68	-	-	-	-	-	-	-	-	-	-	-	-	-	0.68	0.02	0.14	0.02	0.08	-
Hackberry	0.61	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	0.01	0.12	0.01	0.07	-
Black cherry	0.20	0.05	-	0.03	-	-	-	-	-	-	-	-	-	-	0.28	0.03	0.06	0.03	0.04	0.04
American hornbeam	0.34	-	-	-	-	-	-	-	-	-	-	-	-	-	0.34	0.01	0.07	0.01	0.04	-
American elm	0.07	0.03	-	-	-	-	0.03	-	-	-	-	-	-	-	0.12	0.05	0.02	0.05	0.04	0.04
American sycamore	-	0.11	-	-	0.03	-	-	-	-	-	-	-	-	-	0.14	0.04	0.03	0.04	0.03	0.06
Plum	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	0.20	0.01	0.04	0.01	0.02	-
Serviceberry	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	0.20	0.01	0.04	0.01	0.02	-
Honeylocust	-	-	-	-	-	-	0.03	-	-	-	-	-	-	-	0.03	0.03	0.01	0.04	0.02	0.03
Oak spp.	0.07	0.05	-	-	-	-	-	-	-	-	-	-	-	-	0.12	0.01	0.02	0.01	0.02	0.02
Paw paw	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.03	<0.01	0.01	-
Winged sumac	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Autumn olive	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Mulberry spp.	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.01
Northern red oak	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.01
Total	332.23	70.43	33.05	24.70	15.65	9.81	5.54	3.46	2.38	0.86	0.49	0.19	0.08	0.03	498.91	95.94	100.00	100.00	100.00	100.00

Table 11.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 5, 1991-92. Importance value is the mean of the relative density and relative basal area.*

	Density (trees/ac) by dbh class (in.)																Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	58.14	22.51	7.77	4.40	2.37	1.43	1.49	0.69	0.80	0.29	0.09	0.11	0.03	0.03	-	-	100.14	21.52	20.09	22.46	21.28	24.48
Black oak	4.43	7.57	6.14	4.60	3.46	2.03	2.06	1.03	0.80	0.46	0.20	0.06	0.06	-	0.03	0.03	32.94	19.93	6.61	20.80	13.71	20.90
Flowering dogwood	102.79	1.94	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	-	104.81	3.86	21.03	4.03	12.53	0.82
Scarlet oak	7.50	5.60	5.00	3.94	2.29	1.43	1.26	0.89	0.20	0.31	0.06	0.03	0.03	-	-	-	28.53	13.47	5.72	14.06	9.89	14.51
Black hickory	26.07	4.91	2.26	1.57	1.09	0.57	0.20	0.06	0.06	0.06	-	-	-	-	-	-	36.84	5.68	7.39	5.93	6.66	6.12
Mockernut hickory	30.64	6.00	1.89	0.83	0.57	0.26	-	-	0.03	-	-	-	-	-	-	-	40.21	4.21	8.07	4.40	6.23	4.71
Post oak	7.00	3.91	1.31	1.23	1.11	1.31	1.09	0.54	0.23	0.09	0.03	-	-	-	-	-	17.86	7.65	3.58	7.99	5.78	7.83
Shortleaf pine	1.93	2.91	3.91	2.97	2.06	1.11	0.66	0.29	0.03	-	-	-	-	-	-	-	15.87	7.92	3.18	8.27	5.72	9.10
Pignut hickory	14.86	5.20	2.31	1.34	0.83	0.31	0.09	-	0.03	-	0.03	-	-	-	-	-	25.00	4.33	5.02	4.52	4.77	5.36
Blackgum	26.71	1.46	0.26	0.11	0.20	0.17	0.17	0.09	0.14	0.03	-	-	0.03	-	-	-	29.37	2.48	5.89	2.59	4.24	1.80
Winged elm	10.86	0.80	0.09	0.06	-	-	-	-	-	-	-	-	-	-	-	-	11.80	0.55	2.37	0.57	1.47	0.40
Sassafras	9.29	0.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.77	0.39	1.96	0.41	1.19	0.19
Hawthorn	8.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.79	0.23	1.76	0.24	1.00	-
Chinkapin oak	2.50	1.09	0.51	0.17	0.03	0.06	0.06	-	-	-	-	-	-	-	-	-	4.41	0.76	0.89	0.79	0.84	0.97
Slippery elm	4.21	0.54	0.23	0.20	-	-	-	-	-	-	-	-	-	-	-	-	5.19	0.44	1.04	0.45	0.75	0.46
Red maple	5.29	0.26	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	5.63	0.25	1.13	0.26	0.69	0.15
Black walnut	1.50	0.74	0.20	0.20	0.17	0.11	-	-	-	-	-	-	-	-	-	-	2.93	0.63	0.59	0.66	0.62	0.79
Persimmon	3.00	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.09	0.10	0.62	0.10	0.36	0.03
Redbud	2.50	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	2.64	0.11	0.53	0.11	0.32	0.06
Blackjack oak	0.71	0.26	0.11	0.09	0.06	-	-	-	-	-	-	-	-	-	-	-	1.23	0.24	0.25	0.25	0.25	0.27
White ash	1.21	0.23	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	-	1.59	0.13	0.32	0.14	0.23	0.17
Carolina buckthorn	1.71	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.77	0.05	0.36	0.05	0.20	0.02
Sugar maple	0.50	0.23	0.09	0.06	0.03	0.03	-	-	-	-	-	-	-	-	-	-	0.93	0.17	0.19	0.18	0.18	0.23
Grape	1.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.57	0.03	0.32	0.03	0.17	-
Serviceberry	0.93	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	0.04	0.20	0.04	0.12	0.04
American sycamore	0.07	-	-	-	0.06	-	0.03	-	-	0.03	-	-	-	-	-	-	0.19	0.17	0.04	0.18	0.11	0.14
Bitternut hickory	0.21	0.14	0.09	-	-	-	-	0.03	-	-	-	-	-	-	-	-	0.47	0.11	0.09	0.12	0.10	0.14
American elm	0.64	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.76	0.05	0.15	0.05	0.10	0.05
Black cherry	0.14	-	0.03	0.03	0.03	-	-	-	0.03	-	-	-	-	-	-	-	0.26	0.12	0.05	0.12	0.09	0.11
American hornbeam	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.71	0.02	0.14	0.03	0.08	-
Rusty blackhaw	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50	0.01	0.10	0.01	0.06	-
Red mulberry	0.21	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.30	0.03	0.06	0.03	0.05	0.04
Gumbelina	0.21	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	0.01	0.05	0.01	0.03	0.01
Shumard oak	-	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	0.03	0.04	0.01	0.04	0.03	0.04
Hackberry	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	<0.01	0.04	<0.01	0.03	-
Shagbark hickory	0.14	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.17	0.01	0.03	0.02	0.02	0.01
Poison ivy	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	<0.01	0.04	<0.01	0.02	-
Eastern redcedar	0.07	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	0.01	0.02	0.01	0.02	0.02
Blueberry	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.03	<0.01	0.02	-
Oak spp.	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.02
Mulberry spp.	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Ironwood	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Swamp white oak	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Total	338.36	67.37	32.54	21.89	14.34	8.83	7.11	3.60	2.34	1.26	0.40	0.20	0.14	0.03	0.03	0.03	498.47	95.82	100.00	100.00	100.00	100.00

Table 12.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 6, 1991-92. Importance value is the mean of the relative density and relative basal area.*

	Density (trees/ac) by dbh class (in.)																	Trees ≥1.5 in. dbh					Tres ≥4.5 in. dbh
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	35-37	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	35.92	26.11	1-	4.31	2.34	1.07	1.07	0.87	0.70	0.51	0.23	0.08	-	0.08	-	-	0.03	83.32	22.40	19.43	22.48	20.96	26.24
Flowering dogwood	111.13	2.85	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114.00	3.88	26.59	3.89	15.24	1.12
Black oak	1.41	1.75	1.89	3.24	2.93	3.30	2.11	1.80	1.15	0.59	0.28	0.11	0.03	-	-	-	-	20.59	19.93	4.80	20.00	12.40	17.12
Scarlet oak	1.41	2.39	3.24	3.35	3.55	2.37	2.17	1.52	0.73	0.45	0.23	0.14	0.03	-	-	-	-	21.58	18.46	5.03	18.53	11.78	16.61
Shortleaf pine	5.35	8.17	7.97	4.59	2.37	1.13	0.25	0.20	-	-	-	-	-	-	-	-	-	30.03	10.71	7.00	10.75	8.88	13.52
Mockernut hickory	22.32	4.82	1.49	0.82	0.48	0.06	0.06	0.03	0.06	0.03	-	-	-	-	-	-	-	30.15	3.43	7.03	3.44	5.24	3.82
Black hickory	14.72	3.92	2.48	1.61	0.76	0.42	0.11	0.23	0.03	0.03	-	-	-	-	-	-	-	24.30	4.70	5.67	4.72	5.19	5.27
Blackgum	24.58	2.87	0.42	0.14	0.17	0.20	0.20	0.08	0.14	0.08	0.08	-	-	-	-	-	-	28.97	3.14	6.76	3.15	4.96	2.62
Pignut hickory	14.08	4.76	1.92	0.85	0.85	0.28	0.17	0.06	-	-	0.03	-	-	-	-	-	-	22.99	3.96	5.36	3.97	4.67	4.62
Post oak	5.14	1.80	1.38	1.13	0.96	0.99	0.62	0.25	0.08	0.03	-	0.03	-	-	-	-	-	12.41	5.14	2.89	5.16	4.03	4.99
Red maple	4.44	1.01	0.25	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	5.76	0.47	1.34	0.47	0.91	0.57
Winged elm	5.00	0.79	0.17	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	5.99	0.40	1.40	0.40	0.90	0.42
Sassafras	2.82	0.65	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.52	0.26	0.82	0.26	0.54	0.30
Chinkapin oak	0.49	0.56	0.31	0.31	0.03	-	0.03	0.03	-	-	-	-	-	-	-	-	-	1.76	0.50	0.41	0.50	0.46	0.66
Slippery elm	0.85	0.31	0.20	0.03	0.03	-	0.03	0.06	-	-	-	-	-	-	-	-	-	1.49	0.31	0.35	0.31	0.33	0.36
Black walnut	0.35	0.17	0.06	0.14	0.03	0.03	0.03	0.03	0.06	-	-	-	-	-	-	-	-	0.89	0.41	0.21	0.41	0.31	0.39
White ash	1.62	0.11	0.08	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	-	1.90	0.14	0.44	0.14	0.29	0.14
Redbud	1.97	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.08	0.08	0.49	0.08	0.28	0.05
Eastern redcedar	0.42	0.42	0.34	0.03	-	0.03	-	-	-	-	-	-	-	-	-	-	-	1.24	0.26	0.29	0.26	0.27	0.39
American elm	1.69	0.06	-	-	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	1.80	0.11	0.42	0.11	0.27	0.07
Carolina buckthorn	1.69	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.72	0.06	0.40	0.06	0.23	0.01
American hornbeam	1.69	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.72	0.05	0.40	0.05	0.23	0.01
Hawthorn	1.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.76	0.03	0.41	0.03	0.22	-
Serviceberry	1.41	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.44	0.05	0.34	0.05	0.19	0.01
Sugar maple	1.34	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.39	0.05	0.33	0.06	0.19	0.02
Bitternut hickory	0.28	0.17	0.17	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.76	0.18	0.18	0.18	0.18	0.24
Grape	1.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34	0.03	0.31	0.03	0.17	-
Persimmon	0.85	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.96	0.06	0.22	0.06	0.14	0.04
Gumbelina	0.92	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.94	0.04	0.22	0.04	0.13	0.01
American sycamore	0.21	0.03	0.03	-	-	0.03	-	0.03	-	-	-	-	-	-	-	-	-	0.32	0.10	0.08	0.10	0.09	0.09
Northern red oak	-	-	-	-	-	0.03	-	0.06	-	-	-	-	-	-	-	-	-	0.08	0.13	0.02	0.13	0.07	0.10
Hackberry	0.21	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.30	0.02	0.07	0.02	0.05	0.03
Blackjack oak	0.14	-	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	0.17	0.04	0.04	0.05	0.04	0.03
Red mulberry	0.14	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.23	0.02	0.05	0.02	0.04	0.04
Rusty blackhaw	0.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.01	0.08	0.01	0.04	-
Shellbark hickory	0.07	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	0.02	0.04	0.02	0.03	0.04
Black cherry	-	0.06	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	0.08	0.03	0.02	0.03	0.03	0.05
Plum	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.03	<0.01	0.02	-
Autumn olive	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	<0.01	0.01	-
Hickory spp.	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	<0.01	0.01
Total	268.31	64.39	32.54	20.79	14.56	9.97	6.87	5.24	2.96	1.72	0.85	0.37	0.06	0.08	-	-	0.03	428.73	99.65	100.00	100.00	100.00	100.00

Table 13.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 7, 1991-92. Importance value is the mean of the relative density and relative basal area.*

Species	Density (trees/ac) by dbh class (in.)																Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
Scarlet oak	25.14	12.51	6.23	5.44	5.27	4.73	3.30	1.92	1.01	0.31	-	0.06	-	0.03	-	-	65.93	28.82	16.93	31.68	24.31	31.45
Black oak	18.17	6.87	3.86	4.90	5.66	4.28	2.65	1.13	0.48	0.20	-	-	-	0.03	-	0.03	48.25	22.44	12.39	24.66	18.53	23.99
White oak	41.62	10.17	3.77	2.23	1.41	0.79	0.54	0.34	0.20	0.06	-	0.03	-	-	-	-	61.14	9.94	15.70	10.92	13.31	11.97
Post oak	27.61	8.34	4.56	2.28	1.92	0.85	0.82	0.23	0.03	-	-	-	-	-	-	-	46.62	9.34	11.97	10.27	11.12	11.81
Flowering dogwood	60.49	1.61	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	62.13	2.35	15.95	2.58	9.27	0.73
Shortleaf pine	2.54	2.14	2.48	3.61	3.66	2.17	1.21	0.31	0.06	-	-	-	-	-	-	-	18.17	10.74	4.67	11.81	8.24	12.11
Black hickory	20.07	2.85	0.85	0.62	0.48	0.37	0.11	0.06	-	-	-	-	-	-	-	-	25.39	2.70	6.52	2.97	4.75	3.18
Sassafras	21.76	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.82	0.61	5.60	0.67	3.14	0.02
Mockernut hickory	8.10	1.86	0.90	0.31	0.39	0.28	-	0.08	0.03	-	-	-	-	-	-	-	11.96	1.89	3.07	2.08	2.57	2.35
Blackgum	12.32	1.07	0.23	0.03	0.03	-	0.03	-	-	-	-	-	-	-	-	-	13.70	0.69	3.52	0.75	2.14	0.69
Blackjack oak	3.10	0.42	0.11	0.14	0.17	0.08	0.06	-	-	-	-	-	-	-	-	-	4.08	0.60	1.05	0.66	0.85	0.64
Pignut hickory	1.34	0.62	0.17	0.11	0.14	0.03	-	-	-	-	-	-	-	-	-	-	2.41	0.41	0.62	0.46	0.54	0.60
Red maple	0.92	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	0.04	0.26	0.04	0.15	0.04
Chinkapin oak	0.42	0.06	0.11	-	0.03	0.03	-	-	-	-	-	-	-	-	-	-	0.65	0.11	0.17	0.12	0.14	0.14
Carolina buckthorn	0.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.92	0.02	0.24	0.02	0.13	-
Eastern redcedar	0.63	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	0.05	0.19	0.06	0.12	0.06
Persimmon	0.77	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.80	0.03	0.21	0.03	0.12	0.01
Winged elm	0.35	0.06	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.44	0.04	0.11	0.04	0.08	0.04
Grape	0.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.49	0.01	0.13	0.01	0.07	-
Hawthorn	0.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.01	0.09	0.01	0.05	-
Black cherry	0.28	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.31	0.02	0.08	0.02	0.05	0.01
Blueberry	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.28	<0.01	0.07	0.01	0.04	-
Red mulberry	0.07	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.18	0.02	0.05	0.02	0.04	0.05
Hackberry	0.21	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	0.01	0.06	0.01	0.04	0.01
Rusty blackhaw	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	0.01	0.05	0.01	0.03	-
Slippery elm	0.14	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.17	0.01	0.04	0.01	0.03	0.02
Bitternut hickory	0.07	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.13	0.02	0.03	0.02	0.03	0.03
Redbud	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	0.01	0.04	0.01	0.02	-
White ash	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.04	<0.01	0.02	-
Serviceberry	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.04	<0.01	0.02	-
Honeylocust	0.07	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	0.01	0.03	0.01	0.02	0.01
Plum	0.07	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	0.01	0.03	0.01	0.02	0.01
Honeysuckle	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	<0.01	0.01	-
Gumbelina	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	<0.01	0.01	-
Poison ivy	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	<0.01	0.01	-
Shumard oak	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.01
American elm	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.01
Total	249.15	49.07	23.44	19.69	19.15	13.61	8.70	4.06	1.80	0.56	-	0.08	-	0.06	-	0.03	389.41	90.96	100.00	100.00	100.00	100.00

Table 14.--*Absolute and relative number of trees and basal area by species and d.b.h. class for MOFEP site 8, 1991-92. Importance value is the mean of the relative density and relative basal area.*

	Density (trees/ac) by dbh class (in.)																	Trees ≥1.5 in dbh					Trees ≥4.5 in dbh
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	35-37	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
Black oak	8.50	2.54	2.97	6.40	7.17	5.63	2.77	1.57	0.54	0.14	-	-	-	-	-	-	-	38.24	24.89	10.10	27.16	18.63	26.06
White oak	51.71	9.71	5.00	3.17	2.71	2.00	0.83	0.31	0.06	0.06	0.09	-	-	-	-	-	0.03	75.69	13.69	19.98	14.94	17.46	16.12
Scarlet oak	7.29	3.06	2.17	3.03	4.80	4.23	2.97	2.31	0.94	0.26	0.09	-	0.03	-	-	-	-	31.17	22.45	8.23	24.50	16.36	22.39
Flowering dogwood	75.57	1.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.03	2.71	20.33	2.96	11.65	0.67
Post oak	11.36	7.14	4.40	3.26	1.97	1.29	0.57	0.20	0.09	0.03	-	-	-	-	-	-	-	30.30	9.30	8.00	10.15	9.08	12.46
Shortleaf pine	8.14	2.11	2.17	2.51	2.11	0.94	0.43	0.03	0.03	-	-	-	-	-	-	-	-	18.49	6.13	4.88	6.69	5.79	7.40
Black hickory	13.29	3.40	2.00	1.09	0.83	0.57	0.14	0.03	-	-	-	-	-	-	-	-	-	21.34	3.82	5.63	4.17	4.90	5.03
Blackgum	19.57	1.57	0.57	0.11	0.11	0.09	0.06	0.03	-	-	-	-	-	-	-	-	-	22.11	1.46	5.84	1.59	3.71	1.45
Sassafras	19.29	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.43	0.50	5.13	0.55	2.84	0.07
Pignut hickory	5.50	1.89	1.00	0.63	0.43	0.17	0.11	-	-	-	-	-	-	-	-	-	-	9.73	1.95	2.57	2.13	2.35	2.63
Blackjack oak	0.57	0.74	1.14	0.89	0.63	0.26	0.09	-	-	-	-	-	-	-	-	-	-	4.31	1.89	1.14	2.06	1.60	2.54
Mockernut hickory	3.64	0.57	0.14	0.26	0.09	0.03	-	-	-	-	-	-	-	-	-	-	-	4.73	0.56	1.25	0.61	0.93	0.64
Chinkapin oak	1.29	0.69	0.31	0.20	0.11	0.11	-	0.03	-	-	-	-	-	-	-	-	-	2.74	0.64	0.72	0.70	0.71	0.90
Redbud	3.00	0.17	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	3.29	0.18	0.87	0.20	0.53	0.15
Red maple	3.07	0.11	0.03	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	3.27	0.14	0.86	0.15	0.51	0.11
Carolina buckthorn	3.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.50	0.07	0.92	0.08	0.50	-
Eastern redcedar	1.43	0.49	0.06	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	-	2.03	0.20	0.54	0.22	0.38	0.31
Winged elm	1.64	0.20	0.06	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	1.93	0.14	0.51	0.15	0.33	0.15
Persimmon	1.71	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.86	0.08	0.49	0.09	0.29	0.07
Grape	1.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.79	0.05	0.47	0.05	0.26	-
White ash	0.57	0.20	0.03	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	0.89	0.13	0.23	0.14	0.19	0.19
Green ash	0.36	0.03	0.06	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	0.09	0.14	0.09	0.12	0.11
Shumard oak	-	-	-	-	-	-	0.03	-	-	0.06	-	-	-	-	-	-	-	0.09	0.19	0.02	0.21	0.11	0.15
Cumbelina	0.57	0.06	0.03															0.66	0.04	0.17	0.01	0.11	0.05
American elm	0.21	-	0.06	0.03	-	-	-	-	0.03	-	-	-	-	-	-	-	-	0.33	0.11	0.09	0.12	0.10	0.10
Hackberry	0.43	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	0.05	0.14	0.05	0.09	0.05
Hawthorn	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50	0.01	0.13	0.01	0.07	-
Ironwood	0.43	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.46	0.02	0.12	0.02	0.07	0.01
Southern catalpa	0.29	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.31	0.02	0.08	0.03	0.05	0.02
Honeylocust	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	<0.01	0.06	0.01	0.03	-
Black cherry	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	<0.01	0.06	0.01	0.03	-
Shagbark hickory	0.07	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.02	0.04	0.02	0.03	0.04
Smooth sumac	-	0.03	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	0.06	0.03	0.02	0.04	0.03	0.04
Red mulberry	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	0.01	0.04	0.01	0.02	-
Serviceberry	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.04	<0.01	0.02	-
Plum	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.04	<0.01	0.02	-
Poison ivy	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	<0.01	0.04	<0.01	0.02	-
Slippery elm	-	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	0.01	0.02	0.01	0.01	0.03
Blueberry	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	0.01	0.01	-
Northern red oak	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.02	0.01	0.02
Water oak	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	<0.01	0.01	-
Rusty blackhaw	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.02	<0.01	0.01	-
Pin oak	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.01	0.01	0.01	0.01	0.02
Bitternut hickory	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	0.01	0.01
Total	246.50	36.66	22.34	21.89	21.11	15.34	8.00	4.51	1.69	0.54	0.17	-	0.03	-	-	-	0.03	378.81	91.63	100.00	100.00	100.00	100.00

Table 15.--*Absolute and relative number of trees and basal area by species and dbh class for MOFEP site 9, 1991-92. Importance value is the mean of the relative density and relative basal area.*

Species	Density (trees/ac) by dbh class (in.)													Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative area (%)	Importance value (%)	Importance value (%)
White oak	100.77	17.32	3.46	1.80	1.27	1.44	1.21	1.10	0.56	0.28	0.20	0.03	0.08	129.54	18.27	23.72	20.67	22.19	21.10
Black oak	22.04	8.59	3.63	2.76	3.49	2.93	3.04	2.11	1.24	0.42	0.23	0.08	0.03	50.61	23.81	9.27	26.94	18.10	27.00
Scarlet oak	34.44	11.38	3.35	2.54	1.41	2.14	1.97	1.27	0.90	0.42	0.14	0.06	-	60.01	17.89	10.99	20.23	15.61	21.37
Mockernut hickory	54.72	5.97	2.08	1.15	0.62	0.34	0.06	0.03	-	-	-	-	-	64.97	5.04	11.90	5.71	8.80	6.33
Flowering dogwood	55.07	1.13	0.06	-	-	-	-	-	-	-	-	-	-	56.25	2.16	10.30	2.45	6.37	0.59
Post oak	12.18	2.00	1.35	1.01	1.44	1.15	0.70	0.42	0.14	0.08	0.06	-	-	20.55	6.55	3.76	7.41	5.58	7.53
Black hickory	35.00	2.68	1.18	0.73	0.34	0.17	0.11	0.06	-	-	0.03	-	-	40.30	3.14	7.38	3.55	5.46	3.50
Shortleaf pine	12.39	2.03	0.48	0.54	0.87	0.65	0.42	0.23	0.08	-	-	-	-	17.69	3.74	3.24	4.23	3.73	4.38
Blackgum	25.14	1.21	0.11	0.06	0.06	0.08	0.08	0.03	-	-	-	-	-	26.77	1.34	4.90	1.51	3.21	1.01
Pignut hickory	11.20	2.11	0.93	0.68	0.45	0.23	0.25	-	0.03	-	-	-	-	15.87	2.55	2.91	2.88	2.89	3.28
Sassafras	15.42	0.45	-	-	-	-	-	-	-	-	-	-	-	15.87	0.54	2.91	0.61	1.76	0.23
Red maple	13.03	0.37	-	-	-	-	-	-	-	-	-	-	-	13.39	0.43	2.45	0.48	1.47	0.18
Blackjack oak	6.27	0.65	0.51	0.34	0.28	0.08	0.06	-	0.03	-	-	-	-	8.21	1.16	1.50	1.31	1.41	1.40
Slippery elm	2.68	0.42	0.08	0.06	0.03	-	-	-	-	-	-	-	-	3.27	0.25	0.60	0.28	0.44	0.34
Black walnut	0.85	0.25	0.31	0.20	0.08	0.03	0.03	-	-	-	-	-	-	1.75	0.42	0.32	0.48	0.40	0.63
Chinkapin oak	1.13	0.42	0.17	0.06	0.03	-	0.03	-	-	-	-	-	-	1.83	0.27	0.34	0.30	0.32	0.42
Persimmon	2.46	0.03	-	-	-	-	-	-	-	-	-	-	-	2.49	0.09	0.46	0.10	0.28	0.01
Serviceberry	2.39	0.08	-	-	-	-	-	-	-	-	-	-	-	2.48	0.08	0.45	0.09	0.27	0.05
Bitternut hickory	0.63	0.28	0.20	0.03	-	0.03	-	-	-	-	-	-	-	1.17	0.20	0.21	0.22	0.22	0.32
Grape	1.97	-	-	-	-	-	-	-	-	-	-	-	-	1.97	0.04	0.36	0.05	0.21	-
Hawthorn	1.55	-	-	-	-	-	-	-	-	-	-	-	-	1.55	0.03	0.28	0.04	0.16	-
Carolina buckthorn	1.48	-	-	-	-	-	-	-	-	-	-	-	-	1.48	0.04	0.27	0.04	0.16	-
Plum	1.20	-	-	-	-	-	-	-	-	-	-	-	-	1.20	0.03	0.22	0.04	0.13	-
Black cherry	0.85	0.14	-	-	-	-	-	-	-	-	-	-	-	0.99	0.06	0.18	0.07	0.12	0.07
Winged elm	0.92	0.03	-	-	-	-	-	-	-	-	-	-	-	0.94	0.04	0.17	0.05	0.11	0.01
Red mulberry	0.92	-	-	-	-	-	-	-	-	-	-	-	-	0.92	0.03	0.17	0.04	0.10	-
Redbud	0.77	0.03	-	-	-	-	-	-	-	-	-	-	-	0.80	0.03	0.15	0.03	0.09	0.01
White ash	0.63	0.06	0.03	-	-	-	-	-	-	-	-	-	-	0.72	0.04	0.13	0.04	0.09	0.04
Eastern redcedar	0.49	0.06	-	-	-	-	-	-	-	-	-	-	-	0.55	0.04	0.10	0.05	0.07	0.03
American elm	0.28	0.08	-	-	-	-	-	-	-	-	-	-	-	0.37	0.03	0.07	0.03	0.05	0.04
Rusty blackhaw	0.42	-	-	-	-	-	-	-	-	-	-	-	-	0.42	0.01	0.08	0.01	0.04	-
Sugar maple	0.21	0.06	-	-	-	-	-	-	-	-	-	-	-	0.27	0.03	0.05	0.03	0.04	0.03
Winged sumac	0.35	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.01	0.06	0.01	0.04	-
Paw paw	0.21	-	-	-	-	-	-	-	-	-	-	-	-	0.21	<0.01	0.04	<0.01	0.02	-
American sycamore	-	-	0.03	0.03	-	-	-	-	-	-	-	-	-	0.06	0.03	0.01	0.03	0.02	0.04
Gumbelina	0.07	0.03	-	-	-	-	-	-	-	-	-	-	-	0.10	<0.01	0.02	<0.01	0.01	0.01
Hackberry	0.07	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
American hornbeam	0.07	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Ironwood	0.07	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	0.01	-
Honeylocust	-	0.03	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	<0.01	0.01
Total	420.35	57.89	17.97	11.97	10.37	9.27	7.97	5.24	2.99	1.21	0.65	0.17	0.11	546.15	88.39	100.00	100.00	100.00	100.00

Table 16.--*Absolute and relative number of trees and basal area by species and dbh class, composite for all nine MOFEP sites, 1991-92. Importance value is the mean of the relative density and relative basal area for the specified minimum dbh limit.*

Species	Density (trees/ac) by dbh class (in.)																	Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	35-37	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
White oak	66.42	21.58	7.22	3.36	1.85	1.22	0.90	0.62	0.42	0.22	0.12	0.04	0.01	0.02	<0.0	<0.0	0.01	104.02	18.24	21.68	19.26	20.47	23.89
Black oak	9.36	7.36	5.68	5.41	4.32	3.15	2.27	1.52	0.90	0.38	0.16	0.06	0.03	0.01	<0.0	0.01	-	40.63	22.98	8.47	24.25	16.36	19.86
Scarlet oak	13.69	9.60	6.04	4.62	3.46	2.57	1.84	1.18	0.66	0.28	0.13	0.06	0.02	<0.01	0.01	-	-	44.16	19.81	9.21	20.91	15.06	19.36
Flowering dogwood	81.02	1.70	0.04	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	82.77	3.02	17.25	3.19	10.22	1.11
Shortleaf pine	4.95	3.71	3.39	2.97	2.07	1.14	0.58	0.19	0.03	-	-	-	-	-	-	-	-	19.04	7.69	3.97	8.11	6.04	8.95
Mockernut hickory	27.22	4.39	1.48	0.91	0.49	0.21	0.08	0.04	0.02	<0.01	-	-	-	-	-	-	-	34.85	3.62	7.26	3.82	5.54	4.84
Black hickory	24.78	3.75	1.63	1.17	0.65	0.34	0.11	0.08	0.01	0.01	0.01	<0.01	-	-	-	-	-	32.55	3.98	6.79	4.20	5.49	4.94
Post oak	8.65	3.31	1.79	1.31	1.13	0.93	0.61	0.27	0.09	0.04	0.01	<0.01	-	-	-	-	-	18.15	5.81	3.78	6.13	4.96	6.04
Pignut hickory	15.18	4.27	1.50	0.78	0.57	0.25	0.12	0.01	0.02	-	0.01	-	-	<0.01	-	-	-	22.70	3.29	4.73	3.47	4.10	4.78
Blackgum	22.58	1.43	0.25	0.12	0.16	0.17	0.16	0.10	0.10	0.04	0.01	0.01	0.01	-	-	-	-	25.15	2.24	5.24	2.36	3.80	1.63
Sassafras	10.55	0.31	0.02	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	10.89	0.40	2.27	0.42	1.34	0.21
Red maple	7.88	0.37	0.06	0.02	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	8.33	0.33	1.74	0.35	1.04	0.29
Chinkapin oak	2.55	0.76	0.30	0.20	0.06	0.06	0.03	0.01	-	-	-	-	-	-	-	-	-	3.96	0.62	0.83	0.65	0.74	0.90
Winged elm	5.09	0.39	0.07	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	5.57	0.27	1.16	0.28	0.72	0.31
Blackjack oak	1.52	0.39	0.27	0.20	0.16	0.05	0.03	-	<0.0	-	-	-	-	-	-	-	-	2.63	0.56	0.55	0.60	0.57	0.70
Slippery elm	2.22	0.35	0.12	0.08	0.01	0.01	0.01	0.01	-	-	-	-	-	-	-	-	-	2.81	0.26	0.58	0.28	0.43	0.37
White ash	1.61	0.28	0.10	0.04	0.03	0.02	0.01	0.01	<0.0	-	-	-	-	-	-	-	-	2.10	0.24	0.44	0.25	0.34	0.31
Black walnut	0.67	0.32	0.16	0.13	0.05	0.03	0.01	0.01	0.01	<0.01	-	<0.01	-	-	-	-	-	1.39	0.35	0.29	0.37	0.33	0.46
Carolina buckthorn	2.25	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.26	0.06	0.47	0.06	0.26	0.01
Hawthorn	2.07	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.07	0.05	0.43	0.06	0.24	<0.01
Redbud	1.54	0.07	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	1.62	0.07	0.34	0.07	0.21	0.05
Persimmon	1.57	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.64	0.06	0.34	0.06	0.20	0.05
Sugar maple	0.95	0.16	0.04	0.02	0.02	0.01	<0.0	-	<0.0	-	-	-	-	-	-	-	-	1.20	0.12	0.25	0.12	0.19	0.16
Grape	1.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.59	0.03	0.33	0.04	0.18	-
Eastern redcedar	0.83	0.18	0.08	0.01	0.01	<0.01	-	-	<0.0	-	-	-	-	-	-	-	-	1.11	0.11	0.23	0.12	0.18	0.18
Serviceberry	1.23	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.27	0.04	0.26	0.05	0.16	0.02
Bitternut hickory	0.27	0.15	0.09	0.02	0.01	0.01	-	<0.0	-	-	-	-	-	-	-	-	-	0.55	0.10	0.12	0.11	0.11	0.18
Red mulberry	0.50	0.08	0.02	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.61	0.04	0.13	0.05	0.09	0.07
Gumbelina	0.59	0.04	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.63	0.03	0.13	0.03	0.08	0.03
American elm	0.47	0.04	0.01	<0.01	<0.01	<0.01	<0.0	-	<0.0	-	-	-	-	-	-	-	-	0.54	0.05	0.11	0.05	0.08	0.04
Rusty blackhaw	0.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	0.01	0.11	0.01	0.06	-
Black cherry	0.24	0.06	0.01	0.01	<0.01	<0.01	-	-	<0.0	-	-	-	-	-	-	-	-	0.33	0.04	0.07	0.04	0.06	0.06
American hornbeam	0.36	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.37	0.01	0.08	0.01	0.04	<0.01
American sycamore	0.04	0.02	0.01	0.01	0.01	0.01	0.01	<0.0	-	<0.01	-	-	-	-	-	-	-	0.10	0.05	0.02	0.06	0.04	0.04
Hackberry	0.35	0.02	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	0.38	0.02	0.08	0.02	0.04	0.02
Ironwood	0.28	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.28	0.01	0.06	0.01	0.03	<0.01
Plum	0.24	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24	0.01	0.05	0.01	0.03	<0.01
Shagbark hickory	0.04	0.04	0.02	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.11	0.02	0.02	0.02	0.02	0.05
Shumard oak	-	<0.01	-	-	-	-	0.01	-	-	0.01	-	-	-	-	-	-	-	0.02	0.03	<0.01	0.03	0.02	0.01
Shellbark hickory	0.01	0.02	<0.01	0.01	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	0.04	0.02	0.01	0.02	0.01	0.02
Paw paw	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	<0.01	0.02	<0.01	0.01	-
Green ash	0.04	<0.01	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	0.01	0.01	0.01	0.01	0.01
Northern red oak	-	<0.01	-	<0.01	-	<0.01	-	0.01	-	-	-	-	-	-	-	-	-	0.02	0.02	<0.01	0.02	0.01	0.01
Honeylocust	0.03	0.01	-	<0.01	-	-	<0.0	-	-	-	-	-	-	-	-	-	-	0.05	0.01	0.01	0.01	0.01	0.01
Blueberry	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	<0.01	0.01	<0.01	0.01	-
Winged sumac	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01	-
Poison ivy	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01	-
Southern catalpa	0.03	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	<0.01	<0.01
Oak spp.	0.01	0.01	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01	0.01

(Table 16 continued on next page)

(Table 16 continued)

Species	Density (trees/ac) by dbh class (in.)																		Trees ≥1.5 in. dbh					Trees ≥4.5 in. dbh
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	35-37	Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)	Importance value (%)
Kentucky coffeetree	0.02	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Smooth sumac	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Overcup oak	-	-	-	-	-	-	<0.0	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mulberry spp.	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Autumn olive	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01	-
Pin oak	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Water oak	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Honeysuckle	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	-
Swamp white oak	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01	-
Hickory spp.	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total	322.33	60.66	27.17	19.34	15.40	10.65	7.55	4.41	2.70	1.18	0.64	0.24	0.12	0.06	0.02	0.03	0.02	482.12	96.90	100.00	100.00	100.00	100.00

Table 17.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 5, Upland Waterway Dry Bottomland Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on 32 plots.*

	Density (trees/ac) by dbh class (in.)											Density	Basal area	Relative	Relative basal	Importance
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
White oak	32.83	17.40	8.60	5.00	3.13	1.60	1.27	0.47	0.13	0.07	0.07	70.57	17.77	13.88	20.52	17.20
Flowering dogwood	87.33	1.67	-	0.07	-	-	-	-	-	-	-	89.07	3.03	17.52	3.50	10.51
Post oak	22.83	16.47	8.13	2.67	0.73	0.07	-	-	-	-	-	50.90	8.92	10.01	10.30	10.16
Scarlet oak	3.00	2.93	3.40	3.73	3.27	2.53	1.27	0.73	0.33	0.13	0.07	21.40	13.29	4.21	15.35	9.78
Mockernut hickory	33.00	7.73	1.73	1.00	0.20	0.27	0.07	0.13	-	-	-	44.13	4.49	8.68	5.18	6.93
Pignut hickory	19.50	8.67	2.07	1.07	0.60	0.27	0.13	-	-	-	-	32.30	4.63	6.35	5.35	5.85
Blackgum	28.67	3.73	0.73	0.27	0.13	0.33	0.33	0.27	0.33	-	-	34.80	4.20	6.85	4.85	5.85
Black oak	2.33	2.33	1.80	1.53	1.80	0.87	0.60	0.73	0.53	0.07	-	12.60	7.96	2.48	9.19	5.84
Black hickory	19.17	5.53	1.67	1.00	0.93	0.27	0.07	-	-	-	-	28.63	3.89	5.63	4.49	5.06
Shortleaf pine	0.83	1.80	1.47	1.47	1.53	1.00	0.53	0.13	0.07	-	-	8.83	5.01	1.74	5.79	3.76
Slippery elm	9.17	2.40	1.20	1.00	0.13	0.07	0.07	0.13	-	-	-	14.17	2.15	2.79	2.49	2.64
Chinkapin oak	4.67	2.13	1.33	0.87	0.27	0.20	0.07	0.07	-	-	-	9.60	2.17	1.89	2.50	2.19
White ash	6.00	1.60	0.60	0.13	0.07	0.07	0.07	-	-	-	-	8.53	1.08	1.68	1.25	1.46
Grape	11.83	-	-	-	-	-	-	-	-	-	-	11.83	0.29	2.33	0.34	1.33
Bitternut hickory	1.67	1.73	1.40	0.40	0.13	0.13	-	-	-	-	-	5.47	1.34	1.08	1.55	1.31
Winged elm	7.17	1.33	0.33	0.13	-	-	-	-	-	-	-	8.97	0.64	1.76	0.74	1.25
Sassafras	9.17	0.20	0.07	-	-	-	-	-	-	-	-	9.43	0.32	1.86	0.37	1.11
Sugar maple	2.67	1.27	0.40	0.20	0.07	0.07	-	-	-	-	-	4.67	0.70	0.92	0.81	0.87
Redbud	6.67	0.07	-	0.07	-	-	-	-	-	-	-	6.80	0.28	1.34	0.33	0.83
Black walnut	0.83	0.60	0.80	0.33	0.07	0.07	0.07	-	-	-	-	2.77	0.84	0.54	0.97	0.76
American sycamore	0.17	0.27	-	0.07	0.27	0.13	0.20	0.07	-	0.07	-	1.23	1.03	0.24	1.19	0.72
Carolina buckthorn	5.50	-	-	-	-	-	-	-	-	-	-	5.50	0.11	1.08	0.12	0.60
Red mulberry	2.50	0.47	0.20	0.13	0.07	-	-	-	-	-	-	3.37	0.39	0.66	0.45	0.55
Perslmmon	2.83	0.47	-	-	-	-	-	-	-	-	-	3.30	0.16	0.65	0.18	0.41
Red maple	2.67	0.27	-	-	-	-	-	-	-	-	-	2.93	0.16	0.58	0.18	0.38
Hawthorn	2.67	-	-	-	-	-	-	-	-	-	-	2.67	0.06	0.52	0.07	0.30
American hornbeam	2.33	-	-	-	-	-	-	-	-	-	-	2.33	0.07	0.46	0.08	0.27
Hackberry	2.17	0.13	-	-	-	-	-	-	-	-	-	2.31	0.07	0.45	0.09	0.27
Black cherry	0.33	-	0.13	0.07	0.07	-	-	-	0.07	-	-	0.67	0.30	0.13	0.34	0.24
American elm	0.50	0.07	0.07	0.07	0.07	0.07	-	-	-	-	-	0.83	0.22	0.16	0.25	0.21
Northern red oak	-	-	-	-	-	0.07	-	0.13	-	-	-	0.20	0.31	0.04	0.35	0.20
Rusty blackhaw	1.67	-	-	-	-	-	-	-	-	-	-	1.67	0.04	0.33	0.05	0.19
Honeylocust	0.33	0.13	-	0.07	-	-	0.07	-	-	-	-	0.60	0.16	0.12	0.19	0.15
Green ash	0.33	-	0.07	0.20	-	-	-	-	-	-	-	0.60	0.15	0.12	0.17	0.14
Shagbark hickory	0.33	0.20	0.07	-	-	-	-	-	-	-	-	0.60	0.08	0.12	0.09	0.11
Southern catalpa	0.67	-	-	-	0.07	-	-	-	-	-	-	0.73	0.06	0.14	0.07	0.11
Blackjack oak	-	0.13	0.13	0.07	-	-	-	-	-	-	-	0.33	0.10	0.07	0.12	0.09
Paw paw	0.83	-	-	-	-	-	-	-	-	-	-	0.83	0.01	0.16	0.01	0.09
Ironwood	0.50	0.07	-	-	-	-	-	-	-	-	-	0.57	0.03	0.11	0.03	0.07
Plum	0.33	0.07	-	-	-	-	-	-	-	-	-	0.40	0.02	0.08	0.02	0.05
Gumbelina	0.17	0.13	-	-	-	-	-	-	-	-	-	0.30	0.03	0.06	0.03	0.04
Serviceberry	0.33	-	-	-	-	-	-	-	-	-	-	0.33	0.02	0.07	0.02	0.04
Eastern redcedar	0.33	-	-	-	-	-	-	-	-	-	-	0.33	0.01	0.07	0.01	0.04
Blueberry	0.17	-	-	-	-	-	-	-	-	-	-	0.17	0.01	0.03	0.01	0.02
Total	337.00	82.00	36.40	21.60	13.60	8.07	4.80	2.87	1.47	0.33	0.13	508.27	86.62	100.00	100.00	100.00

Table 18.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 7, Toe Slope Mesic Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on six plots.*

Species	Density (trees/ac) by dbh class (in.)										Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23					
Mockernut hickory	58.33	28.00	6.00	1.67	0.67	0.33	-	0.33	-	-	95.33	11.55	17.72	13.91	15.81
Flowering dogwood	130.00	2.00	-	-	-	-	-	-	-	-	132.00	4.73	24.54	5.70	15.12
White oak	36.67	15.67	4.67	3.00	1.00	0.33	0.67	0.33	0.33	0.33	63.00	11.80	11.71	14.21	12.96
Scarlet oak	0.83	4.00	2.00	4.33	2.67	1.67	2.67	1.67	1.00	0.33	21.17	17.22	3.93	20.74	12.34
Black oak	2.50	3.33	4.33	3.00	2.67	2.33	0.33	0.67	0.67	-	19.83	11.74	3.69	14.14	8.91
Black hickory	39.17	7.33	2.00	0.67	1.00	-	-	-	-	-	50.17	4.55	9.32	5.48	7.40
Sassafras	35.00	3.00	-	-	-	-	-	-	-	-	38.00	1.64	7.06	1.97	4.52
Post oak	3.33	4.00	3.00	2.33	1.00	1.00	-	-	-	-	14.67	4.98	2.73	5.99	4.36
Blackgum	8.33	10.67	2.00	0.33	0.33	-	0.33	-	-	-	22.00	3.54	4.09	4.26	4.18
Pignut hickory	20.00	5.00	0.67	0.33	-	-	0.33	-	-	-	26.33	2.54	4.89	3.05	3.97
Shortleaf pine	-	-	1.67	1.00	2.00	1.33	-	-	-	-	6.00	4.19	1.12	5.05	3.08
Chinkapin oak	-	1.00	1.00	-	0.33	0.33	-	-	-	-	2.67	1.13	0.50	1.36	0.93
Red maple	4.17	1.00	-	-	-	-	-	-	-	-	5.17	0.40	0.96	0.48	0.72
Black walnut	1.67	-	-	-	0.33	-	0.33	-	-	-	2.33	0.77	0.43	0.93	0.68
Plum	5.83	-	-	-	-	-	-	-	-	-	5.83	0.18	1.08	0.22	0.65
Hawthorn	5.83	-	-	-	-	-	-	-	-	-	5.83	0.12	1.08	0.14	0.61
Carolina buckthorn	5.00	-	-	-	-	-	-	-	-	-	5.00	0.11	0.93	0.13	0.53
Grape	5.00	-	-	-	-	-	-	-	-	-	5.00	0.08	0.93	0.10	0.51
American elm	1.67	1.33	-	-	-	-	-	-	-	-	3.00	0.29	0.56	0.35	0.45
Black cherry	2.50	0.33	-	-	-	-	-	-	-	-	2.83	0.12	0.53	0.15	0.34
Winged elm	1.67	0.67	-	-	-	-	-	-	-	-	2.33	0.19	0.43	0.23	0.33
Slippery elm	0.83	0.33	-	0.33	-	-	-	-	-	-	1.50	0.28	0.28	0.34	0.31
Red mulberry	-	1.33	-	-	-	-	-	-	-	-	1.33	0.23	0.25	0.28	0.26
American sycamore	-	-	0.33	0.33	-	-	-	-	-	-	0.67	0.32	0.12	0.38	0.25
Persimmon	1.67	-	-	-	-	-	-	-	-	-	1.67	0.05	0.31	0.06	0.18
Blackjack oak	0.83	0.33	-	-	-	-	-	-	-	-	1.17	0.09	0.22	0.11	0.16
Eastern redcedar	0.83	-	-	-	-	-	-	-	-	-	0.83	0.08	0.15	0.10	0.13
Serviceberry	0.83	-	-	-	-	-	-	-	-	-	0.83	0.03	0.15	0.03	0.09
White ash	0.83	-	-	-	-	-	-	-	-	-	0.83	0.01	0.15	0.01	0.08
Redbud	-	0.33	-	-	-	-	-	-	-	-	0.33	0.05	0.06	0.06	0.06
Honeylocust	-	0.33	-	-	-	-	-	-	-	-	0.33	0.04	0.06	0.05	0.05
Total	373.33	90.00	27.67	17.33	12.00	7.33	4.67	3.00	2.00	0.67	538.00	83.06	100.00	100.00	100.00

Table 19.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 11, Ridge Dry Chert Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on 91 plots.*

	Density (trees/ac) by dbh class (in.)															Density	Basal area	Relative	Relative basal	Importance
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
Black oak	12.69	9.03	8.37	9.87	7.19	4.99	3.91	2.31	1.54	0.46	0.15	0.09	0.02	0.02	0.02	60.67	36.41	13.42	35.31	24.37
White oak	57.80	18.20	6.86	3.25	1.54	0.92	0.35	0.40	0.26	0.18	0.11	0.02	-	0.04	0.02	89.96	14.91	19.90	14.46	17.18
Scarlet oak	8.35	4.64	3.89	3.91	3.21	2.11	1.43	0.73	0.48	0.29	0.13	0.04	0.04	-	-	29.25	15.15	6.47	14.69	10.58
Black hickory	41.59	6.46	2.20	2.02	0.92	0.42	0.20	0.07	0.04	-	-	-	-	-	-	53.92	6.18	11.93	5.99	8.96
Pignut hickory	29.40	7.65	2.70	1.23	0.88	0.22	0.20	-	-	-	-	-	-	-	-	42.27	5.41	9.35	5.25	7.30
Post oak	10.33	3.65	1.85	1.91	1.45	1.67	1.23	0.66	0.15	0.04	0.02	-	-	-	-	22.97	9.09	5.08	8.82	6.95
Mockernut hickory	28.90	4.48	1.58	1.19	0.64	0.26	0.04	-	-	-	-	-	-	-	-	37.10	3.85	8.21	3.74	5.97
Flowering dogwood	46.26	0.57	-	-	-	-	-	-	-	-	-	-	-	-	-	46.84	1.58	10.36	1.53	5.95
Shortleaf pine	4.45	2.48	2.53	2.29	2.20	0.95	0.44	0.22	0.04	-	-	-	-	-	-	15.59	6.54	3.45	6.35	4.90
Blackgum	16.10	0.99	0.31	0.02	-	0.07	0.04	0.02	0.04	-	-	-	-	-	-	17.59	1.13	3.89	1.09	2.49
Sassafras	15.55	0.26	0.04	-	-	-	-	-	-	-	-	-	-	-	-	15.86	0.53	3.51	0.51	2.01
Blackjack oak	1.81	0.31	0.26	0.13	0.22	0.09	0.07	-	0.02	-	-	-	-	-	-	2.91	0.70	0.64	0.68	0.66
Black walnut	0.88	0.53	0.24	0.26	0.11	0.11	0.02	-	0.04	0.02	-	0.02	-	-	-	2.24	0.82	0.50	0.80	0.65
Carolina buckthorn	2.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.36	0.05	0.52	0.05	0.29
Slippery elm	1.37	0.11	0.09	0.11	-	-	-	-	-	-	-	-	-	-	-	1.68	0.17	0.37	0.16	0.27
Hawthorn	1.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.98	0.04	0.44	0.04	0.24
White ash	0.71	0.09	0.04	0.04	0.02	0.04	-	-	-	-	-	-	-	-	-	0.96	0.14	0.21	0.14	0.17
Persimmon	1.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	0.04	0.24	0.04	0.14
Redbud	0.88	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	0.97	0.05	0.21	0.05	0.13
Grape	0.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.99	0.02	0.22	0.02	0.12
Red maple	0.66	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	0.68	0.03	0.15	0.03	0.09
Plum	0.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.66	0.02	0.15	0.02	0.08
Shagbark hickory	0.11	0.15	0.07	0.02	0.02	-	-	-	-	-	-	-	-	-	-	0.37	0.08	0.08	0.07	0.08
Serviceberry	0.49	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	0.03	0.12	0.03	0.08
Black cherry	0.38	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	0.45	0.02	0.10	0.02	0.06
Winged elm	0.33	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.01	0.08	0.01	0.04
Red mulberry	0.22	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	0.26	0.02	0.06	0.02	0.04
Sugar maple	0.22	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	0.26	0.01	0.06	0.01	0.04
Chinkapin oak	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	0.01	0.06	0.01	0.03
Bitternut hickory	0.05	-	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	0.10	0.02	0.02	0.02	0.02
Rusty blackhaw	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	<0.01	0.04	<0.01	0.02
Poison ivy	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	<0.01	0.04	<0.01	0.02
Hack/Sugarberry	0.05	0.02	-	0.02	-	-	-	-	-	-	-	-	-	-	-	0.10	0.02	0.02	0.02	0.02
Kentucky coffeetree	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	0.01	0.02	0.01	0.02
Mulberry spp.	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01
Ironwood	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01
Winged sumac	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01
Eastern redcedar	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01
Shellbark hickory	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	0.02	0.01	<0.01	0.01	0.01
Northern red oak	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01
Total	287.64	59.98	31.10	26.31	18.40	11.85	7.93	4.40	2.64	0.99	0.42	0.18	0.07	0.07	0.04	451.99	103.10	100.00	100.00	100.00

Table 20.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 15, Flat Dry Chert Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on five plots.*

Species	Density (trees/ac) by dbh class (in.)										Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23					
Black oak	16.00	3.60	2.40	17.20	16.80	11.20	5.20	3.20	2.00	0.80	78.40	54.83	28.45	61.37	44.91
White oak	29.00	8.80	2.40	1.20	0.40	1.60	0.80	-	-	-	44.20	6.83	16.04	7.65	11.84
Post oak	22.00	4.80	4.00	0.80	1.20	-	0.80	-	0.40	-	34.00	6.00	12.34	6.71	9.52
Sassafras	34.00	-	-	-	-	-	-	-	-	-	34.00	0.88	12.34	0.98	6.66
Scarlet oak	1.00	0.40	-	0.40	1.60	2.40	0.80	-	-	0.80	7.40	7.36	2.69	8.24	5.46
Black hickory	11.00	3.60	1.60	0.80	0.80	0.40	-	-	-	-	18.20	2.95	6.60	3.31	4.96
Mockernut hickory	13.00	2.40	0.80	0.80	0.40	-	-	-	-	-	17.40	1.84	6.31	2.06	4.19
Shortleaf pine	1.00	0.40	0.40	1.20	1.20	2.00	0.80	-	-	-	7.00	4.89	2.54	5.47	4.01
Pignut hickory	8.00	2.00	1.20	1.20	0.40	-	-	-	-	-	12.80	2.02	4.64	2.26	3.45
Flowering dogwood	14.00	0.40	-	-	-	-	-	-	-	-	14.40	0.67	5.22	0.74	2.98
Blackgum	5.00	0.80	-	-	-	-	-	-	-	-	5.80	0.35	2.10	0.39	1.25
Blackjack oak	-	-	-	1.20	-	-	-	-	-	-	1.20	0.63	0.44	0.70	0.57
Bitternut hickory	-	0.40	-	-	-	-	-	-	-	-	0.40	0.05	0.15	0.06	0.10
Shagbark hickory	-	0.40	-	-	-	-	-	-	-	-	0.40	0.05	0.15	0.05	0.10
Total	154.00	28.00	12.80	24.80	22.80	17.60	8.40	3.20	2.40	1.60	275.60	89.35	100.00	100.00	100.00

Table 21.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 17, South and West Slope Dry Chert Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on 260 plots.*

	Density (trees/ac) by dbh class (in.)														Density	Basal area	Relative	Relative basal	Importance
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
White oak	74.88	22.62	6.58	3.08	1.62	1.18	0.90	0.65	0.48	0.22	0.10	0.04	0.01	0.02	112.37	18.19	23.45	19.41	21.43
Scarlet oak	21.02	13.98	7.81	5.08	3.17	2.35	1.68	1.28	0.68	0.29	0.11	0.07	-	0.01	57.52	21.27	12.01	22.69	17.35
Black oak	13.50	10.03	6.56	5.25	3.72	2.77	1.98	1.45	0.75	0.32	0.15	0.04	0.04	-	46.56	21.81	9.72	23.27	16.50
Shortleaf pine	8.15	6.38	5.35	4.54	2.87	1.72	0.95	0.32	0.03	-	-	-	-	-	30.31	11.80	6.33	12.59	9.46
Flowering dogwood	63.04	1.11	0.04	0.01	-	-	-	-	-	-	-	-	-	-	64.19	2.27	13.40	2.42	7.91
Black hickory	25.96	2.95	1.55	0.95	0.50	0.26	0.05	0.07	-	0.01	0.01	-	-	-	32.31	3.33	6.74	3.55	5.15
Mockernut hickory	26.52	3.32	1.29	0.77	0.39	0.09	0.08	0.03	0.01	-	-	-	-	-	32.50	2.96	6.78	3.16	4.97
Post oak	8.60	2.91	1.57	1.34	1.25	0.89	0.56	0.26	0.07	0.03	0.01	0.01	-	-	17.50	5.57	3.65	5.94	4.80
Blackgum	25.54	1.14	0.14	0.10	0.17	0.12	0.11	0.08	0.06	0.05	0.02	-	-	-	27.52	1.95	5.74	2.08	3.91
Pignut hickory	10.88	2.11	0.85	0.33	0.25	0.17	0.05	0.02	0.01	-	-	-	-	-	14.65	1.76	3.06	1.87	2.47
Sassafras	10.19	0.20	-	-	-	-	-	-	-	-	-	-	-	-	10.39	0.35	2.17	0.37	1.27
Winged elm	6.94	0.38	0.05	0.02	-	-	-	-	-	-	-	-	-	-	7.40	0.32	1.54	0.34	0.94
Red maple	5.27	0.19	0.05	0.01	0.01	-	-	-	-	-	-	-	-	-	5.53	0.23	1.15	0.24	0.70
Blackjack oak	1.77	0.46	0.35	0.25	0.20	0.07	0.03	-	-	-	-	-	-	-	3.12	0.68	0.65	0.73	0.69
Chinkapin oak	1.44	0.33	0.13	0.07	0.02	0.02	0.02	-	-	-	-	-	-	-	2.03	0.27	0.42	0.29	0.36
Slippery elm	1.73	0.25	0.08	0.02	-	-	0.01	-	-	-	-	-	-	-	2.08	0.15	0.43	0.16	0.30
White ash	1.15	0.15	0.07	0.03	0.01	0.01	0.02	-	-	-	-	-	-	-	1.43	0.14	0.30	0.15	0.23
Black walnut	0.62	0.12	0.09	0.08	0.02	0.01	-	0.01	-	-	-	-	-	-	0.95	0.16	0.20	0.17	0.18
Persimmon	1.35	0.04	-	-	-	-	-	-	-	-	-	-	-	-	1.38	0.05	0.29	0.05	0.17
Eastern redcedar	0.62	0.21	0.11	0.02	0.01	-	-	-	-	-	-	-	-	-	0.95	0.11	0.20	0.12	0.16
Serviceberry	1.13	0.02	-	-	-	-	-	-	-	-	-	-	-	-	1.16	0.04	0.24	0.04	0.14
Carolina buckthorn	1.17	0.02	-	-	-	-	-	-	-	-	-	-	-	-	1.19	0.03	0.25	0.04	0.14
Redbud	0.83	0.05	-	-	-	-	-	-	-	-	-	-	-	-	0.87	0.03	0.18	0.04	0.11
Hawthorn	0.90	-	-	-	-	-	-	-	-	-	-	-	-	-	0.90	0.02	0.19	0.02	0.10
American elm	0.71	0.03	-	-	-	-	-	-	-	-	-	-	-	-	0.74	0.03	0.15	0.03	0.09
Sugar maple	0.35	0.09	0.02	-	0.01	0.01	-	-	-	-	-	-	-	-	0.47	0.05	0.10	0.05	0.08
Gumbelina	0.48	0.02	-	-	-	-	-	-	-	-	-	-	-	-	0.50	0.02	0.10	0.02	0.06
Rusty blackhaw	0.54	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	0.01	0.11	0.01	0.06
Grape	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48	0.01	0.10	0.01	0.05
Bitternut hickory	0.17	0.05	0.02	-	-	-	-	-	-	-	-	-	-	-	0.24	0.02	0.05	0.02	0.04
American hornbeam	0.21	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.22	0.01	0.05	0.01	0.03
Black cherry	0.08	0.04	0.02	0.01	-	-	-	-	-	-	-	-	-	-	0.14	0.02	0.03	0.02	0.02
Red mulberry	0.13	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	0.15	0.01	0.03	0.01	0.02
Blueberry	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	0.13	<0.01	0.03	<0.01	0.02
Winged sumac	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	<0.01	0.02	<0.01	0.01
Plum	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	<0.01	0.02	<0.01	0.01
American sycamore	0.08	-	0.01	-	-	-	-	-	-	-	-	-	-	-	0.08	0.01	0.02	0.01	0.01
Hackberry	0.08	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.08	<0.01	0.02	<0.01	0.01
Paw paw	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	<0.01	0.02	<0.01	0.01
Shellbark hickory	0.02	0.02	-	-	0.01	-	-	-	-	-	-	-	-	-	0.04	0.01	0.01	0.01	0.01
Shumard oak	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	0.02	0.01	<0.01	0.01	0.01
Ironwood	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	<0.01	0.01	<0.01	<0.01
Shagbark hickory	0.02	-	0.01	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	<0.01
Water oak	0.02	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.03	<0.01	0.01	<0.01	<0.01
Northern red oak	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Oak spp.	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Swamp white oak	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01
Autumn olive	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01
Hickory spp.	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Total	317.10	69.22	32.74	21.94	14.22	9.68	6.45	4.16	2.08	0.92	0.38	0.15	0.05	0.02	479.12	93.73	100.00	100.00	100.00

Table 22.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 18, North and East Slope Dry-mesic Chert Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on 213 plots.*

Species	Density (trees/ac) by dbh class (in.)																	Density	Basal area	Relative	Relative basal	Importance
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	35-37	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
White oak	72.29	24.21	8.52	3.85	2.30	1.40	1.08	0.73	0.50	0.29	0.15	0.07	0.03	0.03	-	0.01	0.02	115.46	21.33	23.95	22.01	22.98
Scarlet oak	8.80	7.58	5.59	4.88	4.24	3.27	2.49	1.47	0.84	0.29	0.20	0.07	0.04	-	0.02	-	-	39.78	22.76	8.25	23.49	15.87
Black oak	4.93	5.05	4.79	4.73	4.45	3.33	2.48	1.58	0.99	0.47	0.25	0.08	0.04	0.02	-	0.02	-	33.21	23.23	6.89	23.97	15.43
Flowering dogwood	115.80	2.96	0.08	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	118.85	4.50	24.65	4.64	14.65
Mockernut hickory	27.90	4.97	1.72	1.07	0.69	0.31	0.11	0.05	0.06	0.01	-	-	-	-	-	-	-	36.88	4.40	7.65	4.54	6.09
Pignut hickory	15.80	5.45	1.95	1.19	0.91	0.40	0.18	0.02	0.04	-	0.02	-	-	0.01	-	-	-	25.96	4.53	5.38	4.67	5.03
Black hickory	18.73	3.50	1.48	1.17	0.66	0.42	0.17	0.13	0.02	0.02	0.01	0.01	-	-	-	-	-	26.32	4.03	5.46	4.16	4.81
Blackgum	24.08	1.59	0.25	0.16	0.20	0.28	0.27	0.17	0.16	0.06	0.01	0.01	0.02	-	-	-	-	27.27	2.96	5.66	3.06	4.36
Post oak	2.29	1.14	0.75	0.58	0.72	0.57	0.45	0.17	0.07	0.04	0.01	-	-	-	-	-	-	6.77	3.21	1.40	3.31	2.36
Shortleaf pine	0.68	0.78	1.30	1.42	1.06	0.57	0.25	0.07	0.03	-	-	-	-	-	-	-	-	6.16	3.32	1.28	3.43	2.35
Red maple	15.57	0.75	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	16.46	0.64	3.41	0.66	2.04
Sassafras	8.14	0.44	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.63	0.38	1.79	0.39	1.09
Winged elm	2.92	0.25	0.04	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	3.23	0.15	0.67	0.16	0.41
Slippery elm	1.44	0.26	0.08	0.03	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	1.83	0.16	0.38	0.16	0.27
White ash	1.16	0.20	0.07	0.03	0.05	0.01	0.01	0.01	-	-	-	-	-	-	-	-	-	1.52	0.18	0.32	0.19	0.25
Black walnut	0.24	0.42	0.11	0.10	0.06	0.02	0.01	0.02	-	-	-	-	-	-	-	-	-	0.98	0.29	0.20	0.30	0.25
Chinkapin oak	0.64	0.27	0.13	0.02	0.02	0.04	0.02	-	-	-	-	-	-	-	-	-	-	1.14	0.21	0.24	0.22	0.23
Serviceberry	1.79	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.83	0.06	0.38	0.06	0.22
Grape	1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.67	0.03	0.35	0.03	0.19
Carolina buckthorn	1.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.53	0.04	0.32	0.04	0.18
Sugar maple	0.90	0.09	0.03	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	0.06	0.22	0.06	0.14
Persimmon	0.78	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.84	0.04	0.18	0.04	0.11
Red mulberry	0.66	0.11	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.80	0.05	0.17	0.05	0.11
Redbud	0.61	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	0.03	0.14	0.03	0.08
Bitternut hickory	0.24	0.12	0.02	0.01	-	0.01	-	-	-	-	-	-	-	-	-	-	-	0.40	0.06	0.08	0.06	0.07
Blackjack oak	0.21	0.08	0.02	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	0.35	0.06	0.07	0.06	0.07
Black cherry	0.31	0.08	-	0.01	-	0.01	-	-	-	-	-	-	-	-	-	-	-	0.41	0.04	0.09	0.04	0.06
Hawthorn	0.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.47	0.01	0.10	0.01	0.06
Ironwood	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.33	0.01	0.07	0.01	0.04
Rusty blackhaw	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.28	0.01	0.06	0.01	0.03
American elm	0.12	0.02	0.02	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	0.17	0.03	0.03	0.03	0.03
Shellbark hickory	-	0.03	-	0.02	0.02	0.01	-	-	-	-	-	-	-	-	-	-	-	0.08	0.04	0.02	0.04	0.03
Eastern redcedar	0.12	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.01	0.03	0.01	0.02
Shagbark hickory	-	0.02	0.01	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.05	0.02	0.01	0.02	0.01
American hornbeam	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	<0.01	0.02	<0.01	0.01
Gumbelina	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.09	<0.01	0.02	<0.01	0.01
Paw paw	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.09	<0.01	0.02	<0.01	0.01
Overcup oak	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	0.01	0.01	<0.01	0.01	0.01
Oak spp.	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	<0.01	0.01	<0.01	0.01
Plum	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01
Poison ivy	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	<0.01	0.01	<0.01	0.01
Hackberry	0.06	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.01	0.01	<0.01	<0.01
Honeysuckle	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01
Autumn olive	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	<0.01	<0.01	<0.01	<0.01
Pin oak	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Mulberry spp.	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
American sycamore	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Kentucky coffeetree	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Smooth sumac	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	<0.01	<0.01	<0.01	<0.01
Total	331.96	60.66	27.17	19.34	15.40	10.65	7.55	4.41	2.70	1.18	0.64	0.24	0.12	0.06	0.02	0.03	0.02	482.12	96.90	100.00	100.00	100.00

Table 23.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 19, South and West Slope Glade Savanna, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on 18 plots.*

Species	Density (trees/ac) by dbh class (in.)													Density	Basal area	Relative	Relative basal	Importance
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27	27-29	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
White oak	25.56	13.56	4.67	2.11	0.78	0.78	1.22	0.67	0.56	-	0.22	0.11	-	50.22	12.75	8.77	17.10	12.93
Shortleaf pine	6.67	8.44	7.89	4.89	3.33	1.11	0.33	0.22	-	-	-	-	-	32.89	11.94	5.74	16.02	10.88
Post oak	23.61	6.78	2.22	1.56	1.67	2.56	1.11	0.22	0.44	-	-	-	-	40.17	10.48	7.01	14.07	10.54
Flowering dogwood	88.33	1.78	0.11	-	-	-	-	-	-	-	-	-	-	90.22	3.50	15.75	4.70	10.22
Chinkapin oak	37.50	9.33	3.11	3.22	0.56	0.22	0.44	-	-	-	-	-	-	54.39	7.36	9.49	9.88	9.69
Scarlet oak	12.78	12.00	6.56	2.67	0.89	0.33	0.33	-	0.11	0.11	0.11	-	-	35.89	8.67	6.27	11.63	8.95
Mockernut hickory	22.50	3.56	0.56	0.11	-	0.22	-	-	-	-	-	-	-	26.94	2.00	4.70	2.68	3.69
Black hickory	17.50	2.33	1.22	0.56	0.33	0.22	-	-	-	0.11	-	-	-	22.28	2.52	3.89	3.38	3.63
Hawthorn	31.94	-	-	-	-	-	-	-	-	-	-	-	-	31.94	0.92	5.58	1.24	3.41
Black oak	1.94	3.33	1.56	0.67	0.22	0.22	-	-	0.11	0.22	-	-	0.11	8.39	3.26	1.46	4.38	2.92
Winged elm	18.61	2.00	0.44	0.11	-	-	-	-	-	-	-	-	-	21.17	1.20	3.70	1.61	2.65
Pignut hickory	7.78	2.22	0.44	0.22	0.22	0.11	0.11	-	-	-	-	-	-	11.11	1.43	1.94	1.92	1.93
White ash	9.17	1.33	0.56	0.22	0.11	-	-	-	0.11	-	-	-	-	11.50	1.16	2.01	1.56	1.78
Sugar maple	10.28	0.67	-	0.22	0.33	-	-	-	0.11	-	-	-	-	11.61	1.10	2.03	1.47	1.75
Blackgum	11.94	0.56	0.11	0.22	0.33	-	-	-	-	-	-	-	-	13.17	0.89	2.30	1.20	1.75
Slippery elm	12.22	1.11	-	-	-	-	-	-	-	-	-	-	-	13.33	0.66	2.33	0.88	1.60
Redbud	13.61	0.22	0.11	-	-	-	-	-	-	-	-	-	-	13.94	0.47	2.43	0.63	1.53
Sassafras	13.33	0.11	-	-	-	-	-	-	-	-	-	-	-	13.44	0.47	2.35	0.63	1.49
Carolina buckthorn	13.33	0.22	-	-	-	-	-	-	-	-	-	-	-	13.56	0.35	2.37	0.46	1.41
Gumbelina	9.44	0.78	-	-	-	-	-	-	-	-	-	-	-	10.22	0.48	1.78	0.65	1.22
Eastern redcedar	6.94	0.78	0.44	-	-	0.11	-	-	-	-	-	-	-	8.28	0.73	1.45	0.97	1.21
Black walnut	5.00	1.00	0.44	0.33	-	-	-	-	-	-	-	-	-	6.78	0.72	1.18	0.97	1.07
Persimmon	7.50	0.33	-	-	-	-	-	-	-	-	-	-	-	7.83	0.26	1.37	0.35	0.86
American hornbeam	4.72	-	-	-	-	-	-	-	-	-	-	-	-	4.72	0.12	0.82	0.16	0.49
American elm	3.89	0.11	-	-	-	-	-	-	-	-	-	-	-	4.00	0.14	0.70	0.19	0.45
Blackjack oak	1.94	0.33	-	0.11	0.11	-	-	-	-	-	-	-	-	2.50	0.32	0.44	0.43	0.43
Bitternut hickory	1.39	0.33	0.11	-	-	-	-	0.11	-	-	-	-	-	1.94	0.36	0.34	0.48	0.41
Ironwood	1.94	-	-	-	-	-	-	-	-	-	-	-	-	1.94	0.08	0.34	0.11	0.22
Red maple	1.67	0.11	-	-	-	-	-	-	-	-	-	-	-	1.78	0.06	0.31	0.09	0.20
Hackberry	1.94	-	-	-	-	-	-	-	-	-	-	-	-	1.94	0.04	0.34	0.06	0.20
Red mulberry	1.67	-	-	-	-	-	-	-	-	-	-	-	-	1.67	0.04	0.29	0.05	0.17
Rusty blackhaw	1.39	-	-	-	-	-	-	-	-	-	-	-	-	1.39	0.02	0.24	0.03	0.14
Serviceberry	1.11	-	-	-	-	-	-	-	-	-	-	-	-	1.11	0.02	0.19	0.03	0.11
Black cherry	0.28	-	-	-	-	-	-	-	-	-	-	-	-	0.28	<0.01	0.05	0.01	0.03
Plum	0.28	-	-	-	-	-	-	-	-	-	-	-	-	0.28	<0.01	0.05	0.01	0.03
Total	429.72	73.33	30.56	17.22	8.89	5.89	3.56	1.22	1.44	0.44	0.33	0.11	0.11	572.83	74.54	100.00	100.00	100.00

Table 24.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 20, North and East Slope Dry-mesic Limestone Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on seven plots.*

Species	Density (trees/ac) by dbh class (in.)												Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	23-25	25-27					
White oak	80.00	32.86	12.57	3.14	0.57	2.29	2.00	1.71	0.57	-	0.29	-	136.00	25.91	26.44	29.12	27.78
Scarlet oak	7.86	15.43	7.43	3.43	2.00	1.43	0.86	0.29	0.86	0.57	-	-	40.14	15.43	7.80	17.35	12.57
Flowering dogwood	86.43	0.57	-	-	-	-	-	-	-	-	-	-	87.00	2.70	16.91	3.03	9.97
Black oak	1.43	2.57	1.71	0.86	0.57	1.14	1.14	0.86	0.57	0.29	0.29	0.29	11.71	10.13	2.28	11.39	6.83
Shortleaf pine	-	4.57	4.00	3.43	2.57	0.57	-	-	-	-	-	-	15.14	6.69	2.94	7.52	5.23
Black hickory	5.00	2.86	2.57	2.86	2.29	0.57	0.29	-	-	-	-	-	16.43	5.99	3.19	6.73	4.96
Mockernut hickory	23.57	3.43	1.43	0.29	-	0.57	-	-	-	-	-	-	29.29	2.84	5.69	3.19	4.44
Blackgum	12.14	0.57	0.57	0.29	0.57	0.57	0.57	-	0.29	0.29	-	0.29	16.14	4.82	3.14	5.41	4.28
Post oak	5.00	1.71	2.29	0.57	0.86	0.86	0.57	0.29	-	-	-	-	12.14	4.63	2.36	5.21	3.78
Red maple	30.71	0.86	-	-	-	-	-	-	-	-	-	-	31.57	1.08	6.14	1.22	3.68
Winged elm	25.71	1.14	-	-	-	-	-	-	-	-	-	-	26.86	1.01	5.22	1.14	3.18
Chinkapin oak	18.57	2.86	0.29	0.57	-	-	-	-	-	-	-	-	22.29	1.71	4.33	1.92	3.13
Hawthorn	17.14	0.29	-	-	-	-	-	-	-	-	-	-	17.43	0.48	3.39	0.54	1.97
Pignut hickory	-	1.14	0.86	0.86	1.14	-	-	-	-	-	-	-	4.00	1.88	0.78	2.12	1.45
Sassafras	8.57	0.29	-	0.29	-	-	-	-	-	-	-	-	9.14	0.56	1.78	0.63	1.20
Sugar maple	6.43	-	-	-	0.29	-	0.29	-	-	-	-	-	7.00	0.93	1.36	1.04	1.20
White ash	4.29	0.86	-	-	-	-	-	0.29	-	-	-	-	5.43	0.81	1.06	0.91	0.98
Serviceberry	5.71	0.57	-	-	-	-	-	-	-	-	-	-	6.29	0.27	1.22	0.30	0.76
Slippery elm	5.71	0.29	-	-	-	-	-	-	-	-	-	-	6.00	0.20	1.17	0.22	0.69
Ironwood	4.29	-	-	-	-	-	-	-	-	-	-	-	4.29	0.09	0.83	0.10	0.47
Carolina buckthorn	3.57	-	-	-	-	-	-	-	-	-	-	-	3.57	0.12	0.69	0.13	0.41
Black walnut	0.71	-	-	0.29	0.29	-	-	-	-	-	-	-	1.29	0.45	0.25	0.50	0.38
Red mulberry	2.14	-	-	-	-	-	-	-	-	-	-	-	2.14	0.08	0.42	0.09	0.26
Persimmon	2.14	-	-	-	-	-	-	-	-	-	-	-	2.14	0.06	0.42	0.07	0.24
Redbud	0.71	-	-	-	-	-	-	-	-	-	-	-	0.71	0.04	0.14	0.05	0.09
American elm	-	0.29	-	-	-	-	-	-	-	-	-	-	0.29	0.07	0.06	0.08	0.07
Total	357.86	73.14	33.71	16.86	11.14	8.00	5.71	3.43	2.29	1.14	0.57	0.57	514.43	88.98	100.00	100.00	100.00

Table 25.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 21, Side Slope Dolomite or Limestone Glade, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on four plots.*

	Density (trees/ac) by dbh class (in.)										Density	Basal area	Relative	Relative basal	Importance
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
Scarlet oak	16.25	4.00	2.00	4.00	7.50	5.00	0.50	-	-	-	39.25	15.87	12.51	23.38	17.95
Black oak	15.00	2.50	2.50	4.50	6.00	4.50	1.50	-	-	-	36.50	15.74	11.63	23.18	17.41
White oak	22.50	9.50	6.00	2.50	1.50	0.50	-	-	-	-	42.50	7.90	13.55	11.64	12.59
Blackjack oak	5.00	2.50	5.50	4.00	4.50	1.50	1.00	-	-	-	24.00	11.45	7.65	16.87	12.26
Post oak	27.50	1.00	3.50	2.00	1.50	-	-	-	-	0.50	36.00	5.74	11.47	8.45	9.96
Shortleaf pine	27.50	5.50	2.00	2.00	-	-	-	-	-	-	37.00	3.97	11.79	5.85	8.82
Flowering dogwood	47.50	-	-	-	-	-	-	-	-	-	47.50	1.60	15.14	2.36	8.75
Black hickory	11.25	1.50	2.50	2.50	0.50	-	0.50	-	-	-	18.75	3.74	5.98	5.51	5.74
Blackgum	7.50	1.00	-	-	-	-	-	-	-	-	8.50	0.43	2.71	0.63	1.67
Eastern redcedar	5.00	0.50	0.50	-	-	-	-	-	-	-	6.00	0.45	1.91	0.66	1.29
Sassafras	7.50	-	-	-	-	-	-	-	-	-	7.50	0.12	2.39	0.17	1.28
Chinkapin oak	3.75	0.50	-	-	-	-	-	-	-	-	4.25	0.19	1.35	0.28	0.82
Winged elm	1.25	-	-	0.50	-	-	-	-	-	-	1.75	0.33	0.56	0.49	0.53
Pignut hickory	-	-	-	0.50	-	-	-	-	-	-	0.50	0.25	0.16	0.36	0.26
Ironwood	1.25	-	-	-	-	-	-	-	-	-	1.25	0.05	0.40	0.08	0.24
Gumbelina	1.25	-	-	-	-	-	-	-	-	-	1.25	0.03	0.40	0.05	0.22
Hackberry	1.25	-	-	-	-	-	-	-	-	-	1.25	0.02	0.40	0.02	0.21
Total	201.25	28.50	24.50	22.50	21.50	11.50	3.50	0.00	0.00	0.50	313.75	67.89	100.00	100.00	100.00

Table 26.--*Absolute and relative number of trees and basal area by species and d.b.h. class for Ecological Land Type 22, Side Slope Xeric Limestone Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on three plots.*

Species	Density (trees/ac) by dbh class (in.)										Density (trees/ac)	Basal area (m^2/ac)	Relative density (%)	Relative basal area (%)	Importance value (%)
	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23					
Flowering dogwood	201.67	5.33	-	-	-	-	-	-	-	-	207.00	8.22	36.99	8.37	22.68
Post oak	10.00	12.00	12.00	6.67	2.67	3.33	1.33	0.67	0.67	-	49.33	20.79	8.81	21.18	15.00
Black oak	3.33	-	1.33	4.67	2.67	2.67	0.67	2.00	-	1.33	18.67	16.10	3.34	16.40	9.87
White oak	25.00	6.67	3.33	2.00	4.00	1.33	-	0.67	-	-	43.00	10.01	7.68	10.19	8.94
Shortleaf pine	41.67	6.67	2.00	2.00	2.67	-	0.67	-	-	-	55.67	7.21	9.95	7.34	8.64
Scarlet oak	8.33	1.33	0.67	2.67	2.00	3.33	-	-	-	-	18.33	7.51	3.28	7.64	5.46
Chinkapin oak	5.00	3.33	2.00	1.33	1.33	1.33	-	0.67	-	-	15.00	5.61	2.68	5.71	4.20
Blackjack oak	5.00	6.00	5.33	3.33	-	-	-	-	-	-	19.67	4.58	3.51	4.67	4.09
Redbud	18.33	1.33	1.33	0.67	-	-	-	-	-	-	21.67	1.79	3.87	1.82	2.85
Grape	23.33	-	-	-	-	-	-	-	-	-	23.33	0.76	4.17	0.78	2.47
Shumard oak	-	-	-	-	-	-	0.67	-	-	1.33	2.00	4.43	0.36	4.51	2.43
Carolina buckthorn	21.67	-	-	-	-	-	-	-	-	-	21.67	0.49	3.87	0.50	2.18
Black hickory	3.33	1.33	0.67	-	0.67	0.67	-	-	-	-	6.67	1.91	1.19	1.94	1.57
Blackgum	10.00	0.67	0.67	-	-	-	-	-	-	-	11.33	0.64	2.03	0.65	1.34
American elm	-	-	0.67	-	-	-	-	-	0.67	-	1.33	1.77	0.24	1.80	1.02
Mockernut hickory	3.33	1.33	-	-	-	0.67	-	-	-	-	5.33	1.03	0.95	1.05	1.00
Hackberry	3.33	0.67	0.67	0.67	-	-	-	-	-	-	5.33	0.83	0.95	0.85	0.90
Green ash	5.00	0.67	0.67	-	-	-	-	-	-	-	6.33	0.57	1.13	0.58	0.86
Red maple	-	1.33	-	1.33	-	-	-	-	-	-	2.67	1.03	0.48	1.05	0.76
White ash	1.67	-	0.67	-	0.67	-	-	-	-	-	3.00	0.87	0.54	0.89	0.71
Smooth sumac	-	-	-	-	-	0.67	-	-	-	-	0.67	0.69	0.12	0.71	0.41
Sassafras	3.33	-	-	-	-	-	-	-	-	-	3.33	0.09	0.60	0.09	0.34
Poison ivy	3.33	-	-	-	-	-	-	-	-	-	3.33	0.05	0.60	0.05	0.32
Honeylocust	3.33	-	-	-	-	-	-	-	-	-	3.33	0.05	0.60	0.05	0.32
Pignut hickory	-	-	0.67	-	-	-	-	-	-	-	0.67	0.26	0.12	0.27	0.19
Winged elm	-	-	0.67	-	-	-	-	-	-	-	0.67	0.25	0.12	0.26	0.19
Black cherry	1.67	-	-	-	-	-	-	-	-	-	1.67	0.06	0.30	0.06	0.18
Pin oak	-	-	0.67	-	-	-	-	-	-	-	0.67	0.23	0.12	0.24	0.18
Gumbelina	1.67	-	-	-	-	-	-	-	-	-	1.67	0.05	0.30	0.05	0.18
Rusty blackhaw	1.67	-	-	-	-	-	-	-	-	-	1.67	0.04	0.30	0.04	0.17
Hawthorn	1.67	-	-	-	-	-	-	-	-	-	1.67	0.03	0.30	0.03	0.16
Persimmon	1.67	-	-	-	-	-	-	-	-	-	1.67	0.02	0.30	0.02	0.16
Eastern redcedar	-	0.67	-	-	-	-	-	-	-	-	0.67	0.12	0.12	0.12	0.12
Slippery elm	-	0.67	-	-	-	-	-	-	-	-	0.67	0.09	0.12	0.09	0.10
Total	408.33	50.00	34.00	25.33	16.67	14.00	3.33	4.00	1.33	2.67	559.67	98.18	100.00	100.00	100.00

Table 27.--*Absolute and relative number of trees and basal area by species and dbh class for Ecological Land Type 23, Side Slope Dry Limestone Forest, 1991-92. See Miller (1981) and Kabrick* et al. *(this volume) for a more detailed definition of ELT classes. Values based on nine plots.*

	Density (trees/ac) by dbh class (in.)										Density	Basal area	Relative	Relative basal	Importance
Species	1.5-4.4	4.5-7	7-9	9-11	11-13	13-15	15-17	17-19	19-21	21-23	(trees/ac)	(m^2/ac)	density (%)	area (%)	value (%)
Post oak	56.11	9.56	3.56	4.89	4.22	2.67	1.11	0.44	0.22	0.44	83.22	17.35	15.57	21.17	18.37
Scarlet oak	29.44	7.56	3.56	3.56	3.56	2.22	2.44	1.56	0.44	-	54.33	17.56	10.16	21.43	15.79
Shortleaf pine	15.56	6.22	5.78	4.89	2.00	0.89	0.89	-	-	-	36.22	9.87	6.77	12.05	9.41
Flowering dogwood	72.22	1.11	-	-	-	-	-	-	-	-	73.33	2.79	13.72	3.40	8.56
Black oak	5.56	5.78	3.78	2.89	2.89	2.22	0.44	0.22	-	-	23.78	9.60	4.45	11.72	8.08
White oak	27.78	6.22	1.78	0.89	0.44	0.67	0.44	-	-	0.22	38.44	5.46	7.19	6.66	6.92
Chinkapin oak	15.00	8.44	2.44	1.56	0.44	0.89	0.22	-	-	-	29.00	5.32	5.42	6.50	5.96
Blackjack oak	26.11	4.89	1.78	1.56	0.44	0.22	0.44	-	-	-	35.44	4.32	6.63	5.27	5.95
Eastern redcedar	20.56	4.67	1.11	0.22	0.22	-	-	-	0.22	-	27.00	2.77	5.05	3.38	4.21
Black hickory	23.33	2.22	1.33	-	0.44	0.22	-	-	-	-	27.56	2.14	5.15	2.61	3.88
Mockernut hickory	15.00	0.44	-	0.22	-	0.22	-	-	-	-	15.89	0.94	2.97	1.14	2.06
Persimmon	16.67	0.22	-	-	-	-	-	-	-	-	16.89	0.51	3.16	0.63	1.89
Winged elm	8.89	1.11	-	-	-	-	-	-	-	-	10.00	0.42	1.87	0.51	1.19
Pignut hickory	5.56	0.67	-	-	0.22	0.22	-	-	-	-	6.67	0.69	1.25	0.84	1.04
Carolina buckthorn	8.89	-	-	-	-	-	-	-	-	-	8.89	0.21	1.66	0.26	0.96
Hackberry	7.78	0.44	-	-	-	-	-	-	-	-	8.23	0.32	1.54	0.39	0.96
Redbud	7.22	0.22	-	-	-	-	-	-	-	-	7.44	0.26	1.39	0.32	0.86
Gumbelina	5.56	0.44	0.22	-	-	-	-	-	-	-	6.22	0.38	1.16	0.46	0.81
White ash	5.00	1.33	-	-	-	-	-	-	-	-	6.33	0.36	1.18	0.44	0.81
Blackgum	6.67	-	-	-	-	-	-	-	-	-	6.67	0.14	1.25	0.18	0.71
Rusty blackhaw	4.44	-	-	-	-	-	-	-	-	-	4.44	0.12	0.83	0.14	0.49
Sassafras	2.22	-	-	-	-	-	-	-	-	-	2.22	0.06	0.42	0.08	0.25
Slippery elm	1.11	-	-	0.22	-	-	-	-	-	-	1.33	0.14	0.25	0.17	0.21
Sugar maple	0.56	0.44	-	-	-	-	-	-	-	-	1.00	0.10	0.19	0.12	0.15
Black walnut	1.11	-	-	-	-	-	-	-	-	-	1.11	0.04	0.21	0.04	0.13
Ironwood	1.11	-	-	-	-	-	-	-	-	-	1.11	0.03	0.21	0.03	0.12
Hawthorn	0.56	-	-	-	-	-	-	-	-	-	0.56	0.01	0.10	0.01	0.06
Plum	0.56	-	-	-	-	-	-	-	-	-	0.56	0.01	0.10	0.01	0.06
Red mulberry	0.56	-	-	-	-	-	-	-	-	-	0.56	0.01	0.10	0.01	0.06
Black cherry	-	0.22	-	-	-	-	-	-	-	-	0.22	0.04	0.04	0.04	0.04
Total	391.11	62.22	25.33	20.89	14.89	10.44	6.00	2.22	0.89	0.67	534.67	81.96	100.00	100.00	100.00

Ground Layer Vegetation in the Missouri Ozark Forest Ecosystem Project: Pre-Treatment Species Composition, Richness, and Diversity

Jennifer K. Grabner[1]

Abstract.—Ground flora data were collected each summer from 1991 through 1995 as part of the pre-treatment phase of the Missouri Ozark Forest Ecosystem Project. This study used the same 648 permanent plots as the overstory vegetation study. Sixteen 1-m^2 quadrats were sampled at each plot, for a total of over 10,000 quadrats evenly distributed across the nine MOFEP sites. More than 530 ground layer species were identified. Across all sites, a few legume, woody vine, and understory tree species were most abundant in terms of both relative cover and frequency. Species consistently found in more than 80 percent of all plots each year included flowering dogwood (*Cornus florida*), tick trefoil (*Desmodium nudiflorum*), sassafras (*Sassafras albidum*), summer grape (*Vitis aestivalis*), black oak (*Quercus velutina*), white oak (*Quercus alba*), hog peanut (*Amphicarpa bracteata*), Virginia creeper (*Parthenocissus quinquefolia*), and blackgum (*Nyssa sylvatica*). Ground layer species abundances are characterized by wide ranges and large variances that appear related to among- and within-site patterns in soils and geomorphology. Patterns in plot richness, plot diversity, and individual species and plant type abundances appear correlated with geology, landform, and soils characteristics at the plot and site levels.

The Missouri Ozark Forest Ecosystem Project (MOFEP) was designed to assess effects of forest management on multiple aspects of an Ozark upland forest. Ground layer vegetation is an important component of any forest ecosystem and has been shown to be a useful indicator of attributes such as disturbance history, site productivity, and potential responses to management (Cajander 1926, Daubenmire 1976, Host and Pregitzer 1991, Rowe 1956, Spies and Barnes 1985, Whittaker 1967). The MOFEP study is the first comprehensive effort to describe and evaluate the upland ground flora of the southeastern Missouri Ozarks.

Initial harvest treatments were implemented on MOFEP sites in 1996. Pre-treatment ground flora data were collected on MOFEP sites each summer from 1991 through 1995. The value of these data can be viewed as threefold. First, in relation to the overall objectives of MOFEP as described in Brookshire *et al.* (1997), these data provide baseline information from which to directly assess long- and short-term effects of forest management. Second, from a broader perspective, they greatly improve our ability to investigate relationships among forest vegetation and the many other ecosystem components being studied across MOFEP sites. Third, these data provide a comprehensive assessment of vegetation composition and diversity that serves as a reference for future investigations in other geographic regions.

Objectives of this report are to briefly describe initial ground flora conditions on the MOFEP sites and to clearly document the methods used to collect, edit, and summarize pre-treatment botany data. This paper is intended to supplement work previously presented by Grabner *et al.* (1997), the summary of woody vegetation data provided by Shifley *et al.* in this volume, and work by Kabrick *et al.* (1997). The focus of this report is to provide detailed descriptive summaries that can be used as a principal reference for future MOFEP ground vegetation data analysis and as a general source of information on the upland flora in the southeastern Missouri Ozarks.

[1] Research Botanist, Missouri Department of Conservation, 1110 S. College Avenue, Columbia, MO 65201.

METHODS

Field Sampling

General Information

MOFEP ground flora was sampled in the same plots used for the woody vegetation there are 70 to 76 permanent 0.2-ha (0.5-ac) circular plots located within each of the nine study sites for a total of 648 MOFEP vegetation plots (table 1) (Brookshire and Dey, this volume). Detailed descriptions of the MOFEP experimental design, initial site stratification, and vegetation plot installation are provided by Brookshire and Hauser (1993), Brookshire *et al.* (1997), Kurzejeski *et al.* (1993), Sheriff and He (1997), and Shifley *et al.* (this volume).

Collection of pre-treatment ground flora data began in 1991 and continued each summer through 1995. Principal data collection was conducted between early June and late August each year. Sampling sometimes extended through September because of either limited field personnel or intentional resampling to address questions about seasonal effects. Sites 7, 8, and 9 were sampled in 1991. Sites 1-7 were sampled in 1992, and site 1 was completely resampled at the end of the season. In 1993 through 1995, all nine sites were completely sampled at least once each summer. Site 1 was fully resampled at the end of the season in both 1993 and 1995. Site 2 was partially re-sampled at the end of the 1993 season; site 5 was partially resampled at the end of the 1995 season (table 1).

At each 0.2-ha vegetation plot, ground flora data were collected from 16 permanent 1-m^2 quadrats. Each 0.2-ha plot contains four 0.02-ha subplots. Four 1-m^2 quadrats were sampled within each of the four 0.02-ha (0.05-ac) subplots. Quadrats were located 6.7 m (20 ft) from the subplot centers at 45°, 135°, 225°, and 315°. See figure 1 in Shifley *et al.* (this volume) for a diagram of the nested design of MOFEP vegetation plots.

Data Collection Protocol (1993-1995)

As the MOFEP ground flora study progressed, minor aspects of the data collection methods were revised. For an outline of differences in protocol among the pre-treatment seasons, refer to Grabner (1996). Changes in species identification concepts from year to year have been documented and are available from the author. For the remainder of this report, assume use of the sampling methods described below.

Within each 1-m^2 quadrat, all vascular species with live foliage less than 1 m above the ground were identified and assigned an estimate of percentage coverage (table 2). The sample included plants not rooted in the quadrat frame but with leaves hanging over it.

Table 1.—MOFEP *ground flora sampling activity for each pre-treatment year (1991-1995). Tabled values are the range of sampling dates for each site by year. Dates in parentheses represent outlier dates for a few plots sampled separately from the rest of the site.*

Block	Treatment	Site	Number of plots	1991 (2 people)[1]	1992 (5 people)	1993 (10 people)	1994 (10 people)	1995 (10 people)
1	No Harvest	1	73 ('91 - '94); 76 ('95)	not sampled	6/08 - 6/29; 9/23 - 10/09	6/01 - 6/21; 8/03 - 8/11	6/05 - 6/21 (8/30)	6/07 - 6/22; 8/14 - 9/12
1	Uneven-aged	2	73	not sampled	6/29 - 7/09	6/22 - 7/01; 8/11 - 8/18	6/21 - 7/07	6/20 - 7/10
1	Even-aged	3	72	not sampled	7/09 - 7/22	7/01 - 7/12	7/05 - 7/21 (8/30)	6/21 - 7/25
2	Uneven-aged	4	74	not sampled	8/18 - 10/05	7/13 - 8/02	7/19 - 8/07	7/24 - 8/10
2	Even-aged	5	70	not sampled	7/02 - 8/19	7/14 - 7/29	8/03 - 8/30	7/23 - 8/04; 9/13 - 9/27
2	No Harvest	6	71	not sampled	8/10 - 8/24	8/03 - 8/09	8/11 - 8/24 (6/22)	8/08 - 8/15
3	Uneven-aged	7	71	7/17 - 9/29	9/14 - 9/23	7/19 - 7/29	6/29 - 7/31	6/19 - 7/04
3	No Harvest	8	70	6/24 - 8/02	not sampled	6/01 - 6/24	6/06 - 6/30 (9/15)	6/06 - 6/20
3	Even-aged	9	71	7/29 - 8/27	not sampled	6/28 - 7/15	7/18 - 8/19	7/05 - 7/20
	Yearly totals		645 ('91 - '94); 648 ('95)	6/06 - 9/27	6/24 - 9/29	6/08 -10/09	6/01 - 8/18	6/05 - 9/15

[1] Inventory crew size.

Table 2.—*Data recorded for each 1-m² quadrat for the MOFEP ground flora study (1993-1995). See Grabner (1996) for detailed outline of data collection protocol for each pre-treatment season (1991-1995).*

Data field	Description
Site	MOFEP site number (1 - 9)
Plot	0.2-ha vegetation plot number (1 - 76 per site)
Subplot	0.02-ha subplot number (1 - 4 per plot)
Quadrat	1-m² quadrat number (1 - 4 per subplot)
Date	Date of ground flora data collection
Observer(s)	Initials of people collecting data
Canopy cover	Percent canopy closure over quadrat (1994 and 1995 only)
Rock	Percent visible rock (all sizes) within quadrat
Dead wood	Percent visible dead wood in quadrat or within 1 m above quadrat
Leaf litter	Percent fallen leaf/needle litter within quadrat
Bare ground	Percent visible exposed soil within quadrat
Basal area	Percent live basal area (all sizes) within quadrat
Moss/lichen	Percent coverage by mosses, lichens, and fungi within quadrat
Total vegetation	Percent of quadrat covered by live vegetation <1 m (vascular and non-vascular)
Species names/coverages	Species codes (1st 4 of genus + 1st 4 of species) and associated cover estimates
Stems	Number of stems rooted in quadrat for each tree species (for indiv. 4 m tall only) (Appendix D)

Individual species coverages were estimated as if no other species were in the quadrat (i.e., overlap among leaves of different species was ignored). Dead or dying plants were included if it was clear they had been alive during the growing season. This was particularly relevant for species which senesce early. Nomenclature generally followed that of Steyermark (1963) (Appendix D).

Stems were counted for all tree seedlings less than 1 m tall and rooted within the quadrat frames. Stems were not counted for species categorized as woody vines or shrubs (Appendix D).

Percent coverage was also estimated at each quadrat for rock, bare ground, leaf litter, dead wood, moss/lichens, and total live vegetation less than a meter tall (table 2). These ground cover categories were not mutually exclusive of each other, but did have to be apparent to observers without significantly removing or disturbing other layers. For a detailed outline of the methods and logic used to collect these data, see Grabner (1996).

During the 1994 and 1995 field seasons, canopy coverage was estimated at each quadrat using canopy tubes (see figure 3 in Grabner 1996). Canopy tubes were designed using 1.2-cm (3-in.)-diameter plastic pipes with mirrors mounted inside to reflect the view through the top of the pipe when held vertically. This design sampled a 6.2-m (20-ft) circular image of forest canopy at a height of 20 m (60 ft) above the ground. Canopy closure was defined as all live foliage hanging above the height of the tubes (1.6 m/5 ft) and over the quadrat frames. These estimates were intended simply to provide a quantitative estimate of percent canopy closure at the ground layer for each 0.2-ha plot.

Data Management and Analysis

All MOFEP botany pre-treatment data were recorded on paper and entered as electronic files at the end of each field season. All data files were checked and corrected for errors such as invalid species codes and illogical coverage values. Copies of clean, raw pre-treatment data and associated meta-data files are archived with the Forestry Division of the Missouri Department of Conservation. Digital and hard copy formats of summarized data are available from the author.

For this report, each MOFEP vegetation plot was put into 1 of 12 categories based largely on the geology and soil mapping work reported in Meinert *et al.* (1997). These 12 categories

are referred to as "plot types" and are described in table 3. Major landforms included summits and ridges, shoulder slopes, back-slopes, benches and secondary ridges, foot-slopes, and floodplains. More than 66 percent of all MOFEP vegetation plots occurred on back-slopes. Approximately 37 percent were on backslopes with deep, low-base (ultic), cherty soils; 21 percent occurred on deep, high-base (alfic) soils; 8 percent were on backslopes with high base soils with variable depths to dolomite bedrock. Table 3 contains descriptions and summaries by site for each of the 12 plot types used in this report.

Plant species cover, frequency, and density data were summarized by year, site, and plot type. All calculations were performed using initial sampling data for each year. Results from repeated sampling of sites within years have not been analyzed yet.

Species richness for each plot was defined as the number of species identified on the sixteen 1-m^2 quadrats within each 0.2-ha vegetation plot. Species richness for each plot was calculated for the 1991-1995 data. These data have been summarized and are available in digital or hard copy format from the author. Species diversity was calculated using both Simpson's Index and the Shannon-Weiner measure. Both indices were used to avoid biasing interpretations toward very common or rare species (Krebs 1989). Mean relative cover by species was calculated at the plot level by summing 1-m^2 coverages for each species, dividing by the sum of coverages for all species for that plot, and multiplying by 100. Relative cover by plant type was calculated similarly, with each species labeled as one of six types (Appendix D). Relative cover values were then summarized for each species by year and by plot type. Relative coverages and species diversity were calculated for the 1993-1995 data only because individual coverage estimates were not assigned to woody species (shrubs, trees, and woody vines) in 1991 or 1992.

Percent frequency was defined as the number of 0.2-ha plots in which a species occurred, divided by the total number of possible plots. Percent frequency was calculated for all species by year (Appendix D) and by plot type. For each 0.2-ha plot, the number of seedling stems per acre was calculated by summing the number of stems within the sixteen 1-m^2 quadrats and then converting this value to a per acre basis (# stems/16 m^2 x 252.93). These values were averaged by year and plot type for several common overstory and understory tree species.

RESULTS AND DISCUSSION

Statistical analyses of pre-treatment differences among sample years, replication blocks, and treatment groups were performed and reported by Grabner *et al.* (1997). The present report provides a descriptive summary of the pre-treatment MOFEP ground flora data by species, plot, and plot type.

General Site Characteristics—Species Richness, Diversity, and Composition

Approximately 530 ground flora species were recorded during pre-treatment sampling of MOFEP vegetation plots. Most (>80%) of these species are native perennials. Only 25 exotic species were identified on the plots, and four species are currently on either State or Federal 'Rare and Endangered' lists (Appendix D). The nine MOFEP sites were relatively similar in terms of the numbers of species identified within them. Site richness ranged from 309 species in site 6 to 381 in site 5, with an average of 346 species identified per site (table 4).

As with most forested ecosystems, the majority of those 530 ground layer species were relatively uncommon. More than 60 percent occurred in fewer than 10 percent of all plots each year (see figure 2 in Grabner *et al.* 1997). A few species of legumes, trees, and woody vines were dominant among all sites and years with respect to both relative coverage and frequency. Species consistently found in more than 80 percent of all plots each year included flowering dogwood (*Cornus florida*, understory tree), tick trefoil (*Desmodium nudiflorum*, legume), sassafras (*Sassafras albidum*, understory tree), summer grape (*Vitis aestivalis*, woody vine), black oak (*Quercus velutina*, tree), white oak (*Quercus alba*, tree), hog peanut (*Amphicarpa bracteata*, legume), Virginia creeper (*Parthenocissus quinquefolia*, woody vine), and blackgum (*Nyssa sylvatica*, understory tree). Table 5 identifies the most abundant herbaceous and woody species in 1995 based on both the percent of plots in which they occurred and their mean relative coverages across all sites. See Appendix D for a summary of percent frequency and relative cover for all species by sample year.

Table 3.— *Summary of plot types by site. Old ELT's correspond to those used in table 1 of Shifley* et al. *(this volume). Meinert ELT's are described in Meinert (1997). Plot types are ecological units defined by patterns in geology, landform, and soils. Values in site columns are the number of plots per type for each site.*

Plot type	Old ELT	Meinert ELT	Type description	Site 1	2	3	4	5	6	7	8	9	Total # plots
Summit / Ridge	11, 15	9, 15	0-8% slope; flat surface shape; highest positions of local hillslopes	4	5	3	7	1	4	12	7	4	47
Shoulder ridge / Shoulder	15	10, 11	8-20% slope; all aspects; convex surface	16	11	2	3	7	4	12	9	6	70
Southwest-facing deep ultic backslope	17	17	20-60% slope; exposed aspects; bedrock >48" below surface; low base sat. and low Cation Exchange Capacity (CEC)	20	12	18	7	8	20	16	17	20	138
Northeast-facing deep ultic backslope	18	18	20-60% slope; protected aspects; bedrock >48" below surface; low base sat. and low CEC	25	17	11	8	3	13	5	8	12	102
Southwest-facing deep alfic backslope	17	53, 66	20-60% slope; exposed aspects; bedrock >48" below surface; high base sat. and high CEC	5	9	10	17	12	8	8	8	9	86
Northeast-facing deep alfic backslope	18	52, 65	20-60% slope; protected aspects; bedrock >48" below surface; high base sat. and high CEC	2	4	6	9	8	10	5	3	5	52
Bench / Alfic Shoulder Ridge	17, 18	37, 38, 375 52, 65, 66	0-20% slope; all aspects; variable base sat. and CEC	0	4	8	6	15	7	5	9	4	58
Glade	21	21	8-60% slope; shallow soils; high CEC; very dry; usually on exposed aspects	0	1	2	1	1	0	1	1	0	7
Southwest variable depth backslope	19, 23`	1922, 1953	20-60% slope; exposed aspects; bedrock <48" below surface in at least part of plot; surface outcrops common; high base sat. and CEC	0	7	5	6	9	4	0	1	2	34
Northeast variable depth backslope	20	2023, 2052	20-60% slope; protected aspects bedrock <48" below surface in at least part of plot surface outcrops common; high base sat. and CEC	0	0	5	5	2	0	0	3	2	17
Footslope / Toeslope	7	7	0-15% slope; all aspects; surface somewhat concave; low slope position at base fo backslope; low-med. base sat. and CEC	1	1	0	1	2	0	1	1	4	11
Alluvial fan / Floodplain	5	5, 6	0-8% slope; all aspects; alluvial parent materials; variable base sat. and CEC	3	2	2	4	2	1	6	3	3	26
Totals	—	—		76	73	72	74	70	71	71	70	71	648

Table 4.—*Summary of plot richness and diversity by site for each pre-treatment sample year. Values in parentheses represent one standard deviation from the mean*

	Site									
	1 Block 1[1] NHM[2]	2 Block 1 UAM	3 Block 1 EAM	4 Block 2 UAM	5 Block 2 EAM	6 Block 2 NHM	7 Block 3 UAM	8 Block 3 NHM	9 Block 3 EAM	Average all sites
1991 (212 plots)										
Mean Plot Richness	na	na	na	na	na	na	27(11)	30(13)	36(14)	31(13)
Plot Richness - (min/max)	na	na	na	na	na	na	8/53	10/63	16/76	8/76
1992 (504 plots)										
Mean Plot Richness	28(9)	34(14)	35(15)	38(18)	43(13)	29(12)	27(11)	na	na	33(15)
Plot Richness - (min/max)	12/48	17/87	14/78	13/86	19/77	12/68	10/62	na	na	10/87
1993 (645 plots)										
Mean Plot Richness	30(9)	37(15)	39(20)	43(19)	53(19)	32(14)	33(14)	35(17)	42(18)	38(18)
Plot Richness - (min/max)	13/47	18/82	16/108	19/92	21/112	15/83	14/72	15/84	16/107	13/112
Mn. Shannon-Weiner Index	3.4(0.4)	3.6(0.6)	3.8(0.7)	4(0.8)	4(0.8)	3.3(0.7)	3.4(0.5)	3.6(0.7)	3.8(0.6)	3.7(0.7)
Mean Simpson's Index	0.84(0.06)	0.85(0.07)	0.88(0.05)	0.88(0.08)	0.88(0.07)	0.81(0.1)	0.85(0.06)	0.86(0.08)	0.88(0.05)	0.86(0.07)
1994 (644 plots)										
Mean Plot Richness	33(11)	46(23)	45(23)	50(23)	55(19)	37(15)	37(15)	38(19)	47(20)	43(20)
Plot Richness - (min/max)	15/61	18/125	17/119	18/103	21/100	16/78	17/76	10/89	21/106	10/125
Mn. Shannon-Weiner Index	3.4(0.7)	3.7(0.6)	4(0.7)	4(0.7)	4(0.7)	3.3(0.7)	3.4(0.5)	3.6(0.8)	3.9(0.5)	3.7(0.7)
Mean Simpson's Index	0.85(0.06)	0.86(0.07)	0.89(0.05)	0.88(0.08)	0.88(0.07)	0.81(0.1)	(0.84)0.06	0.86(0.08)	0.89(0.04)	0.86(0.07)
1995 (648 plots)										
Mean Plot Richness	34(11)	46(20)	47(25)	54(26)	59(22)	38(17)	39(15)	40(19)	49(22)	45(21)
Plot Richness - (min/max)	15/71	20/113	19/134	20/110	26/111	19/86	19/80	14/90	20/124	14/134
Mn. Shannon-Weiner Index	3.6(0.5)	3.7(0.7)	3.9(0.7)	3.9(0.8)	4(0.7)	3.3(0.6)	3.5(0.5)	3.7(0.7)	3.8(0.5)	3.7(0.7)
Mean Simpson's Index	0.86(0.06)	0.85(0.08)	0.89(0.05)	0.87(0.09)	0.88(0.07)	0.82(0.09)	0.85(0.07)	0.87(0.07)	0.88(0.04)	0.86(0.07)
Spp. Richness (all years)	326	370	334	365	381	309	335	343	355	346
Unique Species[3]	5	6	7	11	10	1	9	5	10	7

[1] MOFEP experimental block numbers. Blocks 1 through 9 are sometimes referred to as MOFEP sites 1 through 9.

[2] Designated treatment (1996): NHM = No Harvest management; UAM = Uneven-aged management; EAM = Even-aged management.

[3] Unique species are those found only on one of the nine sites for all sample years.

Table 5.—*Common herbaceous and woody species, ranked by both percent frequency and mean relative cover. Values in parentheses represent one standard deviation from the mean.*

Top 10 by frequency of occurrence	% of Plots	Top 10 by coverage	Mean relative cover	
		Herbaceous Species		
Desmodium nudiflorum Bare-Stem Trefoil	96	*Desmodium nudiflorum* Bare-stem trefoil	15.6	(14.7)
Amphicarpa bracteata Hog Peanut	86	*Amphicarpa bracteata* Hog peanut	6.9	(7.8)
Aristolochia serpentaria Virginia Snakeroot	67	*Thelypteris hexaganoptera* Broad beech fern	4.5	(6.7)
Carex nigromarginata sedge	58	*Rudbeckia missouriensis* Missouri black-eye Susan	4.1	(6.8)
Carex umbellata Umbel-like sedge	49	*Pteridium aquilinum* Bracken fern	3.7	(5.3)
Panicum boscii Bosc's panic grass	47	*Cimicifuga racemosa* Black cohosh	3.7	(3.8)
Smilacena racemosa Feathery false solomon's	41	*Silphium terebinthinaceum* Prairie dock	2.7	(2.0)
Desmodium nuttallii Nuttall's trefoil	40	*Desmodium glutinosum* Pointed tick trefoil	2.3	(2.6)
Panicum commutatum Panic grass	40	*Viola striata* Cream violet	2.2	(4.1)
Solidago ulmifolia Elm-leaved goldenrod	38	*Eupatorium* spp. Thoroughwort	2.1	(4.9)
		Woody Species		
Cornus florida Flowering Ddgwood	96	*Cornus florida* Flowering dogwood	9.4	(8.8)
Sassafras albidum Sassafras	96	*Sassafras albidum* Sassafras	7.7	(7.2)
Vitis aestivalis Summer grape	92	*Parthenocissus quinquefolia* Virginia creeper	7.4	(9.6)
Quercus velutina Black oak	89	*Vaccinium vacillans* Low blueberry	6.5	(7.8)
Quercus alba White Oak	88	*Lindera benzoin* Spicebush	5.5	(6.0)
Parthenocissus quinquefolia Virginia creeper	82	*Quercus stellata* Post oak	4.9	(6.5)
Nyssa sylvatica Black Gum	78	*Vaccinium stamineum* Deerberry	4.6	(6.5)
Quercus coccinea Scarlet oak	75	*Acer rubrum* Red maple	4.4	(5.7)
Vaccinium vacillans Low blueberry	67	*Asimina triloba* Pawpaw	4.3	(4.7)
Vitis spp. Grape	63	*Nyssa sylvatica* Black gum	3.9	(5.3)

Mean number of species per 0.2-ha plot (i.e., total for sixteen 1-m^2 quadrats) increased steadily from 31 in 1991 (sites 7, 8, and 9) to 45 in 1995 (all nine sites) (table 4). Grabner *et al.* (1997) performed a repeated measures analysis of variance on 1993-1995 data and reported statistically significant ($P<0.05$) differences among those sample years with respect to mean number of ground flora species recorded per plot. They attributed these differences to improvements in skill levels of personnel involved with the study each year. The mean number of seedlings per acre for several common overstory and understory tree species was relatively consistent for the 1993, 1994, and 1995 pre-treatment sample years (figs. 1 and 2).

Patterns in Ground Flora Richness, Diversity, Abundance, and Composition by Plot Type

In general, plot species richness and diversity were lowest on summits, shoulders, and ultic backslopes, and they were highest on glades, variable depth units, and floodplains. Mean richness ranged from 31 species per plot on summits and ridges to 81 on alluvial fans and floodplains and 102 on glades. Average values for Simpson's Index ranged from 0.82 on protected backslopes to 0.95 and 0.92 on glades and variable depth units, respectively (fig. 3). Similar patterns were observed for total vegetative coverage per quadrat. Mean canopy coverage per quadrat appeared relatively uniform among plot types with the expected exception of glades (fig. 4).

Figures 5 and 6 reveal interesting patterns among plot types with respect to relative coverage by plant groups. Legumes averaged high relative coverage on northeast-facing backslopes. Trees and shrubs averaged highest relative coverage on summits, shoulders, and exposed ultic backslopes, with an expected low mean coverage on glades. Ferns showed a large increase in coverage on southwest-facing acidic backslopes. This is likely a reflection of the abundance of one species, *Pteridium aquilinium* (bracken fern), a large, common fern on well-drained acidic soils. Table 6 is a summary of the 10 most frequently encountered species for each plot type.

Figures 7, 8, and 9 show mean seedling densities for several of the same tree species discussed in figures 1 and 2, this time summarized by plot type. Interesting patterns include increased density for white oak (*Quercus alba*) on benches and alfic shoulder ridges; a gradual decrease in density of black oak (*Quercus velutina*) seedlings from high to low slope positions; and a noticeable increase in Carolina buckthorn (*Rhamnus carolina*) density on glades and variable depth units. Table 7 contains the mean number of seedlings per acre by plot type for all MOFEP tree species in 1995.

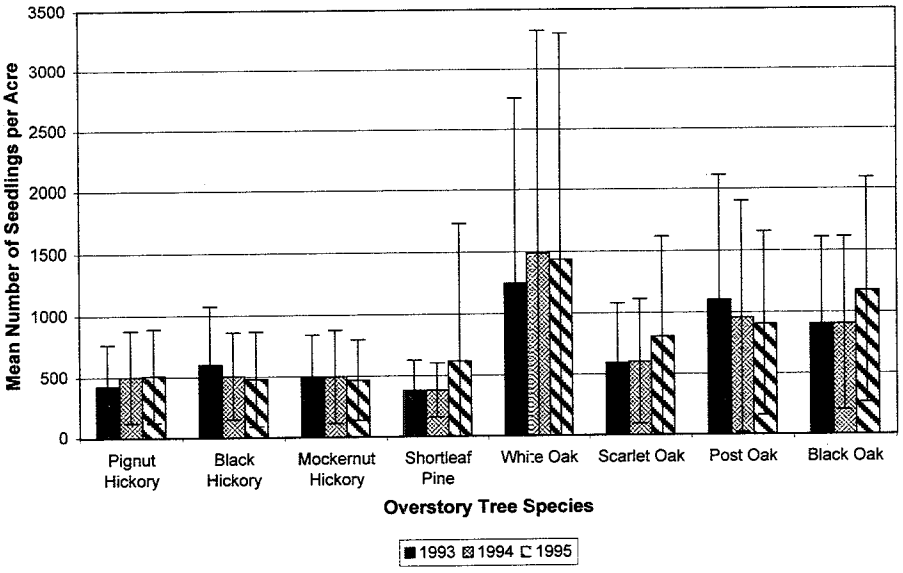


Figure 1.—*Summary of seedling densities by year for several common overstory tree species. Error bars represent one standard deviation from the mean.*

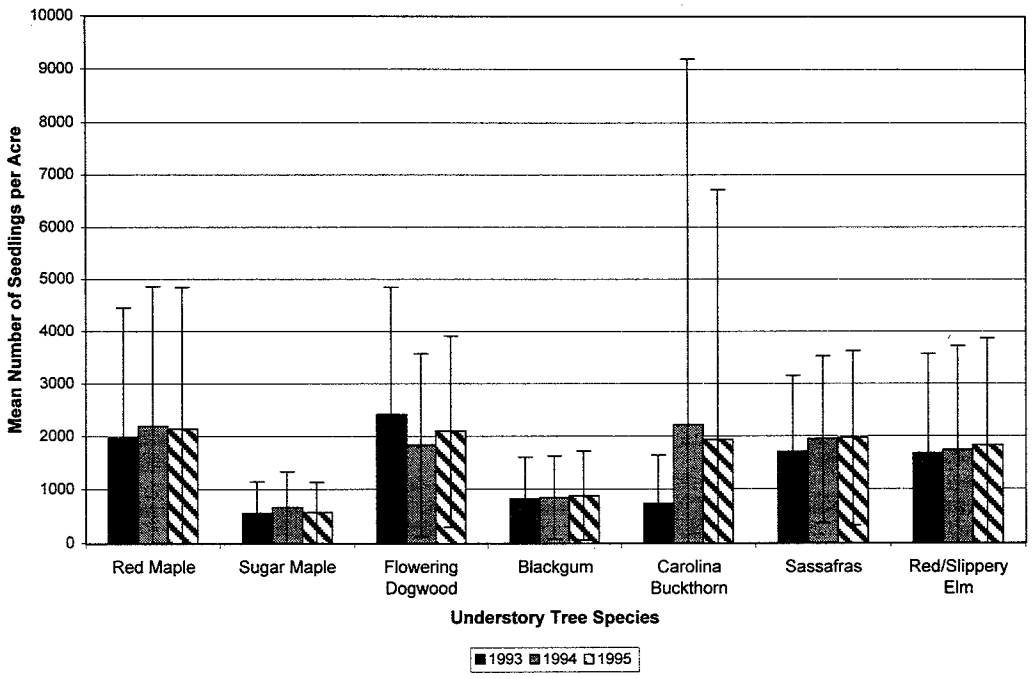


Figure 2.—*Summary of seedling densities by year for several common understory tree species. Error bars represent one standard deviation from the mean. Note the difference in scale between figures 1 and 2.*

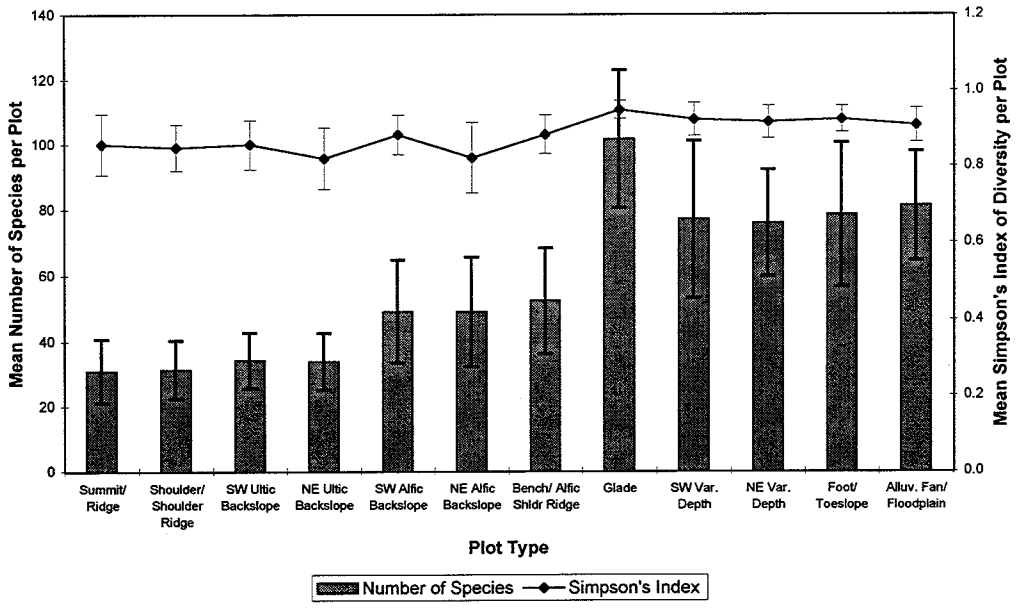


Figure 3.—*Summary of ground flora species richness and diversity by plot type. Error bars for plot richness represent one standard deviation from the mean. Error bars for plot diversity represent the standard error. Plot types are further defined in table 3.*

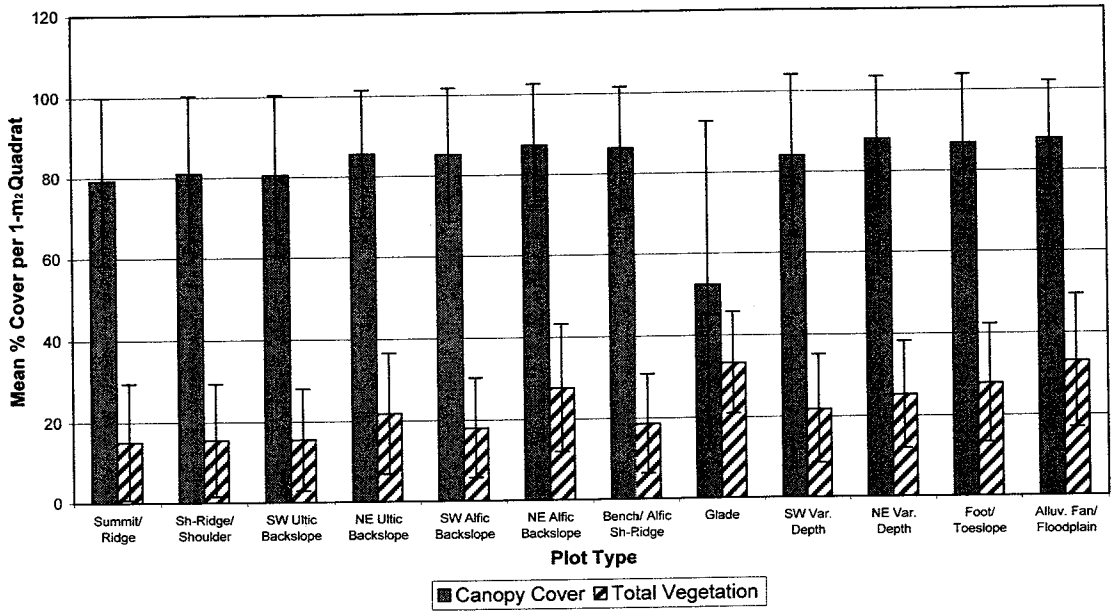


Figure 4.—*Mean canopy coverage and total ground vegetation coverage by plot type. Error bars represent one standard deviation from the mean (1995 data). See table 3 for descriptions of plot types.*

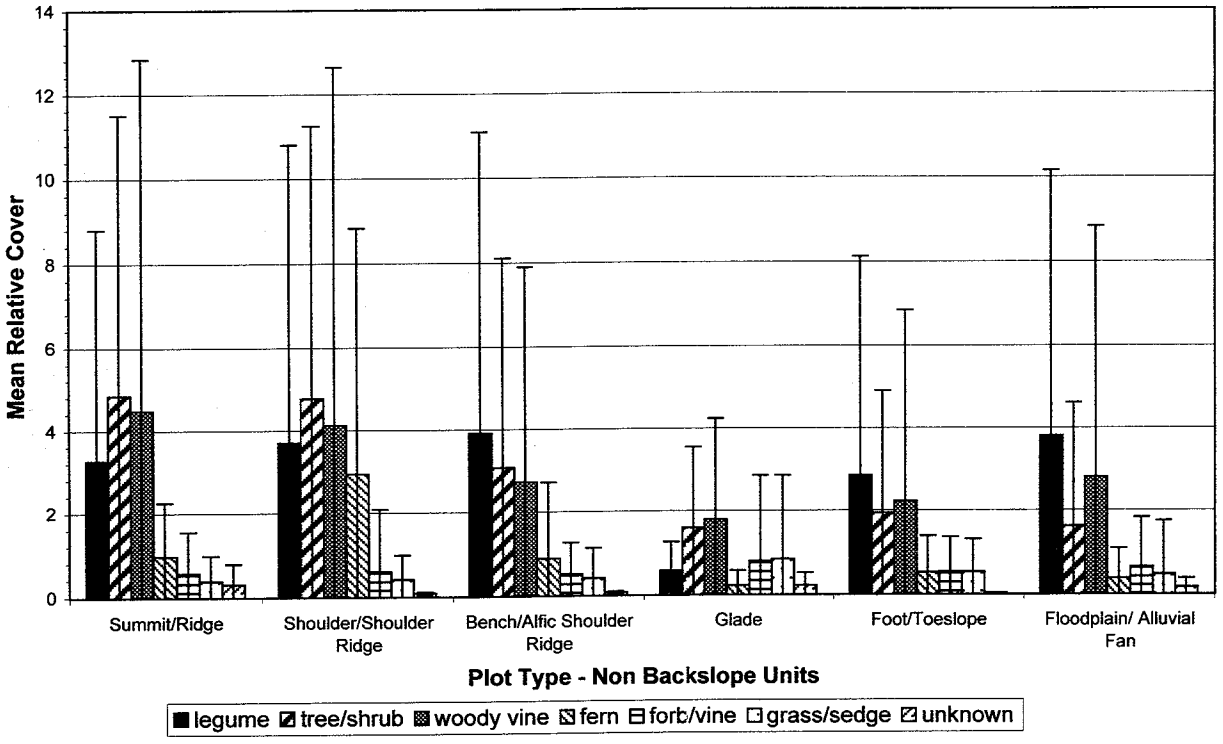


Figure 5.—*Relative coverages summarized by plant groups for all non-backslope plots. Note the high abundances of trees, shrubs, and woody vines on positions high in the landscape (e.g., summits, shoulder). Error bars represent one standard deviation from the mean (1995 data).*

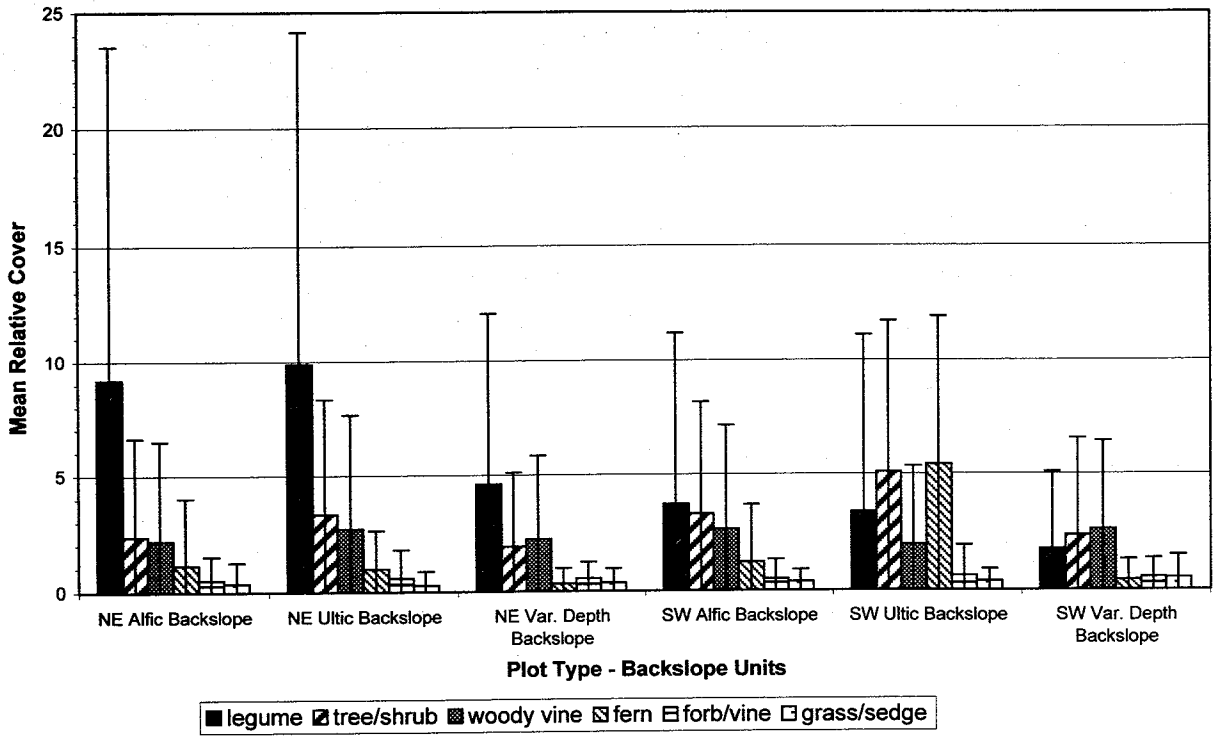


Figure 6.—*Relative coverages summarized by plant groups for all backslope plots. Note the high abundance of legumes on northeast-facing deep soil units. Error bars represent one standard deviation from the mean (1995 data).*

CONCLUSIONS

MOFEP ground flora data, summarized briefly in this report, reflect the diversity and complexity of the uplands in the southeastern Missouri Ozarks. Environmental factors such as geology, landform, and soils are important for understanding patterns in plant species diversity and abundance within and among the MOFEP sites. The data summarized in this report provide a general baseline from which to approach pre- and post-treatment data comparisons. Additionally, the information presented here illustrates the importance of approaching analyses of these data with the geolandform concept in mind. Plants are relatively simple in terms of what they require: water, nutrients, and light. In the uplands of the southeastern Missouri Ozarks, the distribution and availability of water, nutrients, and light are determined largely by patterns in geologic parent materials, landform shapes and positions, and soil depths and textures (Meinert *et al.* 1997). Placing the vegetation data within a geolandform framework helps minimize at least some of the variability inherent in these types of data and provides a starting point from which to approach both community and individual species analyses.

LITERATURE CITED

Brookshire, Brain L., and Dey, Daniel C. 2000. Establishment and data collection of vegetation related studies on the Missouri Ozark Forest Ecosystem Project study sites. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 1-18.

Brookshire, Brian; Hauser, C. 1993. The Missouri Ozark forest ecosystem project. In: Gillespie, A.R.; Parker, G.R.; Pope, P.E., eds. Proceedings of the 9th Central hardwood forest conference; 1993 March 8-10; West Lafayette, IN. Gen. Tech. Rep. NC-161. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 289-307.

Table 6.—*The 10 most common species for each plot type. Values represent the percent of possible plots in which each species occurred within each plot type (1995 data only). "—" indicates that a species was not 1 of the 10 most frequently encountered for a plot type, it does not mean that the species never occurred on that plot type. Plot types may have more than 10 species listed because of tie values.*

Species name	Common name	Summit/ Ridge	Sh. Ridge/ Shoulder	SW ultic backslope	NE ultic backslope	SW alfic backslope	NE alfic backslope	Bench/ Alf Sh. ridge	Glade	SW var. depth	NE var. depth	Foot/ Toeslope	Alluv fan/ Floodplain
Acer rubrum	Red maple	—	—	—	75	—	—	—	—	—	88	—	—
Amphicarpa bracteata	Hog peanut	77	84	—	88	97	92	98	—	94	100	100	100
Andropogon scoparius	Little bluestem	—	—	—	—	—	—	—	100	—	—	—	—
Aristolochia serpentaria	Virginia snakeroot	—	—	—	—	—	88	83	—	85	88	91	—
Brachyletrum erectum	Long-awned grass	—	—	—	—	—	—	—	—	—	—	—	88
Carya glabra	Pignut hickory	—	71	—	—	—	—	—	—	—	—	—	—
Carya texana	Black hickory	79	—	—	—	—	—	—	—	—	—	—	—
Cercis canadensis	Redbud	—	—	—	—	—	—	—	100	—	—	—	—
Cornus florida	Flowering dogwood	87	97	92	99	98	100	97	100	100	100	100	96
Desmodium nudiflorum	Tick trefoil	91	97	94	100	99	100	100	—	85	100	100	92
Diospyros virginiana	Persimmon	—	—	—	—	—	—	—	100	—	—	—	—
Galium circaezens	Bedstraw	—	—	—	—	—	—	—	—	—	—	—	88
Helianthus hirsutus	Sunflower	—	—	—	—	—	—	—	—	82	—	—	—
Houstonia nigricans	Bluets	—	—	—	—	—	—	—	100	—	—	—	—
Lithospermum canescens	Hoary puccoon	—	—	—	—	—	—	—	100	—	—	—	—
Nyssa sylvatica	Blackgum	—	—	81	90	87	92	—	—	—	—	—	88
Panicum boscii	Panic grass	—	—	—	—	—	—	82	—	—	100	100	96
Parthenocissus quinquefolia	Virginia creeper	70	74.	—	89	85	98	97	—	91	100	100	100
Potentilla simplex	Cinquefoil	—	—	—	—	—	—	—	—	—	—	100	88
Quercus alba	White oak	89	84	92	88	98	88	91	—	—	94	100	—
Quercus coccinea	Scarlet oak	68	—	83	75	79	—	—	—	82	—	—	—
Quercus velutina	Black oak	100	96	98	94	87	88	86	—	—	—	—	—
Rhamnus caroliniana	Carolina buckthorn	—	—	—	—	—	—	—	100	94	94	91	—
Rhus aromatica	Fragrant sumac	—	—	—	—	—	—	—	100	—	88	—	—
Sanicula spp.	Snakeroot	—	—	—	—	—	—	—	100	—	—	—	88
Sassafras albidum	Sassafras	96	96	99	98	99	96	97	—	88	94	91	—
Solidago ulmifolia	Goldenrod	—	—	—	—	—	—	—	—	—	94	—	—
Symphoricarpos orbiculatos	Buckbrush	—	—	—	—	—	—	—	100	—	—	—	—
Toxicodendron radicans	Poison ivy	—	—	—	—	—	—	—	—	—	88	—	—
Unknown forb	Unknown	—	—	—	—	—	—	—	100	—	—	—	—
Vaccinium stamineum	Farkleberry	—	—	73	—	—	—	—	—	—	—	—	—
Vaccinium vacillans	Lowbush blueberry	—	73	91	—	79	—	—	—	—	—	—	—
Vitis aestivalis	Summer grape	89	93	87	96	95	100	95	100	88	—	—	88

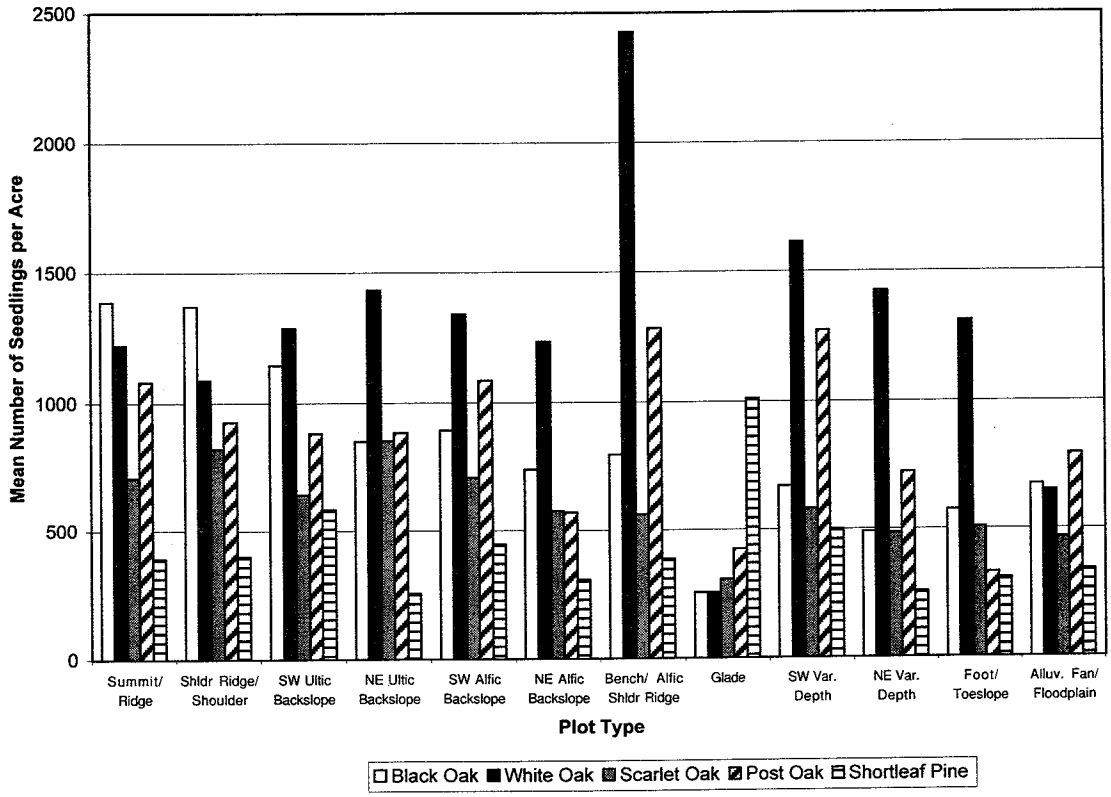


Figure 7.—*Mean seedling densities by plot type for several common overstory tree species. Note the peak in white oak seedling density on alfic benches and shoulder ridges. Also note the gradual decrease in black oak density from positions high in the landscape, such as ridges and shoulders, to positions like footslopes and variable depth backslopes, which are lower in the landscape (1995 data). See table 3 for descriptions of plot types.*

Brookshire, Brian L.; Jensen, R.; Dey, D.C. 1997. The Missouri Ozark forest ecosystem project: past, present, and future. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 1-25.

Cajander, A.K. 1926. The theory of forest types. Actaea Forestalia Fennica. 29: 1-108.

Daubenmire, R. 1976. The use of vegetation in assessing the productivity of forest lands. Botanical Review. 115-143.

Grabner, Jennifer. 1996. MOFEP botany: pretreatment sampling and data management protocol. Missouri Department of Conservation, unpublished report. 53 p.

Grabner, Jennifer K.; Larsen, D.R.; Kabrick, J.M. 1997. An analysis of MOFEP ground flora: pre-treatment conditions. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 169-197.

Host, George E.; Pregitzer, K.S. 1991. Ecological species groups for upland forest ecosystems of northwestern lower Michigan. Forest Ecology and Management. 43: 87-102.

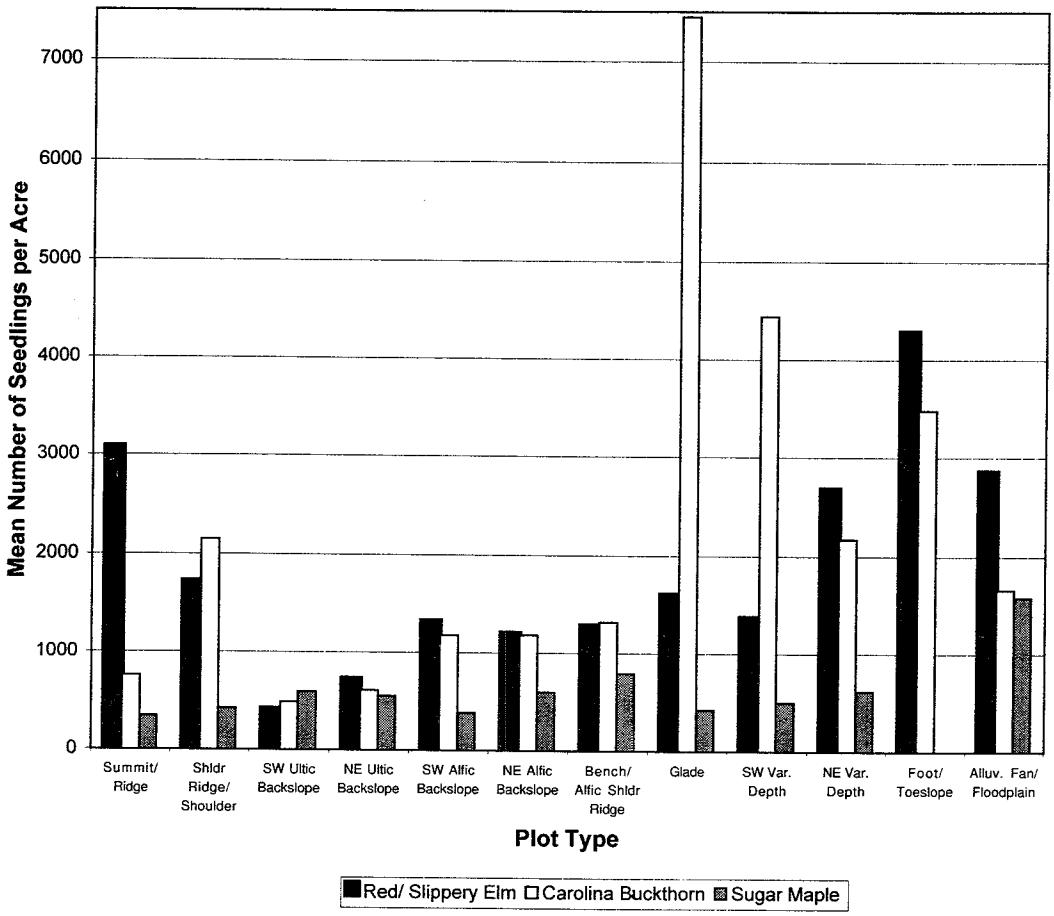


Figure 8.—*Mean seedling densities by plot type for several common understory tree species (1995 data). See table 3 for descriptions of plot types.*

Kabrick, John M.; Larsen, D.; Shifley, S. 1997. Analysis of pre-treatment woody vegetation and environmental data for the Missouri Ozark Forest Ecosystem Project. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 150-168.

Krebs, C.J. 1989. Ecological methodology. New York, NY: Harper Collins. 645 p.

Kurzejeski, E.W.; Clawson, R.L.; Renken, R.B.; Sheriff, S.L.; Vangilder, L.D.; Hauser, C.; Faaborg, J. 1993. Experimental evaluation of forest management: the Missouri Ozark forest ecosystem project. In: Transactions of the 58th North American wildlife and natural resources conference: 599-609.

Meinert, Dennis; Nigh, T.; Kabrick, J. 1997. Landforms, geology, and soils of the MOFEP study area. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 56-68.

Rowe, J.S. 1956. Uses of undergrowth plant species in forestry. Ecology. 37(3): 461-473.

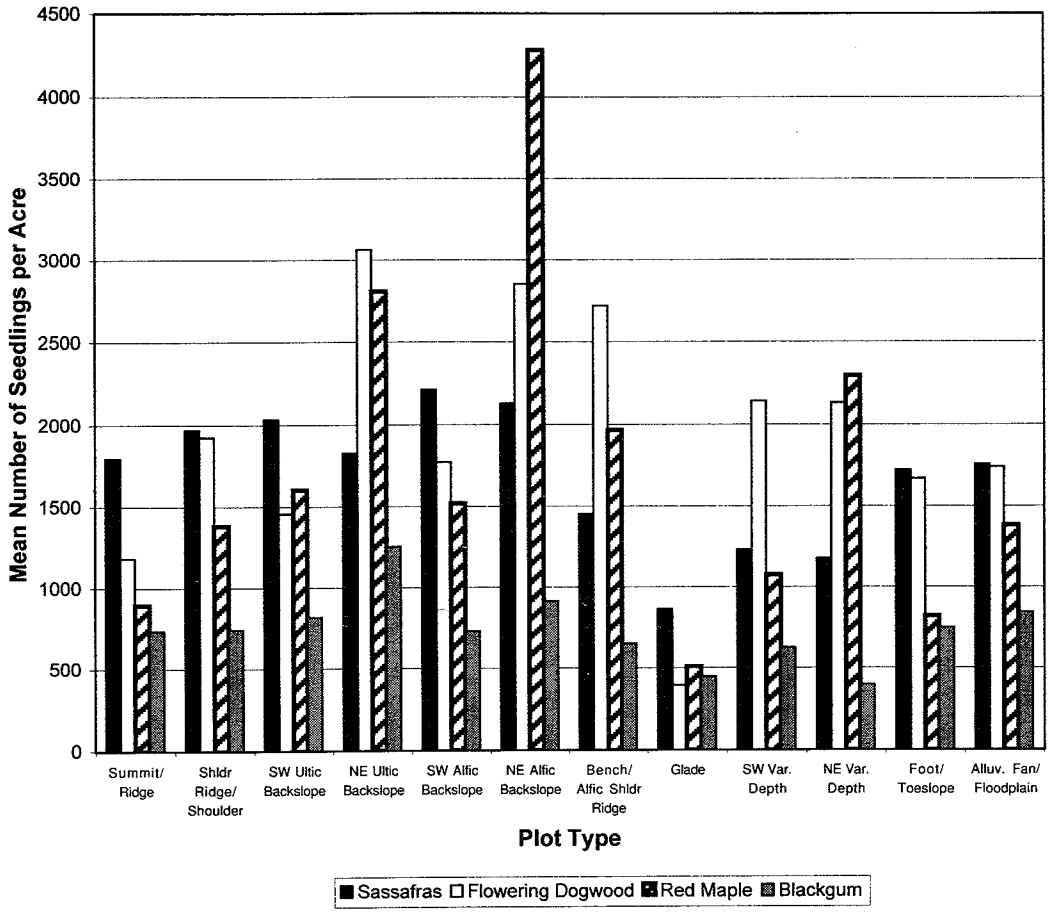


Figure 9.—*Mean seedling densities by plot type for several common understory tree species. Note the increases in density of flowering dogwood and red maple seedlings on protected backslope sites. See table 3 for descriptions of plot types.*

Sheriff, S.; He, Z. 1997. The experimental design of the Missouri Ozark forest ecosystem project. In: Brookshire, Brian L.; Shifley, Stephen R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 26-40.

Shifley, Stephen R.; Roovers, L.; Brookshire, B.; Larsen, D.; Jensen, R. 2000. Composition and structure of woody forest vegetation in the Missouri Ozark Forest Ecosystem Project. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 71-106.

Spies, T.; Barnes, B. 1985. A multifactor ecological classification of the northern hardwood and conifer ecosystems of Sylvania Recreation Area, Upper Peninsula, Michigan. Canadian Journal of Forest Research. 15: 949-960.

Steyermark, Julian. 1963. Flora of Missouri. Ames, IA: Iowa State University Press. 1,728 p.

Whittaker, R.H. 1967. Gradient analysis of vegetation. Biological Review. 49: 207-264.

Table 7.--*Mean number of seedling stems per acre by plot type for all MOFEP tree species. Values based on 1995 data only. See table 3 for descriptions of each plot type.*

Species name	Common name	Summit/ Ridge	Sh-ridge/ Shoulder	SW ultic backslope	NE ultic backslope	SW alfic backslope	NE alfic backslope	Bench/ Alf Sh-ridge	SW var. depth	NE var. depth	Glade	Foot/ Toeslope	Alluv fan/ Floodplain
Acer negundo	Box elder	0	0	0	759	0	0	380	0	0	0	0	0
Acer rubrum	Red maple	894	1383	1604	2805	1518	4278	1964	506	1071	2291	818	1381
Acer saccharum	Sugar maple	337	422	590	554	380	596	791	422	496	619	0	1581
Amelanchier arborea	Shadbush	460	368	347	690	452	443	389	1265	572	669	506	343
Asimina triloba	Pawpaw	434	0	253	662	295	253	928	0	337	810	316	1651
Bumelia lanuginosa	Gum bumelia	0	253	253	253	470	285	450	828	476	607	316	316
Carpinus caroliniana	Blue beech	0	0	253	0	759	506	0	0	911	0	843	607
Carya spp.	Hickory	490	449	428	532	512	568	427	253	415	428	483	661
Carya cordiformis	Bitternut hickory	253	253	253	253	316	253	405	0	1012	0	0	337
Carya glabra	Pignut hickory	646	435	414	547	472	549	459	253	409	337	607	426
Carya texana	Black hickory	701	574	494	573	549	502	464	506	451	447	575	495
Carya tomentosa	Mockernut hickory	511	396	448	533	445	522	476	0	380	281	870	594
Celtis spp.	Hackberry	253	253	253	253	322	422	380	1898	621	538	759	720
Celtis laevigata	Sugarberry	0	0	0	253	0	0	0	253	0	0	0	506
Celtis occidentalis	Hackberry	278	380	253	295	530	341	713	2012	944	925	1091	896
Celtis tenuifolia	Dwarf hackberry	0	0	0	0	253	0	253	886	759	1012	0	253
Cephalanthus occidentalis	Buttonbush	0	0	0	0	0	0	0	0	0	0	0	253
Cercis canadensis	Redbud	534	1995	253	538	662	437	1116	1181	1151	893	2151	944
Cornus drummondi	Rough-Lvd dogwood	0	0	0	506	506	0	0	0	590	0	506	506
Cornus florida	Flowering dogwood	1182	1925	1456	3060	1773	2848	2715	391	2142	2131	1672	1741
Cornus spp.	Dogwood	253	0	506	253	0	0	0	0	886	0	0	506
Corylus americana	American hazelnut	0	0	1265	872	853	774	773	0	569	337	1974	1181
Crataegus spp.	Hawthorn	295	278	253	455	400	411	560	562	563	554	483	701
Diospyros virginiana	Persimmon	462	519	270	298	325	410	388	361	344	426	2024	278
Elaeagnus umbellata	Autumn olive	0	0	0	0	0	0	506	0	0	0	1012	0
Euonymus atropurpureus	Eastern wahoo	0	0	0	0	506	253	0	0	0	0	0	0
Fraxinus spp.	Ash	253	0	633	506	253	380	422	0	422	759	253	633
Fraxinus americana	White ash	1168	253	409	829	642	615	827	253	552	1531	683	633
Fraxinus pennsylvanica	Green ash	0	0	506	380	1075	281	1028	0	289	1125	0	696
Gleditsia triacanthos	Honey locust	253	0	0	0	0	0	0	253	253	0	380	506
Hydrangea arborescens	Wild hydrangea	0	1265	2885	1438	506	607	253	2910	1406	976	886	904
Juglans nigra	Black walnut	0	337	253	0	253	422	0	253	253	253	253	253
Juniperus virginiana	Red cedar	0	253	380	253	253	295	633	1544	1265	422	506	285
Lindera benzoin	Spicebush	0	0	253	1366	819	1470	1265	0	1417	253	3711	2800
Morus spp.	Mulberry	253	253	0	253	253	253	253	253	253	253	253	304
Morus rubra	Red mulberry	253	253	0	316	253	578	354	253	329	405	2151	380
Nyssa sylvatica	Black gum	730	740	814	1253	729	909	648	443	621	393	746	842
Ostrya virginiana	Ironwood	0	1012	0	506	1518	506	0	253	590	506	1771	506

(*Table 7 continued on next page*)

(*Table 7 continued*)

Species name	Common name	Summit/ Ridge	Sh-ridge/ Shoulder	SW ultic backslope	NE ultic backslope	SW alfic backslope	NE alfic backslope	Bench/ Alf Sh. ridge	SW var. depth	NE var. depth	Glade	Foot/ Toeslope	Alluv fan/ Floodplain
Pinus echinata	Short-leaf pine	388	396	583	253	444	304	383	1012	500	253	304	337
Prunus spp.	Plum/Cherry	361	398	253	281	354	358	361	422	380	422	253	658
Prunus americana	Wild plum	506	289	253	506	253	405	337	590	506	253	337	253
Prunus serotina	Wild black cherry	498	387	437	622	549	648	918	443	617	941	1697	498
Pyrus malus	Apple	0	0	0	253	0	0	0	0	0	0	0	0
Quercus spp.	Oak	300	322	291	289	267	470	253	0	281	253	253	304
Quercus alba	White oak	1222	1086	1288	1433	1339	1234	2426	253	1612	1423	1307	651
Quercus coccinea	Scarlet oak	708	822	640	852	707	577	561	304	580	484	506	465
Quercus marilandica	Blackjack oak	584	690	1012	506	582	506	380	253	719	759	0	443
Quercus muehlenbergii	Chinkapin oak	253	253	759	253	368	337	425	828	574	667	569	603
Quercus rubra	Northern red oak	0	506	0	0	380	506	253	0	0	0	759	506
Quercus shumardii	Shumard oak	0	0	0	253	0	0	0	0	253	0	0	0
Quercus stellata	Post oak	1081	927	882	883	1085	569	1284	422	1273	723	325	795
Quercus velutina	Black oak	1386	1370	1145	850	892	739	797	253	670	488	573	675
Rhamnus caroliniana	Carolina buckthorn	759	2145	487	612	1179	1185	1321	7447	4439	2167	3477	1659
Rhus copallina	Winged sumac	422	253	289	253	337	253	253	253	253	0	506	0
Rhus glabra	Smooth sumac	253	0	0	0	0	0	0	506	0	0	0	0
Robinia pseudo-acacia	Black locust	0	0	0	0	0	0	0	1940	253	0	759	0
Sambucus canadensis	Elderberry	0	0	0	0	0	0	0	0	0	0	0	1012
Sassafras albidum	Sassafras	1795	1968	2034	1830	2211	2129	1453	860	1229	1175	1724	1756
Staphylea trifolia	Bladdernut	0	0	0	0	2615	0	0	0	0	0	506	1139
Ulmus spp.	Elm	1202	759	0	361	506	612	696	354	552	868	1075	868
Ulmus alata	Winged elm	0	253	253	337	380	307	455	350	447	386	569	552
Ulmus americana	American elm	759	886	253	1157	815	564	897	658	693	1058	1560	945
Ulmus rubra	Slippery elm	3075	1716	405	719	1317	1195	1277	1603	1367	2672	4279	2848
Unknown	Woody	322	313	390	327	331	313	395	607	460	380	295	337
Viburnum spp.	Blackhaw	0	0	0	0	0	253	759	0	253	0	0	0
Viburnum rufidulum	Rusty blackhaw	709	1265	253	342	333	345	299	434	407	434	309	361

Analysis of Down Wood Volme and Percent Ground Cover for the Missouri Ozark Forest Ecosystem Project

Laura A. Herbeck[1]

Abstract.—Volume and percent ground cover of down wood were estimated on the MOFEP sites from two separate sampling inventories, line transects and fixed-area plots. Line transects were used to sample down wood in the 1990-91 and 1994-95 inventories and fixed-area plots were used in an additional inventory in 1995. Line transect inventories estimated a range in ground cover from 1.2 to 2.9 percent in 1990-91 and from 1.0 to 2.2 percent in 1994-95. Fixed-area plots estimated a range in ground cover from 0.6 to 1.7 percent. Percent ground cover estimated by line transects was significantly higher than estimates based on fixed-area plots. Down wood volume estimates ranged from 190 to 423 ft^3 ac^{-1} for line transect inventories in 1994-95 and from 114 to 463 ft^3 ac^{-1} for fixed-area plots. No significant difference was found for down wood volume estimated by line transects and fixed-area plots.

Dead wood on the forest floor is important as a slow-release nutrient sink in forested ecosystems. This material provides habitat for numerous terrestrial vertebrates and invertebrates and serves as substrate for a variety of fungi. Measurement of down wood collected as part of the MOFEP vegetation sampling protocol is a necessary part of understanding the ecological processes that occur within the oak-hickory and oak-pine forests of the Ozarks. Sampling objectives were to estimate down wood volume and percent ground cover for MOFEP sites. Down wood characteristics were summarized for each MOFEP site and can be linked to other vegetative characteristics measured for individual plots.

METHODS

Volume and percent ground area cover of down wood on MOFEP sites were estimated from two separate inventories. The first inventory used line transects to measure down wood on 645 vegetation plots in 1990-91 and again in 1994-95. The latter inventory included three additional plots for a total of 648. On each plot, four line transect segments were established extending in cardinal directions from plot center to the four subplot centers (Shifley *et al.* figure 1, this volume). Each transect segment was 56.6 ft (17.2 m) in length. Down logs at least 24 in. (61 cm) in length and 2 in. (5 cm) in diameter were tallied when they intersected the transect line. Coverage was recorded as the length of the transect line covered by down logs. A Biltmore stick was used to record maximum diameter for each down log. Maximum diameter measurements excluded butt swell. In 1995, field crews also recorded minimum log diameter down to 2 in. in diameter. Length of each qualifying log was recorded by size class as shown in table 1. Logs that forked and had several branches were measured as multiple

Table 1.—*Size classes for recording log length on MOFEP sites by line transects in sample years 1990-91 and 1994-95. Length is recorded as the longest length the log attains until it has less than a 2 in. (5 cm) diameter.*

Size class	Length (feet)
5	$2 \le x \le 5$
10	$5 < x \le 10$
15	$10 < x \le 15$
20	$15 < x \le 20$
30	$20 < x \le 30$
40	$30 < x \le 40$
50	$40 < x \le 50$

[1] Wildlife Biologist, North Central Research Station, USDA Forest Service, 202 Anheuser-Busch Natural Resources Building, University of Missouri, Columbia, MO 65211-7260.

pieces with the main trunk as the longest length. Logs crossing two or more transects were recorded in each transect. Leaning snags at least 5 cm in diameter that were supported by another tree and stumps with a 24-in. horizontal length occurring under the line transect were recorded as down wood.

The extent of decomposition was ranked for each piece of down wood using five decay classes defined by Maser *et al.* (1979). Decay class characteristics are described in detail in table 2. Decay class one consisted of newly fallen limbs and trees with little decay; decay class five consisted of logs that were almost completely decomposed.

Table 2.—*Decay class descriptions for down wood.*

Class	Description
1	Bark intact; twigs present; log intact and elevated on points; round.
2	Bark intact but 10-90% loosened; twigs absent; log intact to partly soft and elevated on points but sagging slightly; round.
3	Trace of bark; twigs absent; log breaking into hard, large pieces and sagging near ground; round; original color to faded.
4	Bark absent; twigs absent; log breaking into small, soft, blocky pieces and in contact with ground; round to oval; faded.
5	Bark absent; twigs absent; log soft and powdery and in contact with ground; oval; faded.

The second down wood estimate, measured in 1995, was based on 99 fixed-area circular plots that were concentric with the overstory vegetation plots (Shifley *et al.*, this volume). These plots were equally distributed among the nine sites (11 plots per site), and plot selection within sites was random. The selected down wood plots occurred on ecological landtypes (ELT) 17 (48 plots), 18 (50 plots), and 23 (1 plot). ELT classifications are described by Miller (1981), Meinert *et al.* (1997), and Kabrick *et al.* (this volume). This second sample used protocols that matched other down wood inventories in the region, and the results can be directly compared to those from other studies (Shifley *et al.* 1995, 1997a, b; Rebertus *et al.* 1997). Logs or portions of logs ≥4 in. (10 cm) in diameter were tallied within the fixed-area plot. Length, midpoint diameter, and decay class were recorded for each qualifying piece of down wood within the plot. Leaning snags and stumps at least 4 in. in diameter were recorded as down wood.

ANALYTICAL METHODS

Percent Ground Cover

Percent of ground area covered by down wood was computed for all measurement years. For the line transects, percent cover of down wood was computed by simply measuring the proportion of the transect line that was covered by individual pieces of down wood. Coverage was determined as the vertical projection of the log onto the transect measuring tape. For the circular fixed-area (0.25-ac) plots, percent cover of down wood was determined by assuming each piece of down wood covered an area equal to the product of its length and its midpoint diameter. Areas for individual pieces of down wood were summed to obtain the proportion of the plot covered. Values were computed for each plot and averaged to obtain means by site and ELT. Table 3 indicates the number of plots sampled at each site for each inventory and the harvest treatment for each site. Shifley *et al.* (this volume) lists the number of plots and the years they were measured for all sites at MOFEP.

Volume

Volume was computed only for the 1994-95 measurement of line transects and the fixed-area plots. Volume for the line transect sample at each plot was computed using the formula presented by Van Wagner (1968):

$$V = \frac{\pi^2 \Sigma d^2}{8L}$$

where V is the volume per acre of down logs (ft^3/ft^2), d is the diameter of each down log (in.) averaged from maximum and minimum diameters, and L is transect length (ft). This formula depends on the assumptions that down

logs are cylindrical, horizontal, and randomly oriented. For the 1995 data, we used the average of the maximum and minimum log diameters as diameter for this equation. However, for the 1994 line transect data, only maximum log diameters and log length were measured in the field. Consequently, we assumed a 3.7 percent reduction in diameter per foot of length based on the mean observed taper rate for the 4,334 down logs measured in 1995. Based on this assumed taper rate and the known log length, we estimated the minimum log diameters for the 1994 inventory. We used the average of the maximum log diameter and the estimated minimum log diameter as the average log diameter in the application of the volume equation.

For the fixed-area plots, volume per log was computed from the observed length and midpoint diameter of each log using the formula for the volume of a cylinder with known length and diameter. All volumes were computed by plot and then summarized to obtain means by site and ELT. The number of plots sampled at each site and the harvest treatments for each site are listed in table 3.

Analysis of variance was used to compare mean volume and mean percent ground cover among sites and between ELT's for line transect and fixed-area plot inventories. Tukey's Honestly Significant Difference procedure was used to determine where differences exist among sites for each inventory.

RESULTS AND DISCUSSION

Percent Ground Cover

Ground area covered by down wood ranged from 1.2 to 2.9 percent and from 1.0 to 2.2 percent when estimated by line transects in years 1990-91 and 1994-95, respectively. In sample year 1990-91, significant differences were found for mean percent ground cover between sites 6 and all other sites ($F=11.3$; $P<0.01$) (table 4). Significant differences in mean percent ground cover were found among sites from sample year 1994-95 and are listed in table 4 ($F=6.1$; $P<0.01$). There were no significant differences in mean percent cover between the 1990-91 and 1994-95 line transect inventories ($F=2.6$; $P=0.11$). Ground area covered by down wood for fixed-area plots ranged from 0.6 to 1.7 percent (table 5). Mean percent ground cover for fixed-area plots was significantly different between sites 4 and 6 ($F=2.2$; $P=0.03$) (table 5).

The percent ground cover estimates based on line transects were consistently higher than estimates based on fixed-area plots. These differences were significant with $P<0.001$ ($F=11.3$). This difference was at least partially because line transect inventories included pieces down to 2 in. in diameter, but fixed-area plot inventories included pieces only down to 4 in. in diameter.

Percent ground cover of down wood also differed by ELT. Percent of down wood cover

Table 3.—*Summary of MOFEP harvest treatments and number of plots sampled at each site for fixed-area plots in 1995 and line transects during sample years 1990-91 and 1994-95.*

Site	Treatment	Number of fixed-area plots for volume and percent ground covered	Number of plots sampled by line transects for volume and percent ground covered	
			1990-91	1994-95
1	No harvest	11	73	76
2	Uneven-aged	11	73	73
3	Even-aged	11	72	72
4	Uneven-aged	11	74	74
5	Even-aged	11	70	70
6	No harvest	11	71	71
7	Uneven-aged	11	71	71
8	No harvest	11	70	70
9	Even-aged	11	71	71
Total		99	645	648

Table 4.—*Estimated percent ground cover of down wood for 1990-91 and 1994-95 line transect inventories. Estimated volume of down wood for 1994-95 line transects*[1].

Site	1990-1991 % ground covered by down wood		1994-1995 % ground covered by down wood		1994-1995 Vol. of down wood ($ft^3 \cdot ac^{-1}$)	
	Mean	SE[2]	Mean	SE	Mean	SE
1	1.8^{a}	0.11	1.6^{bc}	0.12	234^{ab}	21
2	1.5^{a}	0.11	1.2^{bc}	0.10	188^{a}	17
3	1.6^{a}	0.14	2.2^{ac}	0.25	418^{b}	122
4	1.7^{a}	0.16	1.4^{bc}	0.13	227^{ab}	27
5	1.7^{a}	0.17	1.0^{b}	0.09	198^{a}	23
6	2.9^{b}	0.19	2.2^{ac}	0.22	394^{ab}	43
7	1.6^{a}	0.13	1.8^{ac}	0.15	291^{ab}	32
8	1.6^{a}	0.14	1.8^{ac}	0.18	309^{ab}	34
9	1.2^{a}	0.11	1.4^{bc}	0.15	221^{ab}	24
Mean	1.7		1.6		276	

Means with the same letter within columns were not significantly different (Tukey multiple comparison, P>0.05).
[1] Volume $m^3 \cdot ha^{-1}$ = 0.06997 (volume $ft^3 \cdot ac^{-1}$).
[2] SE = standard error of the mean.

Table 5.—*Percent ground cover and volume of down wood by site for fixed-area plots (0.25 ac).*

Site	% ground covered by down wood		Vol. of down wood ($ft^3 \cdot ac^{-1}$)	
	Mean	SE[1]	Mean	SE
1	0.9^{ab}	0.15	209^{ab}	41
2	0.8^{ab}	0.11	167^{ab}	34
3	1.3^{ab}	0.26	345^{ab}	92
4	0.6^{a}	0.10	115^{a}	22
5	0.8^{ab}	0.12	165^{ab}	35
6	1.7^{b}	0.43	463^{b}	139
7	1.1^{ab}	0.36	242^{ab}	102
8	1.3^{ab}	0.20	269^{ab}	55
9	1.1^{ab}	0.22	382^{ab}	84
Mean	1.1		262	

Means with the same letter within columns were not significantly different (Tukey multiple comparison, P>0.05).
[1]SE = standard error of the mean.

estimated from sample years 1990-91 ranged from 1.1 to 2.5 percent for ELT 17 and from 0.9 to 2.5 percent for ELT 18 (table 6). Line transects sampled in years 1994-95 produced estimates ranging from 1.1 to 2.0 percent for ELT 17 and from 1.2 to 3.1 percent for ELT 18 (table 6). No significant differences were found between ELT's 17 and 18 in the 1990-91 or 1994-95 inventories (table 6). Percent ground cover of fixed-area plots ranged from 0.6 to 1.3 percent on ELT 17 and from 0.5 to 2.4 percent on ELT 18 (table 6). There were no significant differences between ELT 17 and ELT 18 (F=2.8; P=0.11) (table 6).

Volume

Line transect inventories estimated a range in down wood volume from 190 to 423 $ft^3 \cdot ac^{-1}$ (13 to 30 $m^3 \cdot ha^{-1}$) (table 4). Mean volume of down wood on site 3 was significantly greater than on sites 2 and 5 when estimated by line transects (F=2.6; P=0.008) (table 4). Decay classes three and four made up most down wood on all sites except site 3 where decay class one and two accounted for a slightly higher percent of volume. Decay classes three and four included 72 percent of down wood volume, decay classes two and five each had about 12 percent, and decay class one included 4 percent (table 7). The majority of volume was ranked into decay classes three and four in part because the ranking system was developed for western conifers (Maser *et al.* 1979).

Volume of down wood ranged from 114 to 463 $ft^3 \cdot ac^{-1}$ (8 to 32 $m^3 \cdot ha^{-1}$) when estimated using fixed-area plots (table 5). Mean volume of down wood was significantly greater on site 6 compared to site 4 (F= 2.3; P=0.03) (table 5). Most down wood volume on all sites was categorized as decay class three (74 percent) (table 8). Only about 14 percent of the total down wood volume was categorized into decay classes one and two combined, and about 12 percent was categorized into decay classes four and five combined. Mean volume did not differ significantly among sites on fixed-area plots in decay classes one, two, four, and five (table 8). However, site 6 was significantly greater than sites 2 and 4 in decay class three (F=2.6; P=0.01) (table 8).

Volume estimates based on line transects were larger on sites 1, 2, 3, 4, 5, 7, and 8, and volume estimates based on fixed-area plots were larger on sites 6 and 9 (tables 4, 5). There was no significant difference between mean volume estimates for fixed-area plots and line transects (F=0.1; P=0.76).

The mean volume of down wood estimated by line transects in 1994-95 was 249 and 314 $ft^3 \cdot ac^{-1}$ (17 and 22 $m^3 \cdot ha^{-1}$) for ELT's 17 and 18, respectively (table 9). There were no significant differences between ELT's 17 and 18 (F=3.0; P =0.10). The mean volume of down wood on fixed-area plots was 200 $ft^3 \cdot ac^{-1}$ (14 $m^3 \cdot ha^{-1}$) on ELT 17 and 324 $ft^3 \cdot ac^{-1}$ (23 $m^3 \cdot ha^{-1}$) on ELT 18 (table 9). No significant differences occurred between ELT's 17 and 18 (F=3.2; P=0.09) (table 9).

Table 6.—*Percent ground cover of down wood for ELT's 17 and 18 by site for fixed-area plot and line transect inventories. P-values are tests of differences among ELT 17 and ELT 18.*

Site	Percent ground cover of down wood					
	Fixed-area plot		Line transects 1990-1991		Line transects 1994-1995	
	ELT 17	ELT 18	ELT 17	ELT 18	ELT 17	ELT 18
1	1.0	1.4	1.1	0.9	1.6	1.8
2	1.1	0.7	1.5	1.4	1.1	1.3
3	0.7	0.8	1.1	1.4	1.7	3.1
4	0.9	1.9	1.4	1.6	1.2	1.5
5	0.6	0.5	1.4	1.5	1.1	1.2
6	0.8	0.7	1.5	1.5	1.8	2.8
7	0.9	2.4	2.5	2.5	2.0	2.0
8	0.7	1.6	1.3	1.7	1.7	2.2
9	1.3	1.4	1.4	1.5	1.4	1.3
Mean	0.9	1.2	1.5	1.6	1.5	1.9
P-value	0.11		0.66		0.13	

Table 7.—*Percent of down wood volume by decay class for the 1994-95 line transect inventory. Decay classes are defined in table 2.*

	Percent of down wood volume				
	Decay class				
Site	1	2	3	4	5
1	0.0	7.3	39.7	33.1	19.9
2	0.2	10.1	34.6	39.9	15.2
3	28.0	26.1	21.0	17.5	7.4
4	5.3	11.4	31.4	36.7	15.1
5	<0.1	5.4	44.1	38.7	11.7
6	0.1	11.4	39.3	34.7	14.5
7	0.8	13.2	45.5	31.7	8.8
8	0.2	8.7	55.0	27.4	8.8
9	3.7	14.9	53.7	20.6	7.1
Total	4.3	12.1	40.5	31.1	12.0

Table 8.—*Percent of down wood volume by decay class for fixed-area plots (0.25 ac). Decay classes are defined in table 2.*

	Percent of down wood volume				
	Decay class				
Site	1	2	3	4	5
1	2.6	4.7	74.8	15.5	2.4
2	0.3	5.5	70.8	22.6	0.7
3	32.0	4.1	58.2	5.7	0.1
4	0.0	8.8	72.2	18.6	0.5
5	0.0	3.3	86.4	9.8	0.6
6	0.1	5.2	90.1	4.4	0.2
7	22.0	17.2	54.4	6.2	0.1
8	2.0	7.6	76.3	12.8	1.3
9	5.5	9.0	81.7	3.8	0.0
Total	7.2	7.3	73.9	11.0	0.7

Table 9.—*Volume of down wood for ELT's 17 and 18 by site for the fixed-area plot and the 1994-95 line transect inventories.*

Site	Volume of down wood ($ft^3 \cdot ac^{-1}$)			
	Fixed-area plots		Line transects 1994-1995	
	ELT 17	ELT 18	ELT 17	ELT 18
1	250	174	240	247
2	162	174	202	209
3	194	525	256	395
4	126	106	207	264
5	207	140	174	279
6	120	670	330	502
7	120	390	260	379
8	257	259	350	323
9	283	502	223	239
Mean	200	324	249	314
P-value	0.09		0.10	

LITERATURE CITED

Kabrick, John; Meinert, Dennis; Nigh, Tim; Gorlinsky, B.J. 2000. Physical environment of the Missouri Ozark Forest Ecosystem Project sites. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 41-70.

Meinert, D.; Nigh, T.; Kabrick, J. 1997. Landforms, geology, and soils of the MOFEP study area. In: Brookshire, B.L.; Shifley, S.R., eds. Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 56-68.

Maser, C.; Anderson, R.G.; Cromack, K., Jr.; Williams, J.T.; Martin, R.E. 1979. Dead and down woody material. In: Thomas, J.A.W., ed. Wildlife habitats in managed forests: the Blue Mountains of Oregon and Washington. Agric. Handb. 553. Washington DC: U.S. Department of Agriculture, Forest Service: 78-95.

Miller, M.R. 1981. Ecological land classification subsystem - a basic inventory system for planning management of the Mark Twain National Forest. Rolla, MO: U.S. Department of Agriculture, Forest Service, Mark Twain National Forest. 56 p.

Rebertus, A.J.; Shifley, S.R.; Richards, R.H.; Roovers, L.M. 1997. Ice storm damage to an old-growth oak-hickory forest in Missouri. American Midland Naturalist. 137: 48-61.

Shifley, S.R.; Roovers, L.M.; Brookshire, B.L. 1995. Structural and compositional differences between old-growth and mature second-growth forests in the Missouri Ozarks. In: Gottschalk, K.W.; Fosbroke, S.L.C., eds. 10th Central hardwood forest conference proceedings; 1995 March 5-8; Morgantown, WV. Gen. Tech. Rep. NE-197. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station: 23-36.

Shifley, S.R.; Brookshire, B.L.; Larsen, D.R.; Herbeck, L.A. 1997a. Snags and down wood in Missouri old-growth and mature second-growth forests. Northern Journal of Applied Forestry. 14: 165-172.

Shifley, S.R.; Brookshire, B.L.; Larsen, D.R.; Herbeck, L.A.; Jensen, R. 1997b. Snags and down wood on upland oak sites in the Missouri Ozark Forest Ecosystem Project. In: Brookshire, B.L.; Shifley, S.R., eds.

Proceedings of the Missouri Ozark Forest Ecosystem Project symposium: an experimental approach to landscape research; 1997 June 3-5; St. Louis, MO. Gen. Tech. Rep. NC-193. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 248-256.

Shifley, Stephen R.; Roovers, Lynn M.; Jensen, Randy G.; Larsen, David R. 2000. Composition and structure of woody forest vegetation in the Missouri Ozark Forest Ecosystem Project. In: Shifley, Stephen R.; Brookshire, Brian L., eds. Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment. Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station: 71-106.

Van Wagner, C.E. 1968. The line intersect method in forest fuel sampling. Forest Science 14(1): 20-26.

APPENDIX A

WOODY VEGETATION INVENTORY PROTOCOLS

APPENDIX A

PRE-TREATMENT WOODY VEGETATION INVENTORY PROTOCOLS

Randy Jensen[1]

The MOFEP overstory study is an attempt to quantify the woody vegetation at least 1 m in height across nine study sites (management compartments) that are approximately 1,000 ac in size in the southeast Missouri Ozark oak-hickory-pine forest. These sites represent three blocks of even-aged, uneven-aged, and no-management treatments in Carter, Reynolds, and Shannon Counties. Plot establishment and data collection began in December 1990, and a second data collection was finished in 1994-95.

PLOT LOCATION

Random Points

Each of the nine MOFEP study sites was partitioned into ecological landtypes (ELT's) (Miller 1981) and further divided into stands within each ecological landtype. Stands ranged from 0.4 ac (for unique areas such as glades or sinkholes) up to 154 ac, but averaged about 16 ac in size. In the office, 1:15,840 scale maps were used to randomly assign plot locations at each site. This process continued until at least one plot was randomly located in each stand. Large stands had multiple plots. For each site, the area of each ELT and the proportion of plots within each ELT were determined. Additional plots were randomly located in undersampled ELTs to make the proportion of plots in each ELT approximately proportional to the area of the ELT.

Reference Points

Reference points were established and documented in the field at known locations. These were used as the beginning points in locating the cluster plot centers and were near dominant features such as survey markers, intersections of drainages and roads (cement bridges), intersections of old logging trails and roads, small high elevation circles on ridges, or the joining of two drainages. Most reference points were dominant or unique trees near these features that will endure a long time, can be accurately placed on the map, and are easy to relocate.

Each tree used as a reference point had an aluminum tag (1 x 2.75 in.) attached near the groundline on the opposite side from which it would normally be approached. Site and reference point number were stamped into the tag (e.g., 7-1 refers to site 7 and reference point 1). A 6-in.-diameter spot of white tree marking paint was placed next to the tag. Trees were identified to species and diameter at breast height (dbh). The species, dbh, azimuth, and distance to other prominent trees in the vicinity were recorded to aid in locating the reference tree and use as backups if the tree was removed.

Plot Placement

After the reference point was mapped, a map reading compass (Silva Ranger set to 0° declination) was used to determine the azimuth to the cluster plot center. An engineer's rule was used to determine distance in chains with 0.05 in. on the rule being equal to 1 chain (66 ft) horizontal on the ground. Distances were recorded to the nearest 0.5 chain. The azimuth and distance were placed in a field notebook along with the site, plot, stand number, and ELT. A person then paced to the plot center using a Suunto KB-14 compass and placed a temporary marker at that point. The topographic map was studied to determine if the ground placement corresponded to the random point placement on the map.

The temporary plot center was moved when any of the following conditions occurred:

1. It did not appear to be in the right location. Drainages, ridge centers, and elevation line spacings were used to make sure the plot center on the ground and the map corresponded. Any correction in azimuth and distance was recorded in the field notebook.

[1] Resource Forester, Missouri Department of Conservation, Rt. 2 Box 198, Ellington, MO 63638.

2. Any part of the 0.5-ac plot crossed into another stand. The random point was moved so that the whole plot was in the same stand and ELT. The map reading compass and engineer's rule were used to mark the new location on the map.

3. The location on the ground was not characteristic of the ELT assigned to that stand. An example would be an ELT 11 stand (narrow ridgetop) where the stand on the map looked wide enough for a cluster plot, but when measured on the ground the plot was partially on sideslopes. Another example would be a large ELT 17 stand (SW sideslope) that had side drainages creating areas with an ELT 18 (NE sideslope) influence.

4. It was necessary to avoid anthropogenic disturbances or openings such as areas cleared for turkey trapping, firewood cutting, food plots, or rights-of-way. In this case, the cluster plot was moved so that the nearest edge of the plot was 2 chains away from any human-caused openings (3.75 chains to center). This would also apply to boundaries with private or Federal lands even when forest conditions were similar because future plans for these areas were not known or controllable. Plots were not kept away from logging trails if the canopy conditions over the trails was similar to the surrounding area. However, the plots were kept off larger logging trails. Natural disturbances such as areas with oak decline or blowdowns were not avoided nor were naturally occurring glades.

The number of established forest vegetation plots ranges from 70 to 76 per site:

Site	No. Plots
1	76
2	73
3	72
4	74
5	70
6	71
7	71
8	70
9	71

CLUSTER PLOT DESIGN

A nested plot design was used within the 0.5-ac plot to measure different size classes of woody vegetation (fig. 1). Plot sizes and corresponding size classes of woody vegetation sampled were:

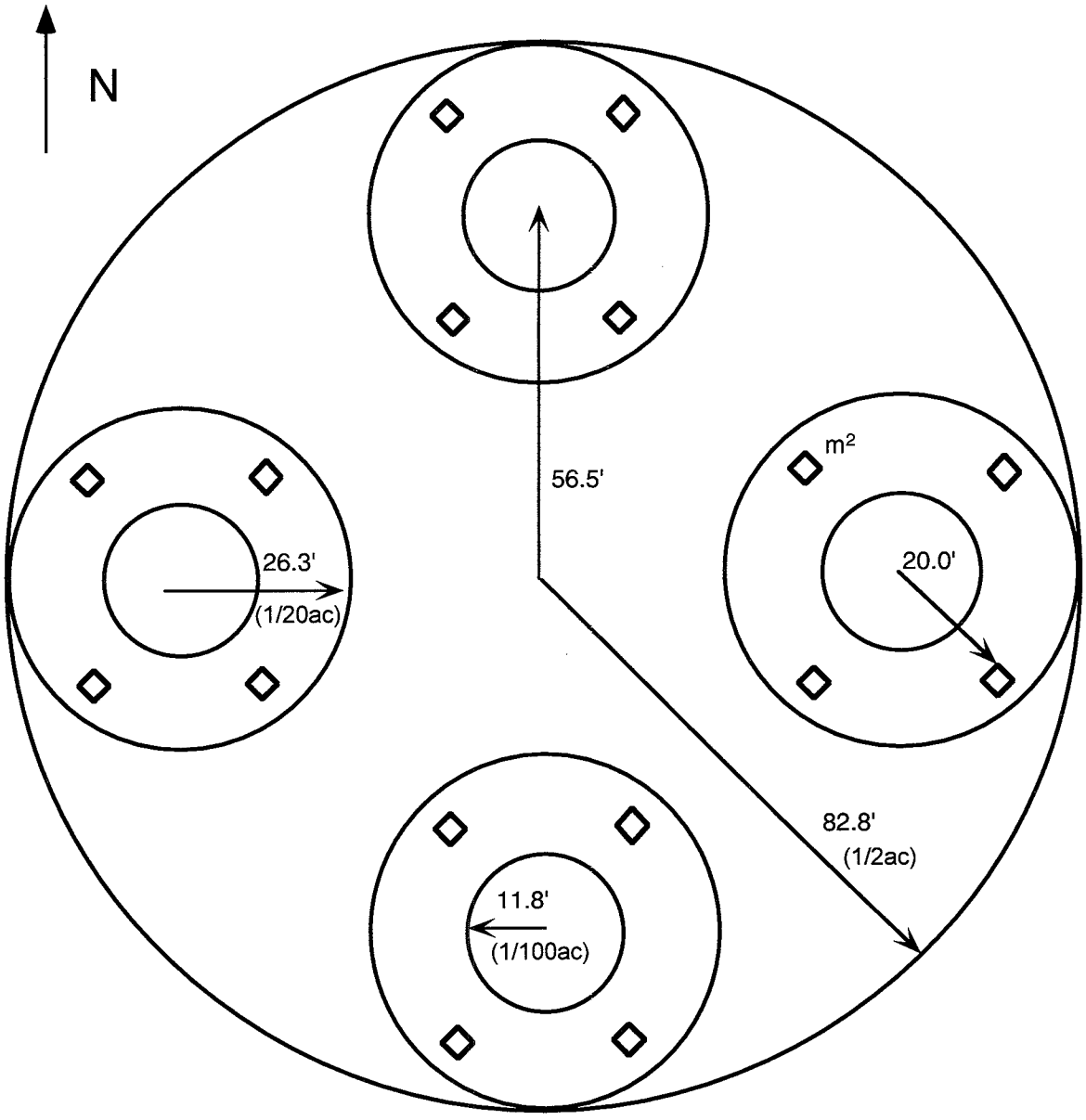
1. 0.5-ac circular plot. Trees sampled included all live trees ≥4.5 in. dbh and self-supporting snags of the same diameter. Live trees were recorded if there was any living part above dbh height (4.5 ft). Snags were recorded that were ≥8 ft in height. The plot radius was 82.8 ft horizontal centered with a 0.5 in. x 3 ft reinforcement rod (rerod) driven into the ground 2.5 ft and painted blaze orange for 6 in. on the exposed end.

2. Four 0.05-ac circular subplots. Live trees, shrubs, and woody vines sampled were 1.5≤ x <4.5 in. dbh. The plot center was a rerod similar to the 0.5-ac center located 56.5 ft from the cluster plot center in the four cardinal directions. The plot radius was 26.3 ft. The 0.5-ac and 0.05-ac radii in the cardinal directions were common points.

3. Four 0.01-ac circular subplots. Live trees, shrubs, and woody vines ≥3.3 ft (1 m) height and <1.5 in. dbh were sampled. The plot radius was 11.8 ft and had a center pin in common with the 0.05-ac plots.

Cluster Plot Construction

After the cluster plot center pin had been driven in, the north (360°) subplot pin was driven in at 56.5 ft and a wire flag was placed at 82.8 ft (horizontal distances). While the tape measure was still laid out, data for down and dead woody material (discussed later) were collected from the cluster plot center to the subplot pin. After this was completed in the four cardinal directions, four additional wire flags were placed at 82.8 ft to further divide the 0.5-ac plot into eighths. Flagging was tied over the five pins to assist in location and systematic data collection. After data had been collected on the 0.5-ac plot, wire flags were set at 11.8 ft and 26.3 ft in each of the four cardinal directions at the four subplot center pins.



Size Limits for plots and sublots

1/2 acre includes woody vegetation ≥ 4.5" DBH
1/20 acre includes woody vegetation ≥ 1.5" and < 4.5" DBH
1/100 acre includes woody vegetation ≥ 1 m tall and < 1.5" DBH
1m² for herbaceous and woody vegetation < 1m tall

Down, dead wood transects

56.5' transects (4 per plot) used to measure down dead wood ≥ 2" diameter and ≥ 2' in length

Figure 1.—*Diagram of the permanent cluster plot layout used on the forest vegetation study of the Missouri Ozark Forest Ecosystem Project (MOFEP).*

Plot Witness Trees and Tags

Two witness trees were established in each cluster plot, and tree tag number, azimuth from cluster plot center, and distance from cluster plot center were recorded. Distances were measured to the center of the base of the tree. To make this a one-person task, upslope trees were not measured on the horizontal. The tape measure was hooked on the pin and measured near groundline. Sideslope and downslope trees were measured on the horizontal to a vertical line from the tree base. With steep slopes and distant trees, the tape was not stepped down; it was lifted only at the tree. In later years, 15 additional trees were also mapped from plot center.

Three aluminum tags (1 x 2.75 in.) with the site and plot number were placed in the plot (7-1 indicates site 7 plot 1). A tag was nailed near groundline and facing the cluster plot center on one of the witness trees. This tree was close to plot center and judged to be likely to survive. Tags were also wired to the reinforcement rods at the cluster plot center and at the south subplot center.

DATA COLLECTION PROCEDURE

The following header data should be verified during each data collection period. All other data will normally be recollected.

Cluster Plot Header Data

These data were collected on the overall plot characteristics and included:

1. Site number.
2. Plot number.
3. Stand number.
4. Ecological landtype.
5. Date of data collection.
6. Reference trees mapping data.
7. Slope. Percent slope was from the 0.5-ac plot center in the direction of slope aspect. An average of downhill and uphill slopes in the plot was recorded. On ridges, slope was taken in the direction of the ridge rather than as an average of the two sideslopes.
8. Aspect. Aspect was taken in the downhill direction and relates to how the plot as a whole receives sunlight. It is not directly related to small dips or humps from plot center. On ridges, aspect was taken in the direction of the ridge.
9. Slope position. A code from 1 to 5 was given for positions on a slope ranging from a bottomland location (1) to a ridgetop (5) (fig. 2).

0.5-acre Overstory Plots

Data collection on individual trees began at plot center and progressed along the east side of the north azimuth toward the plot perimeter in a wedge covering an eighth of the plot area. The next wedge clockwise was then worked toward the center. This was repeated until the north azimuth was again reached. A tree was included if half of its base or more was in the plot when measured on the side.

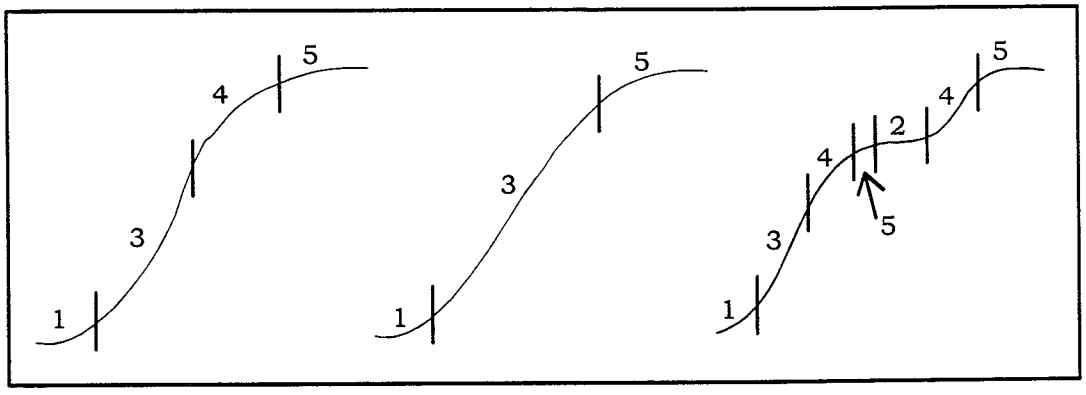


Figure 2.—*Slope positions used to describe the location of MOFEP cluster plots. Values correspond to (1) bottom, (2) bench, (3) midslope, (4) shoulder, and (5) ridgetop.*

Round numbered aluminum tags were nailed near ground level with 8d aluminum nails facing plot center on trees ≥4.5 in. dbh. Separate tree data were collected for multiple stems from a single tree if the stems forked below breast height. Data collected on individual trees included:

1. Species.—USDA Forest Service species codes were used to record tree species (table 1). Shrubs and non-timber species were given unique codes.

2. Dbh.—Dbh was measured from the uphill side of the tree to the nearest 0.1 in. with a diameter tape at 4.5 ft from the ground. Dbh was measured at a lower height on trees with trunk abnormalities or branches to give them more realistic diameters. White tree marking paint was applied horizontally to the tree in a thin line at the height and direction from which the tree was measured.

3. Crown class.—Crown class classifications follow Smith (1986). "Dominant" trees receive full sunlight from above and some on the sides. They are usually above average canopy height unless in a past or present opening. "Codominant" trees receive full sunlight from above but little to none on the sides. They are at average canopy height. "Intermediate" trees receive some but not full sunlight from above and none from the sides. "Overtopped" or "suppressed" trees receive no direct sunlight from above or sides. This definition is applied conservatively and used only when the tree is fully covered by foliage.

4. Tree condition.—This variable describes whether a tree is a living tree without cavities, a living cavity tree, a snag, or a snag with cavities. It also separates snags into different decay classes (table 2). In the second data entry period, codes were added for down trees that were previously standing.

A cavity for this study was defined as a hole that had a 1 in. minimum diameter and appeared dark inside, as though it led to a cavity that would be useful to wildlife. Data collected on tree cavities were in a separate file (table 3). The minimum size was adjusted slightly for oblong dens. A minimum size of 0.75 x 1.25 in. was used and recorded as 1 in. diameter. Diameters of other oval cavities were recorded as the widest diameter of the most narrow axis. Holes that were low enough on the tree were examined to determine if there was a cavity. Only when there was a cavity was it recorded. If a tree had a hole in the ground going into or under the roots that met the size requirements, the tree hole was classified as a cavity tree. Live trees with cavities in dead branches were coded as live cavity trees.

A "natural formed cavity" was most often formed by a tree losing a branch. Cavities not easily identified as excavated were assigned as naturally formed by default. An "excavated cavity" was most often formed by woodpeckers but could include squirrels or rodents chewing at the bark around a hole to keep it open.

A "snag" was a completely dead tree standing non-supported with a minimum 4.5 in. dbh, and a minimum height of 8 ft. Snag decomposition codes differentiated the different stages of decay ranging from a tree that recently died to one that was ready to fall. They also distinguished snags with broken tops and those with cavities (table 4). Most trees first slough the bark and then the wood gradually decomposes. Blackjack oak bark, however, usually persists on the tree after much of the wood has decomposed, even when on the ground. Blackjack oak usually goes from a loose bark snag (decay code = 3 or 4) to being ready to fall (decay code = 7) without the intermediate steps.

0.05-acre Plots

Species and dbh data were collected on trees, shrubs, and woody vines in 0.05-ac plots for stems $1.5 \leq x < 4.5$ in. dbh (fig. 1). The north subplot was labeled as subplot 1 with subplot numbering proceeding clockwise. Inventory on the 0.05-ac plots started along a radius (N in north plot, E in east plot, etc.) and proceeded in a clockwise direction within the plot. Individual tree tags were not used. Wire flags were added in the other three cardinal directions at 26.3 ft on the horizontal from the subplot center. Dbh was recorded to the nearest 0.1 in. with trees just under 4.5 in. recorded as 4.4 in.

Leaning trees were measured where breast height would be if they were vertical. Trees were considered alive if there was any living

Table 1.—*Tree, shrub, and woody vine species and codes used on the MOFEP study sites.*

Scientific name	Family	Common name	No.
Trees			
Acer rubrum	*Aceraceae*	Red maple	316
Acer saccharum	*Aceraceae*	Sugar maple	318
Amelanchier arborea	*Rosaceae*	Serviceberry	004
Asimina triloba	*Annonaceae*	Pawpaw	025
Bumelia lanuginosa	*Sapotaceae*	Gum bumelia	013
Carpinus caroliniana	*Betulaceae*	Hornbeam	391
Carya cordiformis	*Juglandaceae*	Bitternut hickory	402
Carya glabra	*Juglandaceae*	Pignut hickory	403
Carya ovata	*Juglandaceae*	Shagbark hickory	407
Carya spp.	*Juglandaceae*	Hickory	400
Carya texana	*Juglandaceae*	Black hickory	408
Carya tomentosa	*Juglandaceae*	Mockernut hickory	409
Celtis laevigata	*Ulmaceae*	Sugarberry	461
Celtis occidentalis	*Ulmaceae*	Hackberry	462
Celtis spp.	*Rosaceae*	Hackberry/Sugarberry	460
Celtis tenuifolia	*Ulmaceae*	Dwark hackberry	463
Cercis canadensis	*Fabaceae*	Redbud	471
Cornus florida	*Cornaceae*	Flowering dogwood	002
Crataegus spp.	*Rosaceae*	Hawthorn	500
Diospyros virginiana	*Ebenaceae*	Persimmon	521
Elaeagnus umbellata	*Elaeagnaceae*	Autumn olive	022
Fraxinus americana	*Oleaceae*	White ash	541
Fraxinus pennsylvanica	*Oleaceae*	Green ash	544
Gleditsia triacanthos	*Fabaceae*	Honey locust	552
Juglans nigra	*Juglandaceae*	Black walnut	602
Juniperus virginiana	*Cupressaceae*	Red cedar	068
Morus rubra	*Moraceae*	Red mulberry	682
Nyssa sylvatica	*Cornaceae*	Black gum	694
Ostrya virginiana	*Betulaceae*	Ironwood	701
Pinus echinata	*Pinaceae*	Short-leaf pine	110
Prunus americana	*Rosaceae*	Wild plum	011
Prunus serotina	*Rosaceae*	Black cherry	762
Quercus alba	*Fagaceae*	White oak	802
Quercus coccinea	*Fagaceae*	Scarlet oak	806
Quercus marilandica	*Fagaceae*	Blackjack oak	824
Quercus muehlenbergii	*Fagaceae*	Chinkapin oak	826
Quercus rubra	*Fagaceae*	Northern red oak	833
Quercus shumardii	*Fagaceae*	Shumard oak	834
Quercus spp.	*Fagaceae*	Oak	800
Quercus stellata	*Fagaceae*	Post oak	835
Quercus velutina	*Fagaceae*	Black oak	837
Rhamnus caroliniana	*Rhamnaceae*	Carolina buckthorn	005
Rhus copallina	*Anacardiaceae*	Winged sumac	009
Rhus glabra	*Anacardiaceae*	Smooth sumac	008
Robinia pseudo-acacia	*Leguminosae*	Black locust	901
Sassafras albidum	*Lauraceae*	Sassafras	931
Staphylea trifolia	*Staphyleaceae*	Bladdernut	026
Ulmus alata	*Ulmaceae*	Winged elm	971
Ulmus americana	*Ulmaceae*	American elm	972
Ulmus rubra	*Ulmaceae*	Slippery elm	975
Viburnum rufidulum	*Caprifoliaceae*	Rusty black haw	007

(*table 1 continued on next page*)

(table 1 continued)

Scientific name	Family	Common name	No.
Shrubs			
Corylus americana	*Betulaceae*	American hazelnut	023
Dirca palustris	*Thymeleaceae*	Leatherwood	048
Hydrangea arborescens	*Saxifragaceae*	Wild hydrangea	049
Lindera benzoin	*Lauraceae*	Spicebush	017
Rhus aromatica	*Anacardiaceae*	Fragrant sumac	020
Rosa carolina	*Rosaceae*	Pasture rose	041
Rosa multiflora	*Rosaceae*	Multiflora rose	014
Rubus occidentalis	*Rosaceae*	Black raspberry	034
Rubus pensilvanicus	*Rosaceae*	High-bush blackberry	035
Symphoricarpos orbiculatus	*Caprifoliaceae*	Coral berry	012
Vaccinium arboreum	*Ericaceae*	Farkleberry	032
Vaccinium stamineum	*Ericaceae*	Deerberry	033
Woody vines			
Berchemia scandens	*Rhamnaceace*	Supple-jack	028
Campsis radicans	*Bignoniaceae*	Trumpet creeper	027
Lonicera spp.	*Caprifoliaceae*	Honeysuckle	024
Parthenocissus quinquefolia	*Vitaceae*	Virginia creeper	019
Rubus spp.	*Rosaceae*	Blackberry/Raspberry	021
Smilax bona-nox	*Liliaceae*	Saw greenbriar	030
Smilax glauca	*Liliaceae*	Cat greenbriar	029
Smilax rotundifolia	*Liliaceae*	Horsebriar	043
Smilax spp.	*Liliaceae*	Greenbriar	010
Smilax tamnoides	*Liliaceae*	Bristly greenbriar	031
Toxicodendron radicans	*Anacardiaceae*	Poison ivy	015
Vitis spp.	*Vitaceae*	Grape	006

part above breast height. Snags were not measured. Trees with stems split below breast height were recorded as individual trees if they fit the size requirements. A tree was considered in the plot if at least half its base was in, even if its top was out of the plot. Vines with bases out of the plot that reached dirt level and determined to be re-rooted in the plot were considered in the plot.

0.01-acre Plots

The same plot center rerods used for the 0.05-ac plot were used for the 0.01-ac plots (fig. 1). Wire flags were placed at 11.8 ft from the subplot center in the four cardinal directions. For data collection, the pattern and subplot numbering system followed that used for the 0.05-ac plots. Trees, shrubs, and vines were recorded by species (table 1) and two size classes. Stems in size class 1 had woody stems (not just leaves) ≥3.3 ft (1 m) tall and a dbh <0.5 in. Woody vegetation in size class 2 was ≥0.5 in. dbh and <1.5 in. dbh.

Split stems did not count as two stems unless they were separated at the ground. A split stem of the appropriate size was not counted if the other stem was counted in the 0.05-ac plot. The base of the stems had to be at least half in the plot to be tallied, regardless of where the remainder of the plant was located. Plants growing into the plot and re-rooting in the plot were tallied. The minimum 3.3 ft (1 m) height could be determined vertically anywhere on the plant, not just at the stem base (important on slopes). Trees, vines, and shrubs were not lifted to measure height. Dead plants were not counted. During the dormant season, twig ends were bent on questionable trees to determine if they were alive (green wood that bends) or dead (dry wood that snaps).

Down and Dead Wood

Down and dead wood was sampled on a line transect from cluster plot center to the four subplot centers (56.5 ft) in four cardinal

Table 2.—*Tree condition codes used on overstory trees ≥4.5 in. dbh on the MOFEP overstory forest vegetation study.*

Code	Tree condition	Snag decomposition class[1]	Down wood decomposition class[2]
1	living, no den	-	-
2	living, with den	-	-
15	snag, no den	1	-
16	"	2	-
17	"	3	-
18	"	4	-
19	"	5	-
20	"	6	-
21	"	7	-
22	snag, with den	1	-
23	"	2	-
24	"	3	-
25	"	4	-
26	"	5	-
27	"	6	-
28	"	7	-
31	blowdown	-	1
32	"	-	2
33	"	-	3
34	"	-	4
35	"	-	5

[1] Table 4 describes snag decomposition codes.
[2] Table 5 describes down and dead wood decomposition codes.

Table 3.—*Codes and descriptions used to quantify wildlife cavities in trees ≥4.5 in. dbh on the MOFEP overstory forest vegetation study.*

Formation code	Cavity type	Description
1	Natural	Hollow; formed by decay after a branch breaks off a tree
2	Excavated	Hollow; formed primarily by woodpeckers and aided by decay; usually circular with smooth edges

Size code	Cavity diameter[1]
1	≤5 in.
2	5< x ≤12 in.
3	>12 in.

Location code	Height above groundline
1	<5 ft
2	5≤ x <15 ft
3	15≤ x <25 ft
4	25≤ x <35 ft
5	≥35 ft

[1] Maximum diameter of the narrowest axis for oval shapes.

Table 4.—*Snag decomposition codes and descriptions used on the MOFEP overstory vegetation study.*

Code	Snag description
1	Bark, branches, and top intact. Little to no decomposition, no loose bark.
2	Same as code 1 but with a broken top.
3	Loose bark but intact top; can have some broken branches and be up to 75% barkless.
4	Same as code 3, but with a broken top.
5	Little to no bark (<25%), mostly broken branches, top somewhat diminished but mostly intact.
6	Same as code 5 but with a snapped top.
7	Ready to fall. Mostly no bark, branches, or top. Later stage of wood decomposition. An unstable support would override the bark condition here[1]

[1] Blackjack oak usually skips codes 5 and 6. It can be ready to fall while still retaining much of its bark.

directions. Data were collected along a straight tape measure as the subplot centers were being placed. The minimum size requirement was 2 in. diameter at the transect for at least 2 ft length. Recorded data included:

1. Coverage.—Length of coverage of the log along a horizontal plane by the line transect. A person must look vertically at each edge of the log. Measured in 0.1 ft to the nearest 0.01 ft; i.e., a recorded 2.3 is actually 0.23 ft.

2. Maximum diameter.—The maximum diameter that a log attains anywhere along its length. Maximum diameter was recorded to the nearest inch using a folding Biltmore stick. It was not measured at butt swell but at a point where the tree or branch began a more normal taper.

3. Length.—The longest length the log or branch attains until it has less than a 2 in. diameter. Length was recorded in the following size classes:

size class 5	$2 \leq x \leq 5$ ft
size class 10	$5 < x \leq 10$ ft
size class 15	$10 < x \leq 15$ ft
size class 20	$15 < x \leq 20$ ft
size class 30	$20 < x \leq 30$ ft
size class 40	$30 < x \leq 40$ ft
size class 50	$40 < x \leq 50$ ft

etc. - Note that the lengths within the size classes are not the same.

Forked stems, crooked boles, or branches were measured in segments and added to determine total stem length (i.e., rather than measure the shortest straight-line distance from base to tip). Lengths were usually estimated by pacing except for very long stems.

4. Decay class.—Logs were given one of five decay classes described in table 5.

5. Species.—Species codes are listed in table 1.

Leaning snags supported by other trees were recorded as down and dead wood rather than as snags if they would fall without that support. A transect could cross several branches above the minimum size on the same tree. The main trunk was measured with the longest branch maintaining a 2 in. minimum diameter. A second branch was measured from the point it attached to the main trunk. Measurement of a branch off the second branch started at its point of attachment. No section of down wood was measured more than once on the same transect. Trees that crossed two or more transects were recorded in each transect but with different coverages. Stumps had to have a 2-ft horizontal diameter to be recorded.

Table 5.—*Down and dead wood decomposition codes*[1] *and descriptions used on the MOFEP overstory vegetation study.*

Code	Characteristics
1	Intact bark and up to 10% loosened, not weathered or decayed; usually windblown trees, tops, or branches.
2	Intact bark but 10-90% loosened, can have up to 10% missing bark, wood is not decomposed or weathered away.
3	10-90% of the bark missing, wood texture is hard, small diameter branches missing.
4	< 10% of the tree or branch with bark, twigs mostly absent except for some broken stubs, texture is mostly hard but some softening can occur on the outside. Wood often worn away in places but with a hard core.
5	Bark absent, log not supported off the ground at any points but laying completely on the ground, texture is soft and decayed. Can be smashed by stepping on it. A soft texture would override the presence of bark here[2].

[1] Down and dead wood was tallied on four 56.5-ft transects that ran from plot center in the four cardinal directions. Pieces of down wood were tallied if they intersected a transect line and had at least a 2 in. diameter and at least a 2 ft length.
[2] Blackjack oak typically has bark that does not break up and decay even after the wood has decayed. This species usually skips code 4.

Plot Photograph

A slide representing plot conditions was taken from plot center. Slides south of the east-west line were avoided when possible because of lighting problems. A 35 mm camera and 100 or 200 speed film were used with a shutter speed of 1/60 second or more if possible. A 10 x 15 in. photo board including site, plot, date, and azimuth was placed at 30 ft in the direction of the slide. A 5-ft height pole, with alternating blue and white colors in 1-ft intervals, was placed at 30 ft to add scale to the slide. Photo conditions were recorded and included slide number, site number, plot number, azimuth of the photo, date, time, shutter speed, and F-stop.

Additional Cluster Plot Data

The following data have been collected on the forest vegetation plots at different intervals from the main data collection periods.

Height Trees

During the dormant season, detailed measurements on tree height, canopy volume, form class, and plot mapping were collected for a subset of trees referred to as "height trees." Five overstory trees (≥4.5 in. dbh) each from the red oak group, white oak group, and shortleaf pines were randomly selected from live trees on the plot. If there were not enough trees of any group, additional trees were selected from the other groups by increasing sequential tree tag numbers. Site 8 (1990-91) was completed the first dormant season. Trees were rejected on this site if they had broken tops, only a few branches living, only epicormic branching, appeared completely suppressed, or leaned at an angle ≥45° at the top. On the other sites (1992-93), only dead trees were rejected.

The data recorded for height trees included:

1. Dbh.—Tree diameter measured at 4.5 ft above ground surface on the uphill side.

2. Total tree height.—Height of tree above the ground at its highest point. Measured with a clinometer to the nearest foot. For leaning trees, total height was measured from a position perpendicular to the direction of the lean. (For total height, no adjustments

were made for the angle of lean as they were for the bole length measurements described below). A 2-ft white vertical line was painted above dbh level to identify measurement direction.

3. Height to the base of the live crown.—Height to the base of the live crown was recorded as the average of the left and right sides of the tree. Measurements were taken in feet with a clinometer and used to determine live crown ratio and crown volume. Epicormic branches and small branches below the level of the main crown were excluded. However, for large oak trees, most branches ≥2 in. in diameter were included.

4. Merchantable bole length.—Merchantable bole length was measured with a clinometer (in feet) to the highest point on the tree that would be part of a log at least 8 ft long with a minimum diameter outside the bark (dob) of at least 8 in. Large side branches could be included in merchantable height if they met minimum size criteria and were alive. The upper stem diameters were determined with a Wheeler pentaprism (0.1 in.). The pentaprism works independent of distance so crew members positioned themselves to get the best view of the upper bole. The height (log length) was recorded as zero if it was less than 8 ft. During the first measurement of site 8, merchantable height was defined as the highest 8 in. dob regardless of where the end of an 8-ft log would occur. The following year site 8 was remeasured to conform to the other sites (i.e., merchantable height was recorded only for logs ≥8-ft long). For leaning trees, the merchantable bole *length* was greater than the height at the top of the merchantable bole. For trees leaning >12.5° from vertical, table 6 was used to convert merchantable bole height to bole length. All measurements were made from a position perpendicular to the direction of the lean.

5. Girard upper stem diameter.—Diameter outside bark was measured 17.5 ft up the bole. This measurement was used to determine the Girard form class, which quantifies a tree's taper. For trees that forked above dbh, it was measured on the stem that had the largest diameter at 17.5 ft. If the tree forked near the 17.5 ft height or if there was any stem abnormality, the diameter was measured below 17.5 ft but above 15 ft. If a normal stem diameter could not be measured at 15 ft or higher, a measurement of zero was recorded. For leaning trees, the measurement point 17.5 ft up the bole was actually less than 17.5 feet above the ground. For trees that leaned more than 12.5° from vertical, table 6 was used to determine the height above the ground that corresponded to a bole length of 17.5 ft. All measurements were made from a position perpendicular to the direction of the lean.

6. Abnormal tree codes.—The following tree codes were used to quantify any abnormality in the tree to help explain the data and reduce field checks:

Code	Stem form
1	Normal tree
2	Too small, no well-defined main stem at 17.5 ft (Girard form class)
3	Fork in the main stem below 17.5 ft (Girard)
4	Broken or dead top or only epicormic branches living
5	Leans at greater than 12.5°
6	Oak decline present
7	Diameter moved from breast height (4.5 ft)
8	Swell on tree between 15 and 17.5 ft (Girard)
9	All other abnormalities

For stems or large branches that forked and leaned in different directions, height measurements for each fork were made from a position perpendicular to that fork or where the observer was equidistant from both stems in the fork. Base distances for height determination were measured horizontally from a vertical line through the center of the stump. Base elevation was measured at the center of the stump.

7. Canopy widths were measured during 1994. Widths were measured in feet in east/west and north/south directions. Canopy widths were taken to the furthest dripline of a line perpendicular to the tape measure. Azimuth and horizontal distance (0.1 ft) to these trees were recorded from plot center.

Table 6.—*Height corrections for trees leaning more than 12.5° from vertical on the MOFEP overstory plots. For the degree of lean from vertical shown in the first column, the second column shows the height above ground at which to measure the Girard form class (i.e., the top of the first 17.5° log), and the third column shows the number of feet to add to the measured merchantable height to obtain merchantable bole length.*[1]

Degrees lean	Adjusted height for Girard form class measurement[2]	Merchantable bole adjustment length for leaning trees[3]
	Feet	*Add # feet (actual ht range)*
15°	16.9	+1 (13-42') +2 (43-71')
20°	16.4	+1 (8-23') +2 (24-38') +3 (39-54')
25°	15.9	+1 (8-14') +2 (15-24') +3 (25-33')
30°	15.2	+1 (8-9') +2 (10-16') +3 (17-22')
35°	14.3	+2 (8-11') +3 (12-15') +4 (16-20')
40°	13.4	+2 (8') +3 (9-11') +4 (12-14')
45°	12.4	+3 (8') +4 (9-10') +5 (11-13')
50°	11.2	
60°	8.8	
70°	6.0	

[1] In general, measured height = bole length * cosine (degrees departure from vertical).

[2] For example, if a tree leans 35° from vertical, the top of a 17.5 ft bole occurs at 14.3 ft above the ground.

[3] For example, if a tree leans 30° from vertical and the top of the merchantable bole is between 17 and 22 ft above the ground, add 3 ft to the measured merchantable height to obtain merchantable bole length.

Stem Mapping on 0.05-acre Subplots

A subset of plots with anticipated treatments of uneven-aged, intermediate even-aged, and no-harvest management during the first cutting cycle had detailed mapping and measurements of all living woody stems ≥3.3 ft (1 m) tall on 0.05-ac subplots. The minimum 3.3 ft (1 m) height could be determined vertically anywhere on the plant, not just at the stem base (important on slopes). Trees, vines, and shrubs were not lifted to measure height. Dead plants were not counted. Four plots each were randomly chosen on ELT 17 (SW sideslope) and 18 (NE sideslope) from each site with the appropriate treatment. The north subplot was mapped except at site 9 where all subplots were mapped because of the small number of intermediate prescription plots.

The data collected were similar to that collected on the height trees and included:

1. Site number
2. Plot number
3. Subplot number
4. Species
5. Dbh
6. Azimuth from subplot center
7. Distance from subplot center
8. Tree height
9. Lower canopy height
10. Canopy width in N/S and E/W directions.

A 25-ft telescoping height pole was used for measurements ≤25 ft and a clinometer for those >25 ft.

Site Index

To determine site index, tree cores were taken from five trees within 5 chains of the outside perimeter of the plot. However, trees marked to be harvested could be chosen within the plot. Tree species included shortleaf pine, white oak, black oak, scarlet oak, and northern red oak. Codominant trees that best represented the growing potential of the plot were selected for coring. Data collected on cored trees included:

1. Site number
2. Plot number
3. Tree number
4. Species
5. Dbh
6. Height
7. Azimuth from plot center
8. Distance in chains
9. Tree quality rank
10. Date
11. Observer

Since not all plots had good site index trees nearby, trees were given a quality ranking of:

1. Very good
2. Good
3. Marginal
4. Poor

Trees were cored on the uphill side at breast height. Cored trees were mapped by taking a back azimuth from the marked plot center and by pacing to within 0.5 chain. Cores were stored and labeled in plastic drinking straws until they were mounted on 0.75 x 0.75 x 8 in. wood blocks. Data will be used in conjunction with soil mapping.

Split Geology Mapping

As a result of intensive work in lithology and soils mapping on MOFEP sites, 26 plots with split lithologies were mapped. These were primarily in plots with a separation of oldest Eminence dolomite, Gunter sandstone, and newer Van Buren dolomite and chert. Plots with split lithologies between Van Buren, Upper Gasconade, and Roubidoux also exist but were not mapped because the splits were not readily apparent. A cluster plot diagram (fig. 1) was used to map the lithologies.

Individual Tree Prescriptions

Following the tree marking in 1993, the plots were revisited to determine individual tree prescriptions. Codes given for the marking included:

1. U - Single tree uneven-aged cut
2. G - Group selection uneven-aged cut
3. E - Even-aged clearcut
4. I - Even-aged intermediate cut
5. C - Cull tree, to be cut by loggers or slashers
6. D - Den or cavity tree not to be cut
7. L - Leave tree both in harvested and uncut areas
8. S - Snag
9. B - Blowdown

Tree Grading

In 1995, the trees that were marked to be cut and were ≥9 in. dbh were graded. Only the butt log was graded and was 12, 14, or 16 ft in length for hardwoods and 16, 18, or 20 ft in length for pine. Hardwood tree grading followed Liu (1989), and shortleaf pine grading followed Schroeder *et al.* (1968). These grading rules identify three merchantable grades (codes 1, 2, 3) as well as a "below grade" classification that is applied to trees that are either too small to meet minimum merchantability standards or that are cull. For the MOFEP inventory, "below grade" trees were further subdivided into trees that were sound but too small to be merchantable (code 4) and cull trees (code 5).

Grading occurred on the third best of the four log faces. Log lengths were measured from the ground. Defects included bark splits, swells, sweep, crook, insect damage, knots or limbs, and soundness as determined by ax thumping. Data collected included:

1. Site number
2. Plot number
3. Tree number
4. Species
5. Dbh
6. Crown class
7. Cutting prescription
8. Grade
9. Length
10. Date

These data will be used in conjunction with log volume data collected during the timber sale.

LITERATURE CITED

Lui, C. 1989. Hardwood tree grading algorithms. Spec. Rep. 89-1. Lexington, KY: Kentucky Agricultural Experiment Station. 23 p.

Miller, M. 1981. Ecological land classification terrestrial subsystem, a basic inventory system for planning and management of the Mark Twain National Forest. Rolla, MO: U.S. Department of Agriculture, Forest Service, Resource Planning and Management. 56 p.

Schroeder, J.; Campbell, R.; Rodenbach, R. 1968. Southern pine log grades for yard and structural lumber. Res. Pap. SE-39. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 7 p.

Smith, D. 1986. The practice of silviculture. New York, NY: John Wiley and Sons. 527 p.

APPENDIX B

PHYSICAL PLOT CHARACTERISTICS WITH LANDFORM, SOIL, AND SITE QUALITY

John Kabrick, Dennis Meinert, and Tim Nigh

Physical plot characteristics with landforms, soil, and site quality variables. The following table defines the variables summarized for individual vegetation plots in the body of this appendix. Citations and figure or table references in the following table can be found in Karbick *et al.* (this volume).

Variable Code	Description	Explanation
Site	MOFEP site number	Numbers 1-9
Plot	Plot number	Numbers 1-76
Block	MOFEP experimental block designation	Numbers 1-3
Treatment	MOFEP experimental treatment designation	Characters: EVEN-AGE UNEVEN-AGE NO HARVEST
Landtype Association	Landtype association in which plot is located	Character BREAKS - Current River Oak Forest Breaks HILLS Current River Oak-pine Woodland/Forest Hills
Ecological Landtype	Ecological landtype defined by Miller (1981) and modified by Meinert	One to four digit number
Original Ecological Landtype	ELT as defined by Miller (1981) and initially applied to MOFEP sites prior to Meinert's mapping effort	One or two digit number
Geolandform	Combination of geologic strata and landform in which plot occurs. Geologic strata defined in figure 2; Landform positions defined in table 4.	Characters; first two or three characters are geology, remaining two or three characters are landform position: Geology: EM Eminence GE Gunter-Eminence GU Gunter LGA Lower Gasconade PC Precambrian RO Roubidoux UGA Upper Gasconade Landform Positions: AF Alluvial Fan BS Backslope BN Bench FP Floodplain FS Footslope SH Shoulder SHR Shoulder Ridge SK Sinkhole ST Strath Terrace SU Summit TR Terrace
Soil Map Unit	Land unit defined and mapped by Meinert. This unit was primarily identified and mapped by soil characteristics although vegetation was also considered.	Refer to figure 3 for definitions
Slope (%)	Slope at plot center	One or two digit number
Min Slope (%)	Lowest slope within plot	One or two digit number
Max Slope (%)	Highest slope within plot	One or two digit number
Aspect (deg)	Aspect at plot center	One to three digit number
Min Aspect (deg)	Lowest aspect within plot	One to three digit number
Max Aspect (deg)	Highest aspect within plot	One to three digit number
Aspect Class	Aspect class in which plot occurs	Characters EXPOSED 160-249 degrees NEUTRAL-EAST 70-159 degrees NEUTRAL-WEST 250-339 degrees PROTECTED 340-69 degrees

Min Elevation (ft)	Low range of elevation in plot	Three or four digit number (feet above sea level)
Max Elevation (ft)	High range of elevation in plot	Three or four digit number (feet above sea level)
Landform	Landform position on which plot occurs as defined in table 4.	Landform Positions: Alluvial Fan Backslope Bench Floodplain Footslope Shoulder Shoulder Ridge Sinkhole Strath Terrace Summit Terrace
Slope Position	Plot location within backslope landform positions	Characters: UPPER UPPER-MIDDLE MIDDLE LOWER-MIDDLE LOWER
Landform Geometry 1	Represents the shape of the geomorphic position in the upslope and downslope directions	Characters: LINEAR CONVEX CONCAVE STAIRSTEPPED
Landform Geometry 2	Represents the shape of the geomorphic position along the contour	Characters: LINEAR CONVEX CONCAVE CORRUGATED
Geologic Strata 1	Geologic formation within which the plot lies or the upper formation if the plot straddles two more strata (defined in figure 2).	Characters: EMINENCE GUNTER L-GASCONADE (lower Gasconade) PRECAMBRIAN ROUBIDOUX U-GASCONADE (upper Gasconade)
Geologic Strata 2	Second geologic formation for plots straddling geologic boundary. Geologic strata are defined in figure 2.	Characters: EMINENCE GUNTER L-GASCONADE (lower Gasconade) PRECAMBRIAN ROUBIDOUX U-GASCONADE (upper Gasconade)
Geologic Strata 3	Third geologic parent material for plots straddling geologic boundaries. Geologic strata are defined in figure 2.	Characters: EMINENCE GUNTER L-GASCONADE (lower Gasconade) PRECAMBRIAN ROUBIDOUX U-GASCONADE (upper Gasconade)
Surface	Surface mineral soil horizon (usually an A horizon) characteristics; first number is thickness, second is modifier; third is texture class; each separated with a hyphen. Example: 05-2-01, five inches of very gravelly silt loam.	Thickness is in inches Modifier Codes: 0 No Modifier (<15% gravel and/or cobbles) 1 Gravelly (15-35%) 2 Very Gravelly (35-60%) 3 Extremely Gravelly (>60%) 4 Cobbly (15-35%) 5 Very Cobbly (35-60%) 6 Extremely Cobbly (>60%) Texture Class Codes: 01 Silt Loam 02 Loam 03 Silty Clay Loam 04 Clay Loam 05 Silty Clay 06 Clay 07 Sandy Clay 08 Sandy Clay Loam 09 Sandy Loam 10 Loamy Sand 11 Sand 12 Bedrock
Subsurface	Subsurface soil horizon (usually an E horizon) characteristics; first number is thickness, second is modifier; third is texture class; each separated with a hyphen.	
Subsoil	Subsoil horizon (usually a B horizon) characteristics; first number is thickness, second is modifier; third is texture class; each separated with a hyphen.	
Subsoil2	Second subsoil horizon (usually a 2B horizon) in second parent material; also indicates lithologic discontinuity; first number is thickness, second is modifier; third is texture class; each separated with a hyphen.	
Depth to clay	Depth to high concentration of clay	One or two digit number (inches)

Classification	Soil classification according to Soil Taxonomy; classification levels are Family, Subgroup, Great Group, Suborder and Order	Five-digit number; digits correspond to classifications below: Family: 0 Fine-loamy/clayey 1 Coarse-loamy 2 Loamy sand/Clayey 3 Fine-loamy 4 Loamy-skeletal 5 Clayey-skeletal 6 Sandy-skeletal 7 Fine 8 Very Fine 9 Clayey Subgroup 0 Cumulic 1 Typic 2 Aquic 3 Lithic 4 Mollic 5 Fragic 6 Humic 7 Oxyaquic 8 Ultic 9 Umbric Great Group 1 Pale 2 Hapl 3 Frag 4 Ud 5 Dystr 6 Argi 7 Eutro Suborder 1 Udic 2 Aquic 3 Fluv 4 Ochr Order 1 Ultisol 2 Alfisol 3 Mollisol 4 Entisol 5 Inceptisol
Soil Series	Name of the soil series which most closely represents the soil described in the plot	Series name; for official series description, see: http:// www.statlab.iastate.edu/soils/osd/
Variable Depth to Bedrock	Indicates that depth to bedrock in the plot ranges from 0 to >48 inches	TRUE or FALSE (TRUE indicates soil is variable in depth to bedrock)
Rock Outcrop	Type of rock outcrop in plot	0 None in plot 1 Dolomite 2 Sandstone
Outcrop %	Percentage of rock outcrop within plot	0 None in plot 1 <10% 2 10-50% 3 >50%
Slump or slide	The presence of soil slump or slide (mass movement) within plot	TRUE FALSE
Windthrow	Percentage of plot surface area containing windthrow pits and mounds	0 None in plot 1 <2% 2 2-5% 3 5 -10% 4 >10%
Surface Stoniness	Percentage of plot surface area containing stones or boulders	0 < 0.01% 1 0.01-0.1% 2 0.1-3% 3 3-15% 4 15-50% 5 50-90%
Date Measured	Date when plot was sampled	month/day/year
Notes	Abbreviated notes taken at plot. Detailed notes can be obtained from D. Meinert	N/A

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
1	1	1	NO HARVEST	BREAKS	18	18	ROBS	63f/80f	38	36	40	75	30	120	NEUTRAL-EAST	880	940	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONCAVE
1	2	1	NO HARVEST	BREAKS	17	17	ROBS	63f	45	--	--	275	230	320	NEUTRAL-WEST	940	990	BACKSLOPE	UPPER	CONVEX	CONCAVE
1	3	1	NO HARVEST	BREAKS	10	11	ROSH	63d	9	6	11	295	--	--	NEUTRAL-WEST	1010	1015	SHOULDER	--	CONVEX	LINEAR
1	4	1	NO HARVEST	BREAKS	17	17	UGABS	63f/80f	39	--	--	180	--	--	EXPOSED	900	960	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONCAVE
1	5	1	NO HARVEST	BREAKS	17	18	UGABS	80f	29	--	--	310	--	--	NEUTRAL-WEST	900	940	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
1	6	1	NO HARVEST	BREAKS	18	17	UGABS	80f	36	33	39	120	--	--	NEUTRAL-EAST	860	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
1	7	1	NO HARVEST	BREAKS	9	11	UGASU	80c	4	2	6	0	--	--	PROTECTED	910	910	SUMMIT	--	LINEAR	LINEAR
1	8	1	NO HARVEST	BREAKS	11	17	UGASHR	80d	17	--	--	355	20	330	PROTECTED	800	830	SHOULDER RIDGE	--	LINEAR	CONVEX
1	9	1	NO HARVEST	BREAKS	52	18	GEBS	75f/80f	23	--	--	30	--	--	PROTECTED	780	820	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
1	10	1	NO HARVEST	BREAKS	53	17	GEBS	75f/89d	35	--	--	210	--	--	EXPOSED	795	820	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	11	1	NO HARVEST	BREAKS	18	18	UGABS	80f	31	--	--	350	30	310	PROTECTED	950	990	BACKSLOPE	UPPER	CONVEX	CORRUGATED
1	12	1	NO HARVEST	BREAKS	17	17	ROBS	63f	32	28	36	210	--	--	EXPOSED	940	980	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
1	13	1	NO HARVEST	BREAKS	10	17	ROSHR	63d	16	12	20	135	90	180	NEUTRAL-EAST	960	990	SHOULDER RIDGE	--	LINEAR	CONVEX
1	14	1	NO HARVEST	BREAKS	18	18	UGABS	80f	30	--	--	25	5	50	PROTECTED	940	980	BACKSLOPE	UPPER	CONVEX	CORRUGATED
1	15	1	NO HARVEST	BREAKS	11	18	LGASH	80d	17	15	19	360	50	310	PROTECTED	900	940	SHOULDER RIDGE	--	CONVEX	LINEAR
1	16	1	NO HARVEST	BREAKS	17	18	UGABS	80f	32	--	--	135	125	145	NEUTRAL-EAST	860	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
1	17	1	NO HARVEST	BREAKS	11	11	UGASHR	80d	9	5	13	100	--	--	NEUTRAL-EAST	930	940	SHOULDER RIDGE	--	LINEAR	CONVEX
1	18	1	NO HARVEST	BREAKS	15	18	ROSU	61c	8	--	--	0	--	--	PROTECTED	1015	1025	SUMMIT	--	LINEAR	LINEAR
1	19	1	NO HARVEST	BREAKS	17	17	UGABS	80f	35	--	--	170	--	--	EXPOSED	820	860	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
1	20	1	NO HARVEST	BREAKS	18	18	UGABS	80f	21	17	25	110	55	165	NEUTRAL-EAST	810	850	BACKSLOPE	LOWER	CONVEX	CORRUGATED
1	21	1	NO HARVEST	BREAKS	17	17	UGABS	80f	40	--	--	220	--	--	EXPOSED	900	940	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
1	22	1	NO HARVEST	BREAKS	18	18	UGABS	80f	42	37	47	70	--	--	NEUTRAL-EAST	890	940	BACKSLOPE	UPPER	CONVEX	LINEAR
1	23	1	NO HARVEST	BREAKS	10	11	ROSH	63d	13	9	17	310	--	--	NEUTRAL-WEST	960	980	SHOULDER	--	CONVEX	LINEAR
1	24	1	NO HARVEST	BREAKS	10	11	ROSHR	63d/80d	12	10	14	165	145	185	EXPOSED	930	950	SHOULDER RIDGE	--	LINEAR	CONVEX
1	25	1	NO HARVEST	BREAKS	17	17	UGABS	80f	37	--	--	225	--	--	EXPOSED	840	880	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
1	26	1	NO HARVEST	BREAKS	53	17	GEBS	89d/75f	32	30	35	195	--	--	EXPOSED	740	780	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
1	27	1	NO HARVEST	BREAKS	53	17	GEBS	75f	36	--	--	220	195	245	EXPOSED	760	800	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
1	28	1	NO HARVEST	BREAKS	18	18	UGABS	80f	25	21	29	40	--	--	PROTECTED	810	840	BACKSLOPE	MIDDLE	LINEAR	LINEAR
1	29	1	NO HARVEST	BREAKS	65	18	LGABS	82f	35	30	40	350	--	--	PROTECTED	810	850	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
1	30	1	NO HARVEST	BREAKS	18	18	UGABS	80f	38	--	--	115	--	--	NEUTRAL-EAST	860	900	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
1	31	1	NO HARVEST	BREAKS	17	17	UGABS	80f	28	--	--	170	135	205	EXPOSED	820	860	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
1	32	1	NO HARVEST	BREAKS	18	18	UGABS	80f	27	--	--	30	--	--	PROTECTED	840	880	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	33	1	NO HARVEST	BREAKS	17	17	UGABS	80f	29	--	--	220	195	245	EXPOSED	820	860	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
1	34	1	NO HARVEST	BREAKS	10	11	UGASH	80d	11	9	13	135	--	--	NEUTRAL-EAST	875	885	SHOULDER	--	LINEAR	LINEAR
1	35	1	NO HARVEST	BREAKS	17	17	UGABS	80f/75f	34	--	--	310	--	--	NEUTRAL-WEST	760	800	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
1	36	1	NO HARVEST	BREAKS	18	18	UGABS	80f	33	--	--	105	--	--	NEUTRAL-EAST	800	840	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	37	1	NO HARVEST	BREAKS	66	17	UGABS	82f/80f	34	29	39	240	--	--	EXPOSED	790	840	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
1	38	1	NO HARVEST	BREAKS	11	11	UGASH	80d	18	16	19	75	50	100	NEUTRAL-EAST	900	920	SHOULDER	--	LINEAR	CONVEX
1	39	1	NO HARVEST	BREAKS	17	17	UGABS	80f	30	27	33	280	--	--	NEUTRAL-WEST	820	860	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	40	1	NO HARVEST	BREAKS	66	17	LGABS	82f	29	--	--	290	--	--	NEUTRAL-WEST	760	780	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
1	41	1	NO HARVEST	BREAKS	17	17	UGABS	80f	35	26	44	295	180	210	NEUTRAL-WEST	810	850	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
1	42	1	NO HARVEST	BREAKS	11	18	UGASH	80d	17	--	--	120	95	145	NEUTRAL-EAST	900	920	SHOULDER	--	LINEAR	CORRUGATED
1	43	1	NO HARVEST	BREAKS	18	18	ROBS	63f	35	--	--	80	40	120	NEUTRAL-EAST	840	880	BACKSLOPE	MIDDLE	CONVEX	CORRUGATED
1	44	1	NO HARVEST	BREAKS	9	11	UGASU	80c	4	2	6	0	--	--	PROTECTED	890	890	SUMMIT	--	LINEAR	LINEAR
1	45	1	NO HARVEST	BREAKS	18	18	UGABS	80f	30	--	--	80	170	190	NEUTRAL-EAST	750	780	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
1	46	1	NO HARVEST	BREAKS	17	17	UGABS	80f	46	--	--	180	165	195	EXPOSED	780	820	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
1	47	1	NO HARVEST	BREAKS	18	18	UGABS	80f	29	--	--	350	--	--	PROTECTED	750	790	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
1	48	1	NO HARVEST	BREAKS	18	18	UGABS	80f	27	--	--	55	30	80	PROTECTED	760	800	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	49	1	NO HARVEST	BREAKS	17	17	UGABS	80f	39	--	--	200	170	230	EXPOSED	800	840	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
1	50	1	NO HARVEST	BREAKS	17	17	UGABS	80f	37	--	--	235	--	--	EXPOSED	860	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	51	1	NO HARVEST	BREAKS	9	11	ROSU	63c	3	--	--	0	--	--	PROTECTED	970	970	SUMMIT	--	LINEAR	LINEAR
1	52	1	NO HARVEST	BREAKS	18	18	UGABS	80f	45	--	--	90	--	--	NEUTRAL-EAST	830	870	BACKSLOPE	MIDDLE-LOWER	LINEAR	CORRUGATED
1	53	1	NO HARVEST	BREAKS	18	18	ROBS	63f	32	28	36	95	--	--	NEUTRAL-EAST	930	970	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	54	1	NO HARVEST	BREAKS	17	17	ROBS	63f	50	46	54	235	185	285	EXPOSED	960	1000	BACKSLOPE	UPPER	LINEAR	CONCAVE
1	55	1	NO HARVEST	BREAKS	18	18	ROBS	63f	33	--	--	25	65	345	PROTECTED	940	980	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
1	56	1	NO HARVEST	BREAKS	18	18	UGABS	80f	27	--	--	40	25	55	PROTECTED	870	910	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
1	57	1	NO HARVEST	BREAKS	11	11	ROSH	63d	12	10	14	85	--	--	NEUTRAL-EAST	960	980	SHOULDER	--	LINEAR	LINEAR
1	58	1	NO HARVEST	BREAKS	18	18	ROBS	63f	36	--	--	70	--	--	NEUTRAL-EAST	940	980	BACKSLOPE	MIDDLE	CONVEX	CONVEX
1	59	1	NO HARVEST	BREAKS	11	18	ROSHR	63d	18	16	20	100	70	130	NEUTRAL-EAST	940	980	SHOULDER RIDGE	--	CONVEX	CONVEX
1	60	1	NO HARVEST	BREAKS	18	18	UGABS	80f	31	28	34	95	75	115	NEUTRAL-EAST	860	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
1	61	1	NO HARVEST	BREAKS	18	18	UGABS	80f/63f	28	26	30	355	20	330	PROTECTED	890	930	BACKSLOPE	LOWER	LINEAR	CONVEX
1	62	1	NO HARVEST	BREAKS	17	17	ROBS	63f	53	--	--	200	180	220	EXPOSED	1000	1040	BACKSLOPE	UPPER	CONVEX	CORRUGATED
1	63	1	NO HARVEST	BREAKS	18	18	ROBS	63f	32	28	36	5	--	--	PROTECTED	980	1020	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
1	64	1	NO HARVEST	BREAKS	17	17	UGABS	80f/63f	50	--	--	155	120	190	NEUTRAL-EAST	900	960	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
1	65	1	NO HARVEST	BREAKS	17	17	UGABS	80f	58	51	65	150	--	--	NEUTRAL-EAST	840	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
1	66	1	NO HARVEST	BREAKS	11	11	ROSH	63d	9	8	11	35	--	--	PROTECTED	900	925	SHOULDER	--	LINEAR	LINEAR
1	67	1	NO HARVEST	BREAKS	7	17	UGAFS	45d	18	15	21	190	--	--	EXPOSED	800	830	FOOTSLOPE/STRATH TERRACE	--	LINEAR	CORRUGATED
1	68	1	NO HARVEST	BREAKS	18	18	UGABS	80f	32	--	--	15	--	--	PROTECTED	780	820	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
1	69	1	NO HARVEST	BREAKS	11	11	ROSH	63d	10	--	--	15	--	--	PROTECTED	910	920	SHOULDER	--	LINEAR	LINEAR
1	70	1	NO HARVEST	BREAKS	18	18	UGABS	80f	28	--	--	35	15	55	PROTECTED	810	860	BACKSLOPE	MIDDLE	CONVEX	CORRUGATED
1	71	1	NO HARVEST	BREAKS	11	11	ROSH	63d	18	16	20	15	--	--	PROTECTED	920	940	SHOULDER	--	LINEAR	LINEAR
1	72	1	NO HARVEST	BREAKS	18	18	UGABS	80f	28	--	--	50	10	90	PROTECTED	830	870	BACKSLOPE	MIDDLE-LOWER	LINEAR	CORRUGATED
1	73	1	NO HARVEST	BREAKS	11	18	UGASHR	80d	13	--	--	360	10	350	PROTECTED	860	880	SHOULDER RIDGE	--	LINEAR	LINEAR

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or slide	Windthrow	Surface Stoniness	Date Measured	Notes
1	1	1	ROUBIDOUX	U-GASCONADE	--	9-6-02	--	39-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	0	3	12-13-95	Hs of Bs, no difference in veg wigeo
1	2	1	ROUBIDOUX	--	--	4-6-01	5-2-01	26-5-01	35--12	--	41211	BENDAVIS	TRUE	--	--	TRUE	2	3	12-13-95	good ELT 17 Roubidoux
1	3	1	ROUBIDOUX	--	--	3-2-01	3-2-01	17-2-01	23--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	0	12-13-95	see notes, splits summit and shoulder
1	4	1	ROUBIDOUX	U-GASCONADE	--	3-6-01	7-3-01	22-5-01	32--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	2	2	12-13-95	see notes, Hs and Bs
1	5	1	U-GASCONADE	--	--	4-6-01	15-2-01	29-6-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	1	12-14-95	good ELT 17
1	6	1	U-GASCONADE	--	--	5-2-01	4-2-01	19-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-13-95	stopped by chert
1	7	1	U-GASCONADE	--	--	4-2-01	3-2-01	20-5-03	21-1-06	27	21111	POYNOR	FALSE	--	--	FALSE	1	0	12-13-95	see notes
1	8	1	U-GASCONADE	--	--	4-5-01	--	37-5-01	7-2-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	0	12-13-95	just above Gunter
1	9	1	U-GASCONADE	GUNTER	EMINENCE	7-3-01	3-2-01	38-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-14-95	samp on\near Gunter, Gunter at 800'
1	10	1	L-GASCONADE	GUNTER	EMINENCE	4-2-01	4-2-01	30-2-01	10-1-06	40	41112	REUTER	TRUE	--	--	FALSE	1	1	12-14-95	see notes, Gunter at 800'
1	11	1	U-GASCONADE	--	--	6-6-01	12-3-01	30-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	12-14-95	good ELT 18, portion out of aspect range
1	12	1	ROUBIDOUX	--	--	5-6-01	21-5-02	22-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	1	3	1-9-96	Ns and Hs of Roubidoux, good site
1	13	1	ROUBIDOUX	--	--	5-6-01	4-2-01	18-5-01	27--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	0	2	1-9-96	Roub shoulder ridge, some on Bs
1	14	1	U-GASCONADE	--	--	6-6-01	--	8-2-03	34-6-06	14	21111	POYNOR	FALSE	--	--	FALSE	1	3	12-14-95	see notes, good ELT 18, Roub at 1000'
1	15	1	U-GASCONADE	--	--	4-5-01	10-2-01	16-2-01	18-1-06	30	21111	POYNOR	FALSE	--	--	FALSE	1	0	12-14-95	part on backslope, Roub at 960'
1	16	1	U-GASCONADE	--	--	3-5-01	4-2-01	22-2-01	19-1-06	29	21111	POYNOR	FALSE	--	--	FALSE	1	0	12-14-95	good ELT 17
1	17	1	U-GASCONADE	--	--	5-2-01	3-2-01	25-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-14-95	slnk hole in plot
1	18	1	ROUBIDOUX	--	--	5-1-01	--	15-1-01	13-2-01	--	31311	HOGCREEK	TRUE	--	--	FALSE	0	0	12-14-95	see notes
1	19	1	U-GASCONADE	--	--	6-3-01	6-2-01	36-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	0	12-20-95	good ELT 17
1	20	1	U-GASCONADE	--	--	5-5-01	--	43-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	0	12-21-95	see notes
1	21	1	U-GASCONADE	--	--	6-6-01	9-2-01	33-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	2	12-20-95	below Roub, good ELT 17
1	22	1	U-GASCONADE	--	--	6-5-01	--	42-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	12-14-95	crypt reef splits plot, Roub at 940'
1	23	1	ROUBIDOUX	--	--	6-2-01	8-2-01	15-2-01	29--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	0	0	12-20-95	good ELT 10
1	24	1	ROUBIDOUX	U-GASCONADE	--	6-5-01	8-5-01	18-5-01	32--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	0	1	12-20-95	splits Cas-Roub geologies, good ELT 10
1	25	1	U-GASCONADE	--	--	3-6-01	3-5-01	42-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-20-95	good ELT 17
1	26	1	L-GASCONADE	GUNTER	EMINENCE	7-5-09	--	12-4-09	19--12	--	43211	BENDER-LIKE	TRUE	--	--	FALSE	1	1	12-20-95	see notes
1	27	1	GUNTER	EMINENCE	--	5-6-02	4-2-02	39-2-04	--	--	41112	REUTER	TRUE	--	--	FALSE	0	2	12-20-95	see notes
1	28	1	U-GASCONADE	--	--	7-2-01	--	41-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-20-95	good ELT 18
1	29	1	L-GASCONADE	--	--	8-3-01	--	18-2-03	22-1-06	26	21112	ALRED	FALSE	--	--	FALSE	0	0	12-20-95	good ELT 65
1	30	1	U-GASCONADE	--	--	7-2-01	--	22-2-01	19-0-06	29	21111	POYNOR	FALSE	--	--	FALSE	1	0	12-21-95	good ELT 18
1	31	1	U-GASCONADE	--	--	4-6-02	7-2-01	29-2-03	08-0-06	40	21111	POYNOR	FALSE	--	--	FALSE	0	2	1-24-96	good ELT 17
1	32	1	U-GASCONADE	--	--	5-5-01	--	43-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-21-95	good ELT 18
1	33	1	U-GASCONADE	--	--	4-3-01	4-2-00	21-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	0	1-24-96	good ELT 18
1	34	1	U-GASCONADE	--	--	5-2-01	4-2-01	18-2-03	--	--	47311	SCHOLTEN	FALSE	--	--	FALSE	0	0	1-24-96	fragipan 27", stopped on top of pan
1	35	1	U-GASCONADE	GUNTER	--	5-2-01	--	43-2-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	0	0	1-24-96	area is difficult to determine geology
1	36	1	U-GASCONADE	--	--	6-2-01	--	42-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	1-24-96	good ELT 18
1	37	1	U-GASCONADE	L-GASCONADE	--	6-6-01	6-2-02	6-2-04	30-0-06	18	21112	ALRED	FALSE	--	--	TRUE	0	0	1-24-96	see notes
1	38	1	U-GASCONADE	--	--	7-2-01	--	31-5-02	38--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	0	0	12-21-95	near crypt reef, stopped by chert
1	39	1	U-GASCONADE	--	--	4-5-01	6-2-01	38-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	0	1-24-96	good ELT 17
1	40	1	L-GASCONADE	--	--	4-2-01	4-2-01	18-2-01	22-0-06	26	21112	ALRED	FALSE	--	--	FALSE	1	0	1-24-96	good ELT 66
1	41	1	U-GASCONADE	--	--	3-6-01	16-5-01	29-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	12-20-95	good ELT 17
1	42	1	U-GASCONADE	--	--	5-2-01	4-2-01	7-2-03	32-0-06	16	21111	POYNOR	FALSE	--	--	FALSE	0	1	1-17-96	see notes
1	43	1	ROUBIDOUX	--	--	6-5-01	12-2-01	18-6-01	--	--	41111	CLARKSVILLE	TRUE	--	--	FALSE	1	1	1-17-96	see notes
1	44	1	U-GASCONADE	--	--	4-2-01	--	23-2-03	21-1-06	27	21111	POYNOR	FALSE	--	--	FALSE	0	0	1-17-96	moderately well drained
1	45	1	U-GASCONADE	--	--	4-2-01	4-2-01	38-2-04	02-0-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	1-17-96	good ELT 18
1	46	1	U-GASCONADE	--	--	6-3-01	7-2-01	28-5-01	07-0-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	0	1-17-96	good ELT 17, some cobbles on surface
1	47	1	U-GASCONADE	--	--	6-2-01	--	23-2-01	5-5-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	0	1-16-96	see notes
1	48	1	U-GASCONADE	--	--	6-5-01	--	42-5-02	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	1	1-22-96	see notes, ridge not include in slope
1	49	1	U-GASCONADE	--	--	6-6-02	23-2-02	19-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	1	2	1-17-96	good ELT 17
1	50	1	U-GASCONADE	--	--	3-5-01	17-2-02	28-5-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	1-17-96	good ELT 17, below crypt reef, 910'
1	51	1	ROUBIDOUX	--	--	5-1-01	--	4-2-03	29-1-06	9	91111	DONIPHAN	FALSE	--	--	FALSE	0	0	1-17-96	stopped by chert at 38", good ELT 9
1	52	1	U-GASCONADE	--	--	7-5-01	--	30-5-01	11-1-06	37	21111	POYNOR	FALSE	--	--	FALSE	1	1	1-16-96	good ELT 18
1	53	1	ROUBIDOUX	--	--	5-2-01	--	22-2-02	27--12	--	41211	BENDER	FALSE	--	--	FALSE	0	3	1-9-96	see notes
1	54	1	ROUBIDOUX	--	--	10-3-01	--	38-3-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	0	0	1-9-96	see notes
1	55	1	ROUBIDOUX	--	--	8-6-01	22-2-01	18-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	0	2	1-9-96	Roub Hs good ELT 18
1	56	1	U-GASCONADE	--	--	6-5-01	12-2-01	30-5-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	2	1	1-9-96	good Roub - Gas contact
1	57	1	ROUBIDOUX	--	--	5-2-01	--	22-2-01	--	--	47311	SCHOLTEN	FALSE	--	--	FALSE	1	0	1-9-96	see notes, stopped by fragipan at 27"
1	58	1	ROUBIDOUX	--	--	8-3-01	21-2-01	5-2-01	34--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	0	0	1-9-96	see notes
1	59	1	ROUBIDOUX	--	--	5-5-01	--	38-2-01	5-1-05	40	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	0	1-9-96	see notes
1	60	1	U-GASCONADE	--	--	6-5-01	--	27-2-01	33--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	2	0	1-9-96	part on Shoulder ridge
1	61	1	ROUBIDOUX	U-GASCONADE	--	5-2-01	--	43-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	0	1-16-96	Roub-Gas contact at 920'
1	62	1	ROUBIDOUX	--	--	2-6-01	6-2-01	20-2-04	20-5-06	28	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	1-16-96	Hs of Bs, Sampled concave area of Hs
1	63	1	ROUBIDOUX	--	--	3-6-01	--	23-6-01	27--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	2	2	1-23-96	see notes
1	64	1	ROUBIDOUX	U-GASCONADE	--	2-3-01	--	12-3-01	34-0-06	14	21111	POYNOR	FALSE	--	--	FALSE	0	0	1-16-96	see notes
1	65	1	U-GASCONADE	--	--	2-3-01	--	25-2-01	21-2-06	27	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	0	1-16-96	see notes
1	66	1	ROUBIDOUX	--	--	6-2-01	--	14-2-03	28-0-06	20	21111	POYNOR	FALSE	--	--	FALSE	0	0	1-16-96	good 11, part on summit, 31311
1	67	1	U-GASCONADE	--	--	5-1-01	--	18-1-01	25-2-01	--	31111	SND	FALSE	--	--	FALSE	1	0	1-16-96	see notes, two alluvial fan deposits
1	68	1	U-GASCONADE	--	--	5-6-01	--	22-6-01	--	--	41111	CLARKSVILLE	FALSE	--	--	TRUE	3	1	1-16-96	see notes
1	69	1	ROUBIDOUX	--	--	5-1-01	--	14-1-03	4-2-03	--	47311	SCHOLTEN	FALSE	--	--	FALSE	2	0	1-16-96	Plot center is 31311, see notes
1	70	1	U-GASCONADE	--	--	5-4-01	6-2-01	23-5-03	14-2-06	34	41111	CLARKSVILLE	FALSE	--	--	FALSE	3	1	1-16-96	good ELT 18
1	71	1	ROUBIDOUX	--	--	6-2-01	--	31-2-03	11-0-06	37	21111	POYNOR	FALSE	--	--	FALSE	0	0	1-16-96	good ELT 11
1	72	1	U-GASCONADE	--	--	6-5-01	3-2-01	22-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	0	1-22-96	see notes
1	73	1	U-GASCONADE	--	--	6-5-01	--	16-2-03	26-1-06	22	21111	POYNOR	FALSE	--	--	FALSE	1	0	1-22-96	few stones

Site	Plot	BLOCK	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Ecolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
1	74	1	NO HARVEST	BREAKS	5	5	UGAFP	31	4	--	--	--	--	--	PROTECTED	770	770	FLOODPLAIN	--	LINEAR	LINEAR
1	75	1	NO HARVEST	BREAKS	5	5	UGAFP	31	2	--	--	0	--	--	PROTECTED	770	770	FLOODPLAIN	--	LINEAR	LINEAR
1	76	1	NO HARVEST	BREAKS	6	6	EMFP	27	2	--	--	0	--	--	PROTECTED	730	730	FLOODPLAIN	--	LINEAR	LINEAR
2	1	1	UNEVEN-AGE	BREAKS	57	23	GEBS	75f	45	--	--	190	--	--	EXPOSED	830	880	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	LINEAR
2	2	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	33	--	--	355	--	--	PROTECTED	900	940	BACKSLOPE	UPPER	LINEAR	LINEAR
2	3	1	UNEVEN-AGE	BREAKS	17	17	ROBS	63f	50	45	55	195	--	--	EXPOSED	1050	1090	BACKSLOPE	UPPER	CONVEX	LINEAR
2	4	1	UNEVEN-AGE	BREAKS	9	5	ROSU	80c	8	6	11	0	--	--	PROTECTED	1160	1160	SUMMIT	--	LINEAR	LINEAR
2	5	1	UNEVEN-AGE	BREAKS	10	11	ROSH	63d	10	9	12	180	--	--	EXPOSED	1110	1120	SHOULDER	--	LINEAR	CONVEX
2	6	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	43	35	52	225	--	--	EXPOSED	820	860	BACKSLOPE	UPPER	CONCAVE	CORRUGATED
2	7	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	36	28	45	300	240	360	NEUTRAL-WEST	870	910	BACKSLOPE	UPPER	CONCAVE	CONCAVE
2	8	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	30	--	--	155	--	--	NEUTRAL-EAST	950	990	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
2	9	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	28	--	--	40	--	--	PROTECTED	920	960	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
2	10	1	UNEVEN-AGE	BREAKS	1922	17	UGABS	81f	43	--	--	245	--	--	EXPOSED	1000	1040	BACKSLOPE	UPPER	STAIRSTEPPED	CORRUGATED
2	11	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	32	--	--	140	--	--	NEUTRAL-EAST	880	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
2	12	1	UNEVEN-AGE	BREAKS	18	17	UGABS	80f	29	--	--	340	--	--	NEUTRAL-WEST	890	930	BACKSLOPE	LOWER	CONCAVE	CONVEX
2	13	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	42	35	50	75	35	110	NEUTRAL-EAST	830	870	BACKSLOPE	LOWER	LINEAR	LINEAR
2	14	1	UNEVEN-AGE	BREAKS	53	17	GEBS	75f/80f	29	25	33	305	--	--	NEUTRAL-WEST	780	810	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
2	15	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	47	--	--	225	--	--	EXPOSED	940	980	BACKSLOPE	MIDDLE	LINEAR	CONCAVE
2	16	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	39	--	--	90	70	110	NEUTRAL-EAST	940	980	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
2	17	1	UNEVEN-AGE	BREAKS	65	17	LGABS	82f	40	--	--	120	--	--	NEUTRAL-EAST	870	910	BACKSLOPE	LOWER	CONVEX	CONVEX
2	18	1	UNEVEN-AGE	BREAKS	10	11	ROSH	63d	12	--	--	150	--	--	NEUTRAL-EAST	1060	1070	SHOULDER	--	LINEAR	CONVEX
2	19	1	UNEVEN-AGE	BREAKS	11	11	ROSH	63d	10	5	15	350	10	330	PROTECTED	1060	1070	SHOULDER	--	LINEAR	LINEAR
2	20	1	UNEVEN-AGE	BREAKS	17	18	UGABS	80f	50	--	--	315	--	--	NEUTRAL-WEST	940	980	BACKSLOPE	LOWER	LINEAR	CONVEX
2	21	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	36	--	--	275	--	--	NEUTRAL-WEST	860	900	BACKSLOPE	MIDDLE	CONVEX	LINEAR
2	22	1	UNEVEN-AGE	BREAKS	53	18	EMBS	75f	25	--	--	320	--	--	NEUTRAL-WEST	730	760	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
2	23	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	47	--	--	70	--	--	NEUTRAL-EAST	940	980	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
2	24	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	52	50	55	180	170	190	EXPOSED	940	980	BACKSLOPE	UPPER	CONVEX	CORRUGATED
2	25	1	UNEVEN-AGE	BREAKS	17	18	UGABS	80f	36	25	47	125	110	140	NEUTRAL-EAST	840	880	BACKSLOPE	MIDDLE	CONVEX	CONVEX
2	26	1	UNEVEN-AGE	BREAKS	18	17	UGABS	80f	30	22	37	95	--	--	NEUTRAL-EAST	820	860	BACKSLOPE	LOWER	LINEAR	CONVEX
2	27	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	27	--	--	15	--	--	PROTECTED	850	890	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONVEX
2	28	1	UNEVEN-AGE	BREAKS	18	18	UGABS	83f	27	--	--	10	--	--	PROTECTED	750	790	BACKSLOPE	UPPER	CONCAVE	CONCAVE
2	29	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	33	--	--	60	--	--	PROTECTED	750	790	BACKSLOPE	LOWER	LINEAR	CONVEX
2	30	1	UNEVEN-AGE	BREAKS	10	11	UGASHR	80d	18	13	23	145	90	200	NEUTRAL-EAST	835	855	SHOULDER RIDGE	--	LINEAR	CONVEX
2	31	1	UNEVEN-AGE	BREAKS	53	17	GEBS	75f/80f	42	--	--	230	--	--	EXPOSED	780	820	BACKSLOPE	MIDDLE-LOWER	CONCAVE	CORRUGATED
2	32	1	UNEVEN-AGE	BREAKS	10	11	UGASH	80d	11	--	--	155	--	--	NEUTRAL-EAST	820	835	SHOULDER	--	LINEAR	LINEAR
2	33	1	UNEVEN-AGE	BREAKS	52	18	GEBS	75f/80f	24	16	32	65	--	--	PROTECTED	700	740	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
2	34	1	UNEVEN-AGE	BREAKS	10	11	UGASHR	80d	10	--	--	145	90	200	NEUTRAL-EAST	820	835	SHOULDER RIDGE	--	LINEAR	CONVEX
2	35	1	UNEVEN-AGE	BREAKS	1953	17	EMBS	74f	30	26	33	230	--	--	EXPOSED	700	740	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
2	36	1	UNEVEN-AGE	BREAKS	17	18	UGABS	80f	24	--	--	285	--	--	NEUTRAL-WEST	740	780	BACKSLOPE	MIDDLE	LINEAR	CONVEX
2	37	1	UNEVEN-AGE	BREAKS	1953	23	GEBS	74f/89d	20	8	33	185	--	--	EXPOSED	710	750	BACKSLOPE	MIDDLE	STAIRSTEPPED	CONVEX
2	38	1	UNEVEN-AGE	BREAKS	1953	17	GEBS	74f/82f	34	--	--	220	--	--	EXPOSED	710	750	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
2	39	1	UNEVEN-AGE	BREAKS	66	11	LGASHR	82d	12	6	18	205	170	240	EXPOSED	770	785	SHOULDER RIDGE	--	LINEAR	CONVEX
2	40	1	UNEVEN-AGE	BREAKS	6	6	EMFP	27	4	--	--	0	--	--	PROTECTED	590	590	FLOODPLAIN	--	LINEAR	LINEAR
2	41	1	UNEVEN-AGE	BREAKS	6	6	EMFP	27	5	--	--	0	--	--	PROTECTED	590	600	FLOODPLAIN	--	LINEAR	LINEAR
2	42	1	UNEVEN-AGE	BREAKS	57	17	EMBS	70f	34	--	--	250	--	--	EXPOSED	640	680	BACKSLOPE	MIDDLE	STAIRSTEPPED	CORRUGATED
2	43	1	UNEVEN-AGE	BREAKS	52	18	EMSHR	75d	15	--	--	30	--	--	PROTECTED	655	670	SHOULDER RIDGE	--	CONCAVE	LINEAR
2	44	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	30	--	--	100	--	--	NEUTRAL-EAST	740	760	BACKSLOPE	UPPER	CONVEX	LINEAR
2	45	1	UNEVEN-AGE	BREAKS	53	17	EMBS	75f	20	18	22	270	--	--	NEUTRAL-WEST	640	680	BACKSLOPE	MIDDLE	STAIRSTEPPED	CORRUGATED
2	46	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	24	20	29	330	--	--	NEUTRAL-WEST	760	800	BACKSLOPE	UPPER	LINEAR	LINEAR
2	47	1	UNEVEN-AGE	BREAKS	52	18	GEBS	75f/80f	37	--	--	355	--	--	PROTECTED	720	760	BACKSLOPE	MIDDLE	LINEAR	CONVEX
2	48	1	UNEVEN-AGE	BREAKS	66	17	LGASHR	82d	19	--	--	145	--	--	NEUTRAL-EAST	765	790	SHOULDER RIDGE	--	LINEAR	LINEAR
2	49	1	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	5	--	--	0	--	--	PROTECTED	840	840	SUMMIT	--	LINEAR	LINEAR
2	50	1	UNEVEN-AGE	BREAKS	10	17	UGASH	80d	18	--	--	285	--	--	NEUTRAL-WEST	820	840	SHOULDER	--	LINEAR	LINEAR
2	51	1	UNEVEN-AGE	BREAKS	66	18	LGABS	82f	25	20	29	315	--	--	NEUTRAL-WEST	750	790	BACKSLOPE	UPPER	LINEAR	LINEAR
2	52	1	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	6	--	--	0	--	--	PROTECTED	845	855	SUMMIT	--	LINEAR	LINEAR
2	53	1	UNEVEN-AGE	BREAKS	66	17	LGABS	82f/80f	28	--	--	160	--	--	NEUTRAL-EAST	800	840	BACKSLOPE	UPPER	STAIRSTEPPED	LINEAR
2	54	1	UNEVEN-AGE	BREAKS	66	17	LGABN	82d	17	13	22	140	--	--	NEUTRAL-EAST	720	750	BENCH	--	LINEAR	CONVEX
2	55	1	UNEVEN-AGE	BREAKS	65	18	LGABS	82f	26	--	--	80	--	--	NEUTRAL-EAST	760	800	BACKSLOPE	UPPER	CONVEX	LINEAR
2	56	1	UNEVEN-AGE	BREAKS	66	17	LGASHR	82d	19	--	--	160	--	--	NEUTRAL-EAST	790	830	SHOULDER RIDGE	--	LINEAR	CONVEX
2	57	1	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	4	--	--	0	--	--	PROTECTED	845	855	SUMMIT	--	LINEAR	LINEAR
2	58	1	UNEVEN-AGE	BREAKS	1953	17	GEBS	74f	20	--	--	215	--	--	EXPOSED	705	745	BACKSLOPE	UPPER	STAIRSTEPPED	CONVEX
2	59	1	UNEVEN-AGE	BREAKS	18	17	UGABS	80f	30	--	--	80	60	100	NEUTRAL-EAST	770	810	BACKSLOPE	LOWER	CONVEX	CONVEX
2	60	1	UNEVEN-AGE	BREAKS	37	11	LGABN	89c	5	4	7	--	--	--	PROTECTED	805	810	BENCH	--	LINEAR	LINEAR
2	61	1	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	7	--	--	0	--	--	PROTECTED	860	870	SUMMIT	--	CONCAVE	LINEAR
2	62	1	UNEVEN-AGE	BREAKS	10	11	UGASH	80d	14	--	--	275	5	210	NEUTRAL-WEST	840	860	SHOULDER	--	LINEAR	CONVEX
2	63	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	25	--	--	335	--	--	NEUTRAL-WEST	780	820	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
2	64	1	UNEVEN-AGE	BREAKS	10	17	UGASHR	80d	15	9	20	215	175	255	EXPOSED	790	810	SHOULDER RIDGE	--	CONVEX	LINEAR
2	65	1	UNEVEN-AGE	BREAKS	52	18	UGABS	75f	27	23	30	60	--	--	PROTECTED	705	735	BACKSLOPE	MIDDLE	LINEAR	CONVEX
2	66	1	UNEVEN-AGE	BREAKS	1953	17	EMBS	74f	58	--	--	145	--	--	NEUTRAL-EAST	580	640	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
2	67	1	UNEVEN-AGE	BREAKS	10	11	ROSH	63d	10	5	14	140	70	205	NEUTRAL-EAST	940	950	SHOULDER	--	CONVEX	LINEAR
2	68	1	UNEVEN-AGE	BREAKS	11	11	UGASH	80d	12	--	--	100	--	--	NEUTRAL-EAST	905	910	SHOULDER	--	LINEAR	LINEAR
2	69	1	UNEVEN-AGE	BREAKS	66	17	LGABS	82f/80f	30	25	35	190	--	--	EXPOSED	780	820	BACKSLOPE	MIDDLE	CONVEX	CORRUGATED
2	70	1	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	29	--	--	260	--	--	NEUTRAL-WEST	850	870	BACKSLOPE	UPPER	CONVEX	CONVEX

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or slide	Windthrow	Surface stoniness	Date Measured	Notes
1	74	1	U-GASCONADE	--	--	5-3-02	--	43-6-10	--	--	64434	RELFE	FALSE	--	--	FALSE	0	1	1-17-96	few trees on BS.
1	75	1	U-GASCONADE	--	--	5-2-01	--	21-2-02	22-5-09	--	48212	TILK	FALSE	--	--	FALSE	0	0	1-17-96	see notes
1	76	1	EMINENCE	--	--	9-3-01	--	14-2-02	25-5-10	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	0	0	1-17-96	good ELT 5
2	1	1	GUNTER	EMINENCE	--	6-1-03	--	--	6-12-98	--	43213	MOKO	TRUE	1	3	FALSE	--	2	2-25-95	near site 35" deep, soils 84212,var plot
2	2	1	U-GASCONADE	--	--	6-3-01	9-2-01	16-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	--	--	2-25-95	stopped by chert at 31", not bedrock
2	3	1	ROUBIDOUX	--	--	1-3-01	--	21-3-01	22- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	--	2	2-25-95	--
2	4	1	ROUBIDOUX	--	--	5-2-01	--	19-3-01	24- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	--	--	2-25-95	PART OF PLOT ON SHOULDER SLOPE
2	5	1	ROUBIDOUX	--	--	6-1-01	--	17-3-01	23- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	--	--	2-25-95	--
2	6	1	U-GASCONADE	--	--	7-3-01	--	41-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	--	2	2-25-95	LIES ACROSS HS AND BS, SAMP HS
2	7	1	U-GASCONADE	--	--	2-3-01	--	46-3-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	--	--	2-26-95	lies across HS and Bs, samp Bs
2	8	1	U-GASCONADE	--	--	3-2-01	--	26-3-01	19-1-05	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	--	--	2-18-95	NO HEAVY CLAY, ALL COLLUVIUM
2	9	1	U-GASCONADE	--	--	4-1-01	6-1-01	38-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	2-18-95	--
2	10	1	U-GASCONADE	--	--	3-3-01	--	45-3-01	--	--	41112	REUTER	TRUE	1	1	FALSE	-	2	2-25-95	HS&BS, HS-12"SURFACE, SINKHOLE, BR-NW
2	11	1	U-GASCONADE	--	--	2-3-01	--	46-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	2-18-95	SOME ROUBIDOUX MATERIALS MIXED IN
2	12	1	U-GASCONADE	--	--	6-2-01	--	33-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-26-95	STOPPED BY CHERT
2	13	1	U-GASCONADE	--	--	5-2-01	--	43-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-26-95	NOSE SLOPE AND BACK SLOPE
2	14	1	U-GASCONADE	GUNTER	EMINENCE	4-2-01	--	38-2-01	06-0-06	42	41112	REUTER	FALSE	--	--	FALSE	-	--	2-26-95	LITTLE SIGN OF GUNTER HERE
2	15	1	U-GASCONADE	--	--	5-5-01	15-3-01	28-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	2	2-24-95	SAMP IN HS, BS SOILS SAME
2	16	1	U-GASCONADE	--	--	5-3-01	--	43-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-24-95	--
2	17	1	L-GASCONADE	--	--	4-3-01	4-2-01	12-3-01	28-0-06	20	21112	ALRED	FALSE	--	--	FALSE	-	--	2-24-95	--
2	18	1	ROUBIDOUX	--	--	6-3-01	4-3-01	16-3-01	26- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	2-24-95	2.5" THICK CHERT BED ON SLOPES BELOW
2	19	1	ROUBIDOUX	--	--	5-1-01	--	11-1-01	13-2-01	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	2-26-95	50\50 SUMMIT-SHOULDER, SOME FINE-LOAMY
2	20	1	U-GASCONADE	--	--	2-2-01	--	46-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-26-95	PORTION OF HS IN PLOT
2	21	1	U-GASCONADE	--	--	2-2-01	--	34-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-26-95	STOPPED BY CHERT
2	22	1	EMINENCE	--	--	5-3-01	--	--	43-0-06	5	81112	GEPP	FALSE	--	--	FALSE	-	--	2-26-95	SAMPLED ON STEP PORTION OF LANDSCAPE
2	23	1	U-GASCONADE	--	--	5-3-01	--	43-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-24-95	GUNTER BELOW AT 820'
2	24	1	U-GASCONADE	--	--	2-3-01	--	--	46-1-06	2	91111	DONIPHAN	FALSE	--	--	FALSE	-	1	2-24-95	SAMP BS, HS:41111, CLARKSVILLE
2	25	1	U-GASCONADE	--	--	5-2-01	12-2-01	17-3-01	14-0-06	34	21111	POYNOR	FALSE	--	--	FALSE	-	--	2-18-95	--
2	26	1	U-GASCONADE	--	--	4-2-01	--	44-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-18-95	VAN BUREN NOT EXPRESSED IN AREA
2	27	1	U-GASCONADE	--	--	4-2-01	--	30-2-01	14-0-06	34	21111	POYNOR	FALSE	--	--	FALSE	-	--	2-18-95	PART ON BS PART ON HS
2	28	1	U-GASCONADE	--	--	06-0-01	--	30-1-01	12-2-01	--	31111	SND	FALSE	--	--	FALSE	-	--	2-2-95	no series, conc-conc Hs, see class
2	29	1	U-GASCONADE	--	--	6-2-01	--	42-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-2-95	GUNTER AT 750" HERE, PLOT JUST ABOVE
2	30	1	U-GASCONADE	--	--	6-2-01	5-2-02	37-3-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	--	2-2-95	part on upper back slope
2	31	1	U-GASCONADE	GUNTER	EMINENCE	1-3-01	--	20-3-04	21- -12	--	41211	BENDER	TRUE	1	1	FALSE	-	2	2-2-95	SAMPLED BS ON GUNTER: 800", small outcro
2	32	1	U-GASCONADE	--	--	8-2-01	30-3-01	17-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-2-95	--
2	33	1	U-GASCONADE	GUNTER	EMINENCE	6-2-02	8-2-02	--	14-0-06	14	21212	BARDLEY-LIKE	TRUE	2	1	FALSE	-	2	2-8-95	SINKHOLE IN PLOT, SOILS:31111, SAMP EMIN
2	34	1	U-GASCONADE	--	--	4-3-01	--	29-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-8-95	STOPPED BY CHERT
2	35	1	EMINENCE	--	--	3-1-02	3-1-02	9-1-04	33-0-06	15	01112	SND	TRUE	1	1	FALSE	-	--	2-15-95	UPPER PART DOLO, FINE-LOAMY\CLAYEY
2	36	1	U-GASCONADE	--	--	7-5-01	--	8-3-01	33-0-06	15	21111	POYNOR	FALSE	--	--	FALSE	-	--	2-15-95	JUST ABOVE GUNTER
2	37	1	L-GASCONADE	GUNTER	EMINENCE	5-5-09	12-2-09	27-0-06	44- -12	17	81212	NIANGUA	TRUE	1	1	FALSE	-	--	2-1-95	UPPER PLOT SHR, GUNTER COL, BR AT 44"
2	38	1	L-GASCONADE	GUNTER	EMINENCE	5-5-09	4-5-09	39-6-11	--	--	41111	COULSTONE	TRUE	1	1	FALSE	-	--	2-1-95	SUCCESSIVE BEDS OF SS, DOLO LOWER EDGE
2	39	1	L-GASCONADE	--	--	6-3-01	--	12-3-01	30-0-06	18	21112	ALRED	FALSE	--	--	FALSE	-	--	2-1-95	SUMMIT AND SH, SAMP SUMMIT, 82D UNIT
2	40	1	EMINENCE	--	--	8-3-01	--	40-3-09	--	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	-	--	2-1-95	PART ON FOOT SLOPE, 75D UNIT
2	41	1	EMINENCE	--	--	6-3-01	--	17-2-02	24-1-04	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	-	--	2-1-95	PART ON FOOT SLOPE,
2	42	1	EMINENCE	--	--	6-4-03	--	13-0-06	19- -12	6	73212	OPEQUON-LIKE	TRUE	1	3	FALSE	-	2	2-1-95	TWO UNITS 70F&74F, SAMP 70F, UPPER > RO
2	43	1	EMINENCE	--	--	6-2-01	--	8-2-03	34-0-06	14	24112	ALRED-LIKE	FALSE	--	--	FALSE	-	--	2-1-95	CLOSE TO FINE-LOAMY/CLAYEY, 75D UNIT
2	44	1	U-GASCONADE	--	--	5-3-01	6-3-01	37-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-1-95	PART ON SHOULDER RIDGE, SAME SOILS,
2	45	1	EMINENCE	--	--	5-3-02	--	16-2-04	27-2-06	21	21112	ALRED	FALSE	--	--	FALSE	-	--	2-14-95	some cobbles
2	46	1	U-GASCONADE	--	--	5-2-01	4-2-01	24-2-01	15-2-05	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-14-95	PART ON SHOULDER SLOPE
2	47	1	U-GASCONADE	GUNTER	EMINENCE	3-2-01	5-2-01	16-2-05	--	--	51211	NOARK	TRUE	--	--	FALSE	-	2	2-14-95	GUNTER EAST OF PLOT AT 740" GAS COL,
2	48	1	L-GASCONADE	--	--	4-3-01	5-2-01	15-2-01	24-0-06	24	21112	ALRED	FALSE	--	--	FALSE	-	--	2-14-95	GUNTER AT 760"
2	49	1	U-GASCONADE	--	--	5-1-01	--	18-1-01	16-3-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-14-95	GOOD UNIT, ALL ON SUMMIT,
2	50	1	U-GASCONADE	--	--	6-2-01	3-2-01	23-3-01	32- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	2-15-95	--
2	51	1	L-GASCONADE	--	--	6-3-01	--	13-3-01	29-1-06	19	21112	ALRED	FALSE	--	--	FALSE	-	--	2-15-95	SOME OF PLOT ON STRUCTURAL BENCH
2	52	1	U-GASCONADE	--	--	6-1-01	--	42-3-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-15-95	--
2	53	1	U-GASCONADE	L-GASCONADE	--	4-3-01	--	17-2-01	27-0-06	21	21112	ALRED	FALSE	--	--	FALSE	-	--	2-15-95	UP 1/2 ELT 17, SAMP LOWER 1/2, RO TO SE
2	54	1	L-GASCONADE	--	--	5-3-01	5-2-01	11-2-01	27-0-06	21	21112	ALRED	FALSE	--	--	FALSE	-	--	2-24-95	82D UNIT, SOME BS, SINK, GUNTER AT 720"
2	55	1	L-GASCONADE	--	--	4-2-01	6-2-01	21-2-03	17-1-06	31	21112	ALRED	FALSE	--	--	FALSE	-	--	2-15-95	SINK IN LOWER PLOT,
2	56	1	L-GASCONADE	--	--	4-5-01	3-2-01	15-2-03	26-0-06	22	21112	ALRED	FALSE	--	--	FALSE	-	--	2-24-95	GRAVEL IN CLAY, GUNTER 720", 82D UNIT
2	57	1	U-GASCONADE	--	--	6-1-01	--	17-2-01	--	--	47311	SCHOLTEN	FALSE	--	--	FALSE	-	--	2-16-95	SINK ON WEST EDGE, FREE WATER IN Bt
2	58	1	L-GASCONADE	GUNTER	EMINENCE	4-1-02	19-2-09	6-6-09	29- -12	--	41211	BENDER	TRUE	1	2	FALSE	-	1	2-24-95	DOLO RO ON LOWER 1\3, SAMP ON GUNTER SS
2	59	1	U-GASCONADE	--	--	7-3-01	--	41-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	2-8-95	few cobbles notes
2	60	1	L-GASCONADE	--	--	5-1-01	--	28-1-03	15-0-06	33	02112	SND	FALSE	--	--	FALSE	-	--	2-24-95	see notes, fine-loamy/clayey
2	61	1	U-GASCONADE	--	--	5-2-01	--	18-2-01	--	--	47311	SCHOLTEN	FALSE	--	--	FALSE	-	--	2-16-95	STOPPED BY FRAGIPAN: SCHOLTEN
2	62	1	U-GASCONADE	--	--	2-6-01	6-2-01	14-2-01	7-2-05	--	47311	SCHOLTEN	TRUE	--	--	FALSE	-	1	2-16-95	STOPPED BY FRAGIPAN
2	63	1	U-GASCONADE	--	--	6-2-01	5-2-01	37-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-15-95	SMALL PART OF UPPER PLOT ON SHOULDER
2	64	1	U-GASCONADE	--	--	5-2-01	--	43-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-8-95	--
2	65	1	U-GASCONADE	GUNTER	EMINENCE	6-3-01	--	42-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-24-95	GAS COLLUVIUM, GUNTER AT 720" COVERED
2	66	1	EMINENCE	--	--	3-2-05	--	13-0-06	16- -12	3	93212	OPEQUON-LIKE	TRUE	1	2	FALSE	-	2	2-15-95	74F&70F UNITS, SOME MOLLIC,
2	67	1	ROUBIDOUX	--	--	4-3-01	--	16-2-01	28-0-06	20	21111	POYNOR	FALSE	--	--	FALSE	-	--	2-24-95	PLOT ON SHOULDER AND SUMMIT POSTIONS
2	68	1	U-GASCONADE	--	--	5-2-01	--	18-2-01	25-2-05	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-8-95	CLAY AND GRAVELS MIXED TO 48"
2	69	1	U-GASCONADE	L-GASCONADE	--	4-3-01	--	17-2-01	27-0-06	21	21112	ALRED	FALSE	--	--	FALSE	-	--	2-8-95	UPPER 1/2 ELT 17 CLARKSVILLE, 2 HS, 28S
2	70	1	U-GASCONADE	--	--	4-3-01	--	44-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-8-95	SMALL HS IN PLOT, AREA IS CONCAVE

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
2	71	1	UNEVEN-AGE	BREAKS	7	17	EMFS	45d	12	--	--	95	--	--	NEUTRAL-EAST	715	725	FOOTSLOPE/STRATH TERRACE	--	LINEAR	LINEAR
2	72	1	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	22	--	--	70	--	--	NEUTRAL-EAST	740	780	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
2	73	1	UNEVEN-AGE	BREAKS	52	17	GUBS	75f	33	31	36	350	30	310	PROTECTED	730	770	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
3	1	1	EVEN-AGE	BREAKS	9	11	UGASU	80c	4	--	--	0	--	--	PROTECTED	890	890	SUMMIT	--	LINEAR	CONVEX
3	2	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	30	--	--	215	--	--	EXPOSED	840	880	BACKSLOPE	UPPER	CONVEX	CONVEX
3	3	1	EVEN-AGE	BREAKS	18	18	UGABS	80f	36	--	--	95	70	125	NEUTRAL-EAST	860	890	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
3	4	1	EVEN-AGE	BREAKS	18	18	UGABS	80f	26	--	--	40	--	--	PROTECTED	840	860	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
3	5	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	38	--	--	145	--	--	NEUTRAL-EAST	790	830	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
3	6	1	EVEN-AGE	BREAKS	66	17	LGABS	82f/80f	32	--	--	145	--	--	NEUTRAL-EAST	890	910	BACKSLOPE	UPPER	CONVEX	LINEAR
3	7	1	EVEN-AGE	BREAKS	10	11	UGASHR	80d	9	6	18	180	100	260	EXPOSED	900	910	SHOULDER RIDGE	--	LINEAR	CONVEX
3	8	1	EVEN-AGE	BREAKS	1922	17	UGABS	81f/82f	30	--	--	220	--	--	EXPOSED	850	870	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
3	9	1	EVEN-AGE	BREAKS	18	17	UGABS	80f	24	21	27	340	--	--	NEUTRAL-WEST	820	840	BACKSLOPE	UPPER-MIDDLE	CONCAVE	LINEAR
3	10	1	EVEN-AGE	BREAKS	65	18	LGABS	82f	25	--	--	120	--	--	NEUTRAL-EAST	740	760	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
3	11	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	28	--	--	160	--	--	NEUTRAL-EAST	860	880	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
3	12	1	EVEN-AGE	BREAKS	65	18	LGABS	82f	27	--	--	60	--	--	PROTECTED	760	800	BACKSLOPE	MIDDLE	STAIRSTEPPED	CORRUGATED
3	13	1	EVEN-AGE	BREAKS	37	18	LGABN	89d	16	14	18	70	--	--	NEUTRAL-EAST	790	810	BENCH	--	CONCAVE	LINEAR
3	14	1	EVEN-AGE	BREAKS	66	17	LGABS	82f	34	--	--	270	--	--	NEUTRAL-WEST	760	780	BACKSLOPE	MIDDLE	LINEAR	CONVEX
3	15	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	195	--	--	EXPOSED	840	860	BACKSLOPE	UPPER	STAIRSTEPPED	CORRUGATED
3	16	1	EVEN-AGE	BREAKS	66	17	LGABS	82f	32	--	--	205	--	--	EXPOSED	790	810	BACKSLOPE	UPPER	CONVEX	CONVEX
3	17	1	EVEN-AGE	BREAKS	21	19	LGABS	71f	33	--	--	210	--	--	EXPOSED	720	740	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
3	18	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	27	24	30	255	225	285	NEUTRAL-WEST	820	840	BACKSLOPE	UPPER	LINEAR	CONCAVE
3	19	1	EVEN-AGE	BREAKS	65	18	LGABS	82d	20	15	24	80	--	--	NEUTRAL-EAST	800	820	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
3	20	1	EVEN-AGE	BREAKS	2052	18	EMBS	74f	33	27	39	70	40	100	NEUTRAL-EAST	690	720	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CORRUGATED
3	21	1	EVEN-AGE	BREAKS	2052	20	EMBS	74f	34	27	41	95	80	110	NEUTRAL-EAST	650	670	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
3	22	1	EVEN-AGE	BREAKS	1922	11	LGASHR	81d	11	6	17	310	75	230	NEUTRAL-WEST	760	780	SHOULDER RIDGE	--	LINEAR	CONVEX
3	23	1	EVEN-AGE	BREAKS	37	18	LGABN	89d	18	--	--	60	--	--	PROTECTED	730	750	BENCH	--	LINEAR	CORRUGATED
3	24	1	EVEN-AGE	BREAKS	37	18	LGABN	89d	14	--	--	115	--	--	NEUTRAL-EAST	720	740	BENCH	--	CONCAVE	LINEAR
3	25	1	EVEN-AGE	BREAKS	53	17	EMBS	75f	25	20	30	215	--	--	EXPOSED	650	670	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	LINEAR
3	26	1	EVEN-AGE	BREAKS	57	19	EMBS	70f	28	--	--	215	--	--	EXPOSED	660	680	BACKSLOPE	LOWER	STAIRSTEPPED	CONVEX
3	27	1	EVEN-AGE	BREAKS	52	18	EMBS	75f	25	22	28	70	--	--	NEUTRAL-EAST	620	630	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
3	28	1	EVEN-AGE	BREAKS	53	17	EMSHR	75d	16	16	40	245	190	300	EXPOSED	615	635	SHOULDER RIDGE	--	STAIRSTEPPED	CORRUGATED
3	29	1	EVEN-AGE	BREAKS	375	11	LGABN	73d	8	--	--	140	--	--	NEUTRAL-EAST	735	735	BENCH	--	LINEAR	CONVEX
3	30	1	EVEN-AGE	BREAKS	52	18	EMBS	75d/75f	20	14	26	65	--	--	PROTECTED	690	700	BACKSLOPE	MIDDLE	CONCAVE	CONCAVE
3	31	1	EVEN-AGE	BREAKS	66	17	LGABS	82f	30	25	35	285	255	320	NEUTRAL-WEST	810	830	BACKSLOPE	UPPER	STAIRSTEPPED	CORRUGATED
3	32	1	EVEN-AGE	BREAKS	1953	17	EMBS	74f	34	23	45	285	--	--	NEUTRAL-WEST	700	740	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
3	33	1	EVEN-AGE	BREAKS	6	5	EMFP	27	3	--	--	0	--	--	PROTECTED	665	665	FLOODPLAIN	--	LINEAR	LINEAR
3	34	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	29	--	--	310	285	340	NEUTRAL-WEST	850	880	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
3	35	1	EVEN-AGE	BREAKS	6	5	EMFP	27	4	--	--	0	--	--	PROTECTED	670	670	FLOODPLAIN	--	LINEAR	CORRUGATED
3	36	1	EVEN-AGE	BREAKS	18	18	UGABS	80f	30	--	--	120	--	--	NEUTRAL-EAST	860	890	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
3	37	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	36	--	--	225	240	310	EXPOSED	860	880	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
3	38	1	EVEN-AGE	BREAKS	38	17	LGABN	89d	17	17	27	240	--	--	EXPOSED	760	780	BENCH	--	CONVEX	CORRUGATED
3	39	1	EVEN-AGE	BREAKS	65	18	LGABS	82f	31	--	--	60	50	75	PROTECTED	760	790	BACKSLOPE	LOWER	LINEAR	LINEAR
3	40	1	EVEN-AGE	BREAKS	66	18	LGABS	82f	28	25	31	150	--	--	NEUTRAL-EAST	800	830	BACKSLOPE	UPPER-MIDDLE	LINEAR	CORRUGATED
3	41	1	EVEN-AGE	BREAKS	1922	17	LGABS	81f	36	--	--	265	--	--	NEUTRAL-WEST	790	810	BACKSLOPE	UPPER	CONVEX	CONCAVE
3	42	1	EVEN-AGE	BREAKS	53	17	EMBS	75f	27	23	35	270	260	330	NEUTRAL-WEST	640	660	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
3	43	1	EVEN-AGE	BREAKS	1738	17	UGABS	80f/89d	24	--	--	240	--	--	EXPOSED	820	830	BACKSLOPE	LOWER	CONVEX	CORRUGATED
3	44	1	EVEN-AGE	BREAKS	66	17	LGABS	82f	28	--	--	260	--	--	NEUTRAL-WEST	770	790	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
3	45	1	EVEN-AGE	BREAKS	37	20	LGABN	89d	14	--	--	65	--	--	PROTECTED	790	790	BENCH	--	LINEAR	LINEAR
3	46	1	EVEN-AGE	BREAKS	2052	20	EMBS	74f	29	--	--	90	--	--	NEUTRAL-EAST	680	700	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
3	47	1	EVEN-AGE	BREAKS	2052	20	EMBS	74f	32	28	35	90	--	--	NEUTRAL-EAST	680	700	BACKSLOPE	UPPER	STAIRSTEPPED	CONCAVE
3	48	1	EVEN-AGE	BREAKS	52	20	EMBS	75f	24	--	--	30	--	--	PROTECTED	620	620	BACKSLOPE	MIDDLE	LINEAR	CONVEX
3	49	1	EVEN-AGE	BREAKS	18	20	UGABS	80f	27	--	--	70	--	--	NEUTRAL-EAST	820	830	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONCAVE
3	50	1	EVEN-AGE	BREAKS	2052	20	EMBS	74f	34	--	--	80	50	110	NEUTRAL-EAST	710	730	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
3	51	1	EVEN-AGE	BREAKS	15	11	ROSU	61c	7	--	--	0	--	--	PROTECTED	970	970	SUMMIT	--	LINEAR	LINEAR
3	52	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	33	--	--	210	--	--	EXPOSED	900	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
3	53	1	EVEN-AGE	BREAKS	37	18	LGABN	89d	13	--	--	90	--	--	NEUTRAL-EAST	800	820	BENCH	--	LINEAR	LINEAR
3	54	1	EVEN-AGE	BREAKS	18	18	UGABS	80f	25	--	--	15	--	--	PROTECTED	880	900	BACKSLOPE	UPPER	CONVEX	LINEAR
3	55	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	145	55	230	NEUTRAL-EAST	840	860	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
3	56	1	EVEN-AGE	BREAKS	18	18	UGABS	80f	25	--	--	20	--	--	PROTECTED	850	870	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONVEX
3	57	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	250	--	--	EXPOSED	900	920	BACKSLOPE	UPPER	LINEAR	LINEAR
3	58	1	EVEN-AGE	BREAKS	9	11	ROSU	63c	5	3	7	0	--	--	PROTECTED	960	960	SUMMIT	--	LINEAR	LINEAR
3	59	1	EVEN-AGE	BREAKS	66	18	LGABS	82f	31	--	--	285	--	--	NEUTRAL-WEST	830	860	BACKSLOPE	MIDDLE	LINEAR	CONVEX
3	60	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	270	240	300	NEUTRAL-WEST	840	960	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
3	61	1	EVEN-AGE	BREAKS	18	18	UGABS	80f	39	37	42	60	60	350	PROTECTED	890	910	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
3	62	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	25	18	32	265	--	--	NEUTRAL-WEST	900	920	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
3	63	1	EVEN-AGE	BREAKS	17	18	UGABS	80f	31	27	35	320	--	--	NEUTRAL-WEST	890	910	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
3	64	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	30	--	--	220	--	--	EXPOSED	850	860	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
3	65	1	EVEN-AGE	BREAKS	18	18	ROBS	63f	38	--	--	95	75	120	NEUTRAL-EAST	930	950	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
3	66	1	EVEN-AGE	BREAKS	17	17	ROBS	63f	34	25	35	205	180	230	EXPOSED	920	940	BACKSLOPE	UPPER	CONVEX	CONVEX
3	67	1	EVEN-AGE	BREAKS	18	18	ROBS	63f	29	--	--	95	55	130	NEUTRAL-EAST	920	940	BACKSLOPE	UPPER	CONVEX	CONVEX
3	68	1	EVEN-AGE	BREAKS	66	17	LGABS	82f	23	19	27	195	130	150	EXPOSED	800	820	BACKSLOPE	UPPER	CONCAVE	CONVEX
3	69	1	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	155	140	170	NEUTRAL-EAST	880	910	BACKSLOPE	UPPER	CONVEX	CORRUGATED
3	70	1	EVEN-AGE	BREAKS	10	11	UGASHR	80d	9	--	--	190	130	250	EXPOSED	890	910	SHOULDER RIDGE	--	LINEAR	CONVEX

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or Slide	Windthrow	Surface Stoniness	Date Measured	Notes
2	71	1	EMINENCE	--	--	7-1-01	--	13-1-01	28-2-04	--	31111	SND	FALSE	--	--	FALSE	-	--	2-8-95	GUNTER AT 740, BORDERLINE FL OR LS
2	72	1	U-GASCONADE	--	--	6-2-01	--	27-2-01	15-3-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-8-95	--
2	73	1	GUNTER	EMINENCE	--	5-6-02	21-2-01	22-2-09	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	--	2-8-95	samp Hs near Gunter, Gunter at 760"
3	1	1	U-GASCONADE	--	--	5-2-01	4-2-01	10-2-01	29-4-06	19	21111	POYNOR	FALSE	--	--	FALSE	-	1	3-10-95	pH 4.5
3	2	1	U-GASCONADE	--	--	5-3-01	--	40-3-01	3-2-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-10-95	part hs, concave
3	3	1	U-GASCONADE	--	--	7-4-01	23-2-02	18-2-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	2	3-10-95	--
3	4	1	U-GASCONADE	--	--	8-2-01	16-2-01	24-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-10-95	--
3	5	1	U-GASCONADE	--	--	8-3-01	24-2-01	16-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	3	3-10-95	hs, parton convexbs
3	6	1	U-GASCONADE	L-GASCONADE	--	4-2-01	--	32-2-03	12-0-06	36	21112	ALRED	FALSE	--	--	FALSE	-	1	3-9-95	upper clarksville
3	7	1	U-GASCONADE	--	--	4-3-01	--	18-2-01	26-0-06	22	21111	POYNOR	FALSE	--	--	FALSE	-	--	3-9-95	--
3	8	1	U-GASCONADE	--	--	1-2-01	--	18-0-06	19--12	1	93212	OPEQUON	TRUE	1	1	FALSE	-	2	3-9-95	varsoils, 2 units
3	9	1	U-GASCONADE	--	--	04-0-01	--	24-1-01	20-3-01	--	31111	SND	FALSE	--	--	FALSE	-	--	3-9-95	upper 1/2 LS, no series, see soils
3	10	1	L-GASCONADE	--	--	6-2-01	--	13-2-01	29-1-06	19	21112	ALRED	FALSE	--	--	FALSE	-	--	3-10-95	--
3	11	1	U-GASCONADE	--	--	6-1-01	--	24-1-01	18-2-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-9-95	hs, some fine loamy
3	12	1	L-GASCONADE	--	--	8-3-01	--	12-3-01	28-4-06	20	21112	ALRED	FALSE	--	--	FALSE	2	--	3-10-95	at gunter and above
3	13	1	L-GASCONADE	--	--	6-2-01	--	14-2-01	28-0-06	20	21212	MANO	FALSE	--	--	FALSE	1	--	3-9-95	good site
3	14	1	L-GASCONADE	--	--	3-4-00	14-2-02	20-3-01	11-0-06	37	21112	ALRED	FALSE	--	--	FALSE	1	2	3-10-95	deeper col over clay
3	15	1	U-GASCONADE	--	--	5-3-01	4-3-01	39-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-13-95	--
3	16	1	L-GASCONADE	--	--	2-3-01	5-3-01	--	41-0-06	7	81112	GEPP	FALSE	--	--	FALSE	-	1	3-13-95	--
3	17	1	L-GASCONADE	--	--	9-6-01	--	--	09--12	--	43213	MOKO	TRUE	1	3	FALSE	-	3	3-13-95	most plot on glade
3	18	1	U-GASCONADE	--	--	5-2-01	5-2-01	39-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-13-95	hs,
3	19	1	L-GASCONADE	--	--	5-2-01	3-2-01	19-2-03	21-0-06	27	21112	ALRED	FALSE	--	--	FALSE	1	--	3-13-95	2 units, bench
3	20	1	EMINENCE	--	--	5-3-01	2-2-01	--	41-0-06	7	81112	GEPP	TRUE	1	2	TRUE	1	1	3-13-95	varsoils, 74F unit
3	21	1	EMINENCE	--	--	4-2-01	--	42-0-06	46--12	4	81212	NIANGUA	TRUE	1	1	FALSE	1	1	3-13-95	varsoils, 2 units
3	22	1	L-GASCONADE	--	--	3-2-01	--	37-0-06	40--12	3	81212	BARDLEY	TRUE	1	2	FALSE	1	--	3-13-95	81D unit
3	23	1	L-GASCONADE	--	--	5-2-01	--	43-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-14-95	82D unit
3	24	1	L-GASCONADE	--	--	5-1-01	--	12-2-04	31-0-06	17	21112	ALRED	FALSE	--	--	FALSE	1	--	3-13-95	Gunter bench, Gunter at 720"
3	25	1	EMINENCE	--	--	6-2-01	3-2-01	15-2-03	24-0-06	24	21112	ALRED	FALSE	--	--	FALSE	-	--	3-13-95	--
3	26	1	EMINENCE	--	--	3-6-01	--	--	03--12	--	43213	MOKO	TRUE	1	3	FALSE	-	3	3-13-95	glade
3	27	1	EMINENCE	--	--	8-2-01	--	14-2-02	26-0-06	22	21112	ALRED	FALSE	--	--	FALSE	1	--	3-14-95	--
3	28	1	EMINENCE	--	--	3-2-02	--	3-2-06	42-0-06	6	81112	GEPP	TRUE	1	2	FALSE	1	1	3-9-95	Br NE 1/2, 74F unit, two landforms
3	29	1	L-GASCONADE	--	--	6-1-01	--	25-2-03	31--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	--	3-9-95	73D unit
3	30	1	EMINENCE	--	--	6-1-01	--	23-2-04	19-0-06	29	21112	ALRED	FALSE	--	--	FALSE	-	--	3-9-95	75D & 75F unit, colluvium from Gunter
3	31	1	L-GASCONADE	--	--	3-3-01	7-2-01	33-2-01	05-0-06	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-9-95	good site
3	32	1	L-GASCONADE	GUNTER	EMINENCE	3-3-01	9-3-01	--	36-0-06	12	81112	GEPP	TRUE	1	1	FALSE	-	3	3-9-95	var soils, samp Eminence 74F unit
3	33	1	EMINENCE	--	--	6-5-02	--	42-5-10	--	--	64434	RELFE	FALSE	--	--	FALSE	1	--	3-9-95	part on bs,
3	34	1	U-GASCONADE	--	--	3-1-01	--	19-1-01	26-2-01	--	31111	SND	FALSE	--	--	FALSE	3	--	3-9-95	area of col & loess, inc.17, see soils
3	35	1	EMINENCE	--	--	6-6-02	--	42-5-10	--	--	64434	RELFE	FALSE	--	--	FALSE	1	2	3-9-95	part alluvial fan, H2O at 8"
3	36	1	U-GASCONADE	--	--	7-1-01	--	20-1-01	21-2-01	--	31111	SND	FALSE	--	--	FALSE	-	--	3-6-95	inc with 18, see soils
3	37	1	U-GASCONADE	--	--	3-3-01	20-3-01	25-3-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-6-95	cobbles, good site
3	38	1	L-GASCONADE	--	--	3-2-01	7-2-01	--	38-1-06	10	81112	GEPP	TRUE	1	1	FALSE	-	--	3-6-95	Bs&Be,sampBe,small outcrop,no slope ave
3	39	1	L-GASCONADE	--	--	6-1-01	--	27-1-01	15-2-03	--	31111	SND	FALSE	--	--	FALSE	1	--	3-6-95	1st draw, not center, incl 18, see soils
3	40	1	L-GASCONADE	--	--	7-2-01	--	39-2-01	02-0-06	--	41112	REUTER	FALSE	--	--	FALSE	-	3	3-6-95	part stony
3	41	1	U-GASCONADE	L-GASCONADE	--	3-3-01	7-3-01	14-2-01	24-0-06	24	21112	ALRED	TRUE	1	1	FALSE	-	--	3-6-95	hs, some cobbles, 81F unit
3	42	1	EMINENCE	--	--	5-2-01	--	26-2-01	17-0-06	31	21112	ALRED	FALSE	--	--	TRUE	-	--	3-6-95	hs,
3	43	1	U-GASCONADE	L-GASCONADE	--	3-3-01	12-2-01	14-2-03	19-2-05	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-2-95	upper 1/2 of plot, lower Mano ELT 38
3	44	1	L-GASCONADE	--	--	3-3-01	16-2-01	17-3-03	36--12	--	41112	REUTER	TRUE	--	--	FALSE	-	--	3-2-95	sampled on backslope, part on bench
3	45	1	L-GASCONADE	--	--	5-2-01	3-2-01	7-2-03	33-0-06	15	21212	MANO	FALSE	--	--	FALSE	2	--	3-2-95	good site
3	46	1	EMINENCE	--	--	5-2-02	--	5-1-04	38-0-06	10	21112	ALRED	TRUE	1	1	FALSE	-	2	3-2-95	good site, 74F unit
3	47	1	EMINENCE	--	--	2-2-02	5-2-02	7-2-04	23-0-06	14	21212	OCIE	TRUE	1	1	FALSE	1	--	3-2-95	samp on convex, 74F and 75F units
3	48	1	EMINENCE	--	--	5-5-02	--	43-1-04	--	--	31112	SND	FALSE	--	--	FALSE	-	1	3-2-95	MAY BE A GOOD GUNTER WOODLAND
3	49	1	U-GASCONADE	--	--	6-1-01	--	27-1-01	15-2-01	--	31111	SND	FALSE	--	--	FALSE	-	--	3-2-95	plot lies in hs, incl 18, see soils
3	50	1	EMINENCE	--	--	6-5-01	--	22-1-06	28--12	6	84212	ARKANA	TRUE	1	2	FALSE	1	3	3-14-95	74F unit
3	51	1	ROUBIDOUX	--	--	07-0-01	--	11-1-01	10-2-01	--	31311	HOGCREEK	TRUE	--	--	FALSE	1	--	2-22-95	good summit site, NE edge LS
3	52	1	U-GASCONADE	--	--	5-3-01	6-3-01	18-3-03	5-1-06	43	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-22-95	--
3	53	1	L-GASCONADE	--	--	5-1-01	4-1-01	8-2-01	31-0-06	17	21212	MANO	FALSE	--	--	FALSE	2	--	2-23-95	Gunter at 800"
3	54	1	U-GASCONADE	--	--	6-1-01	6-1-01	36-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	2-23-95	NW part aspect of 335, convex
3	55	1	U-GASCONADE	--	--	4-2-01	4-2-02	22-6-02	30--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	2	2-24-95	SAMPLED ON CONVEX-CONVEX AREA
3	56	1	U-GASCONADE	--	--	5-1-01	2-1-01	8-1-01	35-2-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	--	2-24-95	TREES ON EDGE SHOW X HORIZON
3	57	1	U-GASCONADE	--	--	4-6-02	5-3-02	30-3-02	40--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	3	3-2-95	variable geomorphology
3	58	1	ROUBIDOUX	--	--	6-2-01	--	19-2-01	25--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	3-2-95	good summit site
3	59	1	L-GASCONADE	--	--	1-2-01	8-2-01	33-2-01	6-1-06	--	41112	RUETER	FALSE	--	--	FALSE	-	--	3-2-95	Gunter at 760", near contact of VB & GAS
3	60	1	U-GASCONADE	--	--	1-2-01	13-2-01	33-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-2-95	--
3	61	1	U-GASCONADE	--	--	5-1-01	--	30-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-2-95	drain divides plot,
3	62	1	U-GASCONADE	--	--	3-6-02	14-6-02	24-2-02	4-1-06	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	3-2-95	2 hs in bs, col from Roubidoux
3	63	1	U-GASCONADE	--	--	4-2-01	18-2-02	24-3-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	3-2-95	sandstone stones from Roubidoux
3	64	1	U-GASCONADE	--	--	3-5-01	12-2-01	15-2-03	18-0-06	30	21111	POYNOR	FALSE	--	--	FALSE	-	1	3-2-95	--
3	65	1	ROUBIDOUX	--	--	7-3-01	9-2-02	33-3-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	--	3-8-95	hs
3	66	1	ROUBIDOUX	--	--	5-5-02	16-3-02	4-3-04	24--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	3	3-9-95	roub col, stop chert
3	67	1	ROUBIDOUX	--	--	6-2-01	8-2-01	34-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-8-95	--
3	68	1	L-GASCONADE	--	--	3-2-01	4-2-01	18-2-03	23-0-06	25	21112	ALRED	FALSE	--	--	FALSE	-	--	3-8-95	two units 82F and 89D, samp 82F
3	69	1	U-GASCONADE	--	--	3-2-01	6-2-01	39-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-9-95	part on hs,
3	70	1	U-GASCONADE	--	--	5-3-01	17-3-01	--	22--12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	3-8-95	some cobbles on sur

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
3	71	1	EVEN-AGE	BREAKS	53	19	EMBS	75f	28	25	31	225	--	--	EXPOSED	660	680	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
3	72	1	EVEN-AGE	BREAKS	38	19	LGABN	89d	17	--	--	150	--	--	NEUTRAL-EAST	740	740	BENCH	--	LINEAR	CONVEX
4	1	2	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	26	--	--	260	--	--	NEUTRAL-WEST	860	880	BACKSLOPE	UPPER	CONVEX	LINEAR
4	2	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	30	--	--	60	--	--	PROTECTED	820	840	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
4	3	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	33	22	44	260	210	310	NEUTRAL-WEST	790	820	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
4	4	2	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	32	--	--	155	110	180	NEUTRAL-EAST	870	900	BACKSLOPE	UPPER	CONVEX	CONVEX
4	5	2	UNEVEN-AGE	BREAKS	65	18	LGABS	82f	29	--	--	35	--	--	PROTECTED	810	830	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
4	6	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	35	30	40	185	140	230	EXPOSED	760	780	BACKSLOPE	LOWER	CONVEX	CORRUGATED
4	7	2	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	30	--	--	235	210	260	EXPOSED	830	850	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
4	8	2	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	8	--	--	0	--	--	PROTECTED	915	915	SUMMIT	--	CONVEX	LINEAR
4	9	2	UNEVEN-AGE	BREAKS	11	18	UGASHR	80d	18	--	--	65	10	120	PROTECTED	870	890	SHOULDER RIDGE	--	CONCAVE	CONVEX
4	10	2	UNEVEN-AGE	BREAKS	38	17	LGABN	89d	14	--	--	200	--	--	EXPOSED	800	810	BENCH	--	STAIRSTEPPED	LINEAR
4	11	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	27	--	--	135	--	--	NEUTRAL-EAST	780	800	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
4	12	2	UNEVEN-AGE	BREAKS	53	17	EMBS	75f	35	--	--	185	155	215	EXPOSED	710	735	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CORRUGATED
4	13	2	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	41	--	--	155	135	175	NEUTRAL-EAST	860	900	BACKSLOPE	UPPER	CONVEX	CONCAVE
4	14	2	UNEVEN-AGE	BREAKS	65	18	LGABS	82f	27	30	40	60	--	--	PROTECTED	740	760	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
4	15	2	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	2	0	4	0	--	--	PROTECTED	920	920	SUMMIT	--	LINEAR	LINEAR
4	16	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	26	--	--	240	210	270	EXPOSED	750	770	BACKSLOPE	LOWER	LINEAR	CORRUGATED
4	17	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	23	--	--	225	--	--	EXPOSED	780	800	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
4	18	2	UNEVEN-AGE	BREAKS	53	17	GEBS	75f	34	25	43	190	--	--	EXPOSED	700	720	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
4	19	2	UNEVEN-AGE	BREAKS	5	5	EMAF	42d	16	--	--	25	--	--	PROTECTED	675	685	ALLUVIAL FAN	--	LINEAR	CONVEX
4	20	2	UNEVEN-AGE	BREAKS	65	18	LGABS	82f	27	--	--	360	30	330	PROTECTED	790	810	BACKSLOPE	LOWER	LINEAR	CORRUGATED
4	21	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	20	--	--	180	--	--	EXPOSED	820	840	BACKSLOPE	LOWER	LINEAR	LINEAR
4	22	2	UNEVEN-AGE	BREAKS	65	18	LGABS	82f	22	--	--	60	--	--	PROTECTED	750	770	BACKSLOPE	UPPER	LINEAR	LINEAR
4	23	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	25	--	--	30	--	--	PROTECTED	840	860	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
4	24	2	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	6	--	--	0	--	--	PROTECTED	910	910	SUMMIT	--	LINEAR	LINEAR
4	25	2	UNEVEN-AGE	BREAKS	5	5	EMAF	42d	6	--	--	225	--	--	EXPOSED	640	650	ALLUVIAL FAN	--	LINEAR	LINEAR
4	26	2	UNEVEN-AGE	BREAKS	9	11	ROSU	63c	5	--	--	0	--	--	PROTECTED	930	930	SUMMIT	--	LINEAR	LINEAR
4	27	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	27	--	--	70	--	--	NEUTRAL-EAST	870	890	BACKSLOPE	MIDDLE-LOWER	LINEAR	CORRUGATED
4	28	2	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	33	--	--	295	--	--	NEUTRAL-WEST	860	880	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
4	29	2	UNEVEN-AGE	BREAKS	65	18	LGABS	82f	35	30	40	90	--	--	NEUTRAL-EAST	820	840	BACKSLOPE	LOWER	CONVEX	CONVEX
4	30	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	23	--	--	60	--	--	PROTECTED	900	920	BACKSLOPE	UPPER	CONVEX	LINEAR
4	31	2	UNEVEN-AGE	BREAKS	11	11	UGASHR	80d	9	5	17	90	190	350	NEUTRAL-EAST	920	920	SHOULDER RIDGE	--	LINEAR	CONVEX
4	32	2	UNEVEN-AGE	BREAKS	18	18	ROBS	63f	30	--	--	90	60	120	NEUTRAL-EAST	930	950	BACKSLOPE	UPPER	CONVEX	CONVEX
4	33	2	UNEVEN-AGE	BREAKS	17	18	UGABS	80f	33	29	37	315	55	315	NEUTRAL-WEST	890	910	BACKSLOPE	UPPER	CONVEX	CONCAVE
4	34	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	22	18	26	200	--	--	EXPOSED	770	790	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
4	35	2	UNEVEN-AGE	BREAKS	52	18	EMBS	75f	40	30	50	70	35	110	NEUTRAL-EAST	660	700	BACKSLOPE	LOWER	CONCAVE	CONCAVE
4	36	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	35	--	--	245	220	270	EXPOSED	740	760	BACKSLOPE	LOWER	CONVEX	CORRUGATED
4	37	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	25	--	--	245	--	--	EXPOSED	770	790	BACKSLOPE	LOWER	LINEAR	CORRUGATED
4	38	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	24	21	27	55	--	--	PROTECTED	860	880	BACKSLOPE	UPPER	LINEAR	LINEAR
4	39	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	23	--	--	250	--	--	EXPOSED	770	780	BACKSLOPE	LOWER	LINEAR	LINEAR
4	40	2	UNEVEN-AGE	BREAKS	1953	17	GEBS	74f	35	25	45	280	265	295	NEUTRAL-WEST	680	720	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
4	41	2	UNEVEN-AGE	BREAKS	6	5	EMFP	27	3	--	--	0	--	--	PROTECTED	595	595	FLOODPLAIN	--	LINEAR	LINEAR
4	42	2	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	5	2	8	0	--	--	PROTECTED	860	870	SUMMIT	--	LINEAR	LINEAR
4	43	2	UNEVEN-AGE	BREAKS	2052	18	EMBS	74f	51	--	--	85	--	--	NEUTRAL-EAST	660	700	BACKSLOPE	UPPER	STAIRSTEPPED	CONVEX
4	44	2	UNEVEN-AGE	BREAKS	66	17	LGABN	82d	16	5	27	290	--	--	NEUTRAL-WEST	790	810	BENCH	--	STAIRSTEPPED	CORRUGATED
4	45	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	24	--	--	265	245	285	NEUTRAL-WEST	770	810	BACKSLOPE	LOWER	LINEAR	LINEAR
4	46	2	UNEVEN-AGE	BREAKS	1953	17	GEBS	74f	30	25	34	310	--	--	NEUTRAL-WEST	690	720	BACKSLOPE	UPPER	STAIRSTEPPED	CONCAVE
4	47	2	UNEVEN-AGE	BREAKS	66	17	LGASHR	82d	13	9	17	165	155	175	EXPOSED	800	820	SHOULDER RIDGE	--	CONVEX	LINEAR
4	48	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	22	--	--	165	--	--	EXPOSED	810	830	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
4	49	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	29	--	--	55	10	90	PROTECTED	820	840	BACKSLOPE	LOWER	CONVEX	CORRUGATED
4	50	2	UNEVEN-AGE	BREAKS	375	17	LGABN	73c	4	1	7	0	--	--	PROTECTED	745	745	BENCH	--	LINEAR	LINEAR
4	51	2	UNEVEN-AGE	BREAKS	52	18	EMBS	75F	19	16	22	45	--	--	PROTECTED	610	630	BACKSLOPE	MIDDLE	STAIRSTEPPED	CONVEX
4	52	2	UNEVEN-AGE	BREAKS	1953	19	EMBS	74f	36	--	--	185	150	220	EXPOSED	600	640	BACKSLOPE	LOWER	CONVEX	CORRUGATED
4	53	2	UNEVEN-AGE	BREAKS	7	5	EMPS	45d	15	--	--	105	--	--	NEUTRAL-EAST	530	530	FOOTSLOPE/STRATH TERRACE	--	LINEAR	LINEAR
4	54	2	UNEVEN-AGE	BREAKS	57	19	EMSHR	70d	17	--	--	250	--	--	EXPOSED	570	580	SHOULDER RIDGE	--	STAIRSTEPPED	LINEAR
4	55	2	UNEVEN-AGE	BREAKS	1953	17	EMBS	74f	41	--	--	205	--	--	EXPOSED	620	660	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
4	56	2	UNEVEN-AGE	BREAKS	52	18	EMBS	75f	31	25	37	65	--	--	PROTECTED	580	600	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
4	57	2	UNEVEN-AGE	BREAKS	2052	18	EMBS	74f	47	--	--	85	65	105	NEUTRAL-EAST	650	680	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
4	58	2	UNEVEN-AGE	BREAKS	5	5	EMAF	42d	9	--	--	80	15	110	NEUTRAL-EAST	580	580	ALLUVIAL FAN	--	CONVEX	CONVEX
4	59	2	UNEVEN-AGE	BREAKS	1953	19	EMBS	74f	33	--	--	155	125	185	NEUTRAL-EAST	630	650	BACKSLOPE	MIDDLE	STAIRSTEPPED	CONVEX
4	60	2	UNEVEN-AGE	BREAKS	375	11	LGABN	73c	7	--	--	0	--	--	PROTECTED	760	765	BENCH	--	LINEAR	LINEAR
4	61	2	UNEVEN-AGE	BREAKS	2052	18	EMBS	74f	28	--	--	80	60	100	NEUTRAL-EAST	650	670	BACKSLOPE	UPPER	STAIRSTEPPED	CONVEX
4	62	2	UNEVEN-AGE	BREAKS	52	5	EMSHR	75d	13	9	17	65	--	--	NEUTRAL-EAST	550	560	SHOULDER RIDGE	--	CONCAVE	CORRUGATED
4	63	2	UNEVEN-AGE	BREAKS	52	18	EMBS	75f	40	--	--	75	35	115	NEUTRAL-EAST	660	680	BACKSLOPE	UPPER	CONVEX	CONVEX
4	64	2	UNEVEN-AGE	BREAKS	1953	19	EMBS	74f	37	33	41	240	--	--	EXPOSED	680	710	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
4	65	2	UNEVEN-AGE	BREAKS	38	17	LGABN	89d	14	--	--	185	--	--	EXPOSED	730	745	BENCH	--	CONVEX	CORRUGATED
4	66	2	UNEVEN-AGE	BREAKS	1953	19	EMBS	74f	41	--	--	130	--	--	NEUTRAL-EAST	680	700	BACKSLOPE	UPPER	STAIRSTEPPED	CONVEX
4	67	2	UNEVEN-AGE	BREAKS	52	18	EMBS	75f	30	--	--	110	--	--	NEUTRAL-EAST	680	700	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
4	68	2	UNEVEN-AGE	BREAKS	2052	18	GEBS	74f	42	--	--	95	--	--	NEUTRAL-EAST	700	720	BACKSLOPE	UPPER	STAIRSTEPPED	CONVEX
4	69	2	UNEVEN-AGE	BREAKS	66	17	LGABS	82f	22	--	--	180	--	--	EXPOSED	800	820	BACKSLOPE	UPPER	LINEAR	LINEAR
4	70	2	UNEVEN-AGE	BREAKS	18	18	UGABS	80f	31	--	--	55	--	--	PROTECTED	860	890	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
4	71	2	UNEVEN-AGE	BREAKS	17	17	UGABS	80f	29	23	35	220	--	--	EXPOSED	860	890	BACKSLOPE	UPPER	CONVEX	CONVEX

Site	PROF	BLOCK	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or Slide	Windthrow	Surface stoniness	Date Measured	Notes
3	71	1	EMINENCE	--	--	5-3-01	--	15-2-04	28-0-06	20	21112	ALRED	FALSE	--	--	FALSE	-	2	3-13-95	good site
3	72	1	L-GASCONADE	--	--	1-5-01	--	--	46-0-06	1	81211	GEPP	FALSE	--	--	FALSE	-	--	2-21-95	SAMP ON LINEAR-CONVEX INTERFLUVE
4	1	2	U-GASCONADE	--	--	4-3-01	14-2-01	15-3-01	33- -12	--	21211	BENDAVIS	TRUE	--	--	FALSE	-	1	3-17-95	--
4	2	2	U-GASCONADE	--	--	5-1-01	--	11-1-01	32-3-01	--	41211	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-17-95	thin silty cap
4	3	2	L-GASCONADE	--	--	5-3-01	--	9-2-01	34-0-06	14	21112	ALRED	FALSE	--	--	FALSE	-	2	3-17-95	80F and 82F, samp 82F, surface cob
4	4	2	U-GASCONADE	--	--	3-3-01	18-2-01	19-2-03	8-2-06	40	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-17-95	--
4	5	2	L-GASCONADE	--	--	6-2-01	--	31-2-01	11-0-06	37	21112	ALRED	FALSE	--	--	FALSE	1	--	3-17-95	--
4	6	2	L-GASCONADE	--	--	6-3-01	19-2-01	23-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	1	3-17-95	samp concave, col
4	7	2	U-GASCONADE	--	--	2-3-01	14-2-01	14-3-01	30- -12	--	41111	CLARKSVILLE	TRUE	--	--	FALSE	-	1	3-20-95	stopped by chert
4	8	2	U-GASCONADE	--	--	6-2-01	--	18-2-01	--	--	47311	SCHOLTEN	FALSE	--	--	FALSE	2	--	3-20-95	free water 24" fragipan,
4	9	2	U-GASCONADE	--	--	6-2-01	8-2-01	16-2-03	18-1-06	30	21111	POYNOR	FALSE	--	--	FALSE	1	--	3-20-95	secondary ridge, NS
4	10	2	L-GASCONADE	--	--	5-6-01	2-3-01	6-3-01	35-0-06	13	21212	MANO	FALSE	--	--	FALSE	-	1	3-20-95	--
4	11	2	L-GASCONADE	--	--	4-2-01	--	44-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-20-95	may have low base
4	12	2	EMINENCE	--	--	6-2-01	--	23-5-02	--	--	41112	REUTER	FALSE	--	--	TRUE	-	4	3-20-95	stopped by chert,not sure Br, Gunter 760
4	13	2	U-GASCONADE	--	--	4-6-01	25-2-02	19-2-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	3	3-17-95	SS on surface, hs, Roubidoux colluvium
4	14	2	L-GASCONADE	--	--	4-1-01	--	19-1-01	25-2-01	--	31112	SND	FALSE	--	--	FALSE	-	--	3-20-95	no ELT, incl with 65, see soils, col,
4	15	2	U-GASCONADE	--	--	07-0-01	--	12-0-01	18-2-03	--	31311	HOGCREEK	TRUE	--	--	FALSE	-	--	3-17-95	edges LS: Bendavis
4	16	2	L-GASCONADE	--	--	5-3-01	3-2-01	8-2-03	32-1-06	16	21112	ALRED	FALSE	--	--	FALSE	-	1	3-17-95	--
4	17	2	L-GASCONADE	--	--	4-5-01	4-2-01	20-2-03	20-0-06	28	21112	ALRED	FALSE	--	--	FALSE	-	--	3-20-95	--
4	18	2	GUNTER	EMINENCE	--	4-5-02	--	44-2-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	2	3-20-95	Gunter at 720", sandy colluvium
4	19	2	EMINENCE	--	--	6-5-01	--	42-2-01	--	--	48212	WABEN	FALSE	--	--	FALSE	1	--	3-16-95	alluvial fan
4	20	2	L-GASCONADE	--	--	4-1-01	--	18-2-01	20-2-01	40	41112	REUTER	FALSE	--	--	FALSE	-	--	3-16-95	majority loamy skel, some fine-loamy
4	21	2	L-GASCONADE	--	--	2-2-01	3-2-01	19-2-03	24-0-06	24	21112	ALRED	FALSE	--	--	FALSE	-	--	3-17-95	Gunter 740"
4	22	2	L-GASCONADE	--	--	5-2-01	--	18-2-03	25-0-06	23	21112	ALRED	FALSE	--	--	FALSE	-	--	3-17-95	--
4	23	2	U-GASCONADE	--	--	6-1-01	--	42-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-16-95	good site
4	24	2	U-GASCONADE	--	--	5-2-01	--	43-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-14-95	--
4	25	2	EMINENCE	--	--	7-6-01	--	41-2-02	--	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	-	1	3-20-95	alluvial fan, dark surface,
4	26	2	ROUBIDOUX	--	--	5-2-01	7-2-01	12-2-03	24-1-06	24	21111	POYNOR	FALSE	--	--	FALSE	-	2	3-15-95	small summit
4	27	2	U-GASCONADE	--	--	7-3-01	6-2-01	35-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-15-95	2 hs in plot
4	28	2	U-GASCONADE	--	--	5-1-01	5-1-01	19-2-03	29-1-06	29	21111	POYNOR	FALSE	--	--	FALSE	-	2	3-15-95	by backhoe pits
4	29	2	L-GASCONADE	--	--	5-3-01	15-2-01	28-3-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	2	3-17-95	dolo NE of plot
4	30	2	U-GASCONADE	--	--	8-2-01	8-2-01	21-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-15-95	stopped by chert
4	31	2	U-GASCONADE	--	--	4-4-01	6-2-01	9-2-03	29-1-06	19	21111	POYNOR	FALSE	--	--	FALSE	-	3	3-15-95	summit and shoulder, samp shoulder
4	32	2	ROUBIDOUX	--	--	4-4-01	3-2-01	41-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	3-14-95	shoulder ridge and back slope, samp BS
4	33	2	U-GASCONADE	--	--	--	14-4-01	20-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-15-95	samp 315, convex-convex,stopped by chert
4	34	2	L-GASCONADE	--	--	4-3-01	3-2-01	17-2-03	24-1-06	24	21112	ALRED	FALSE	--	--	FALSE	1	--	3-15-95	cobs on surface
4	35	2	EMINENCE	--	--	8-6-01	--	21-2-03	6-1-06	29	21112	ALRED	FALSE	--	--	TRUE	-	4	3-21-95	concave slump,
4	36	2	L-GASCONADE	--	--	4-2-01	--	23-2-01	21-1-06	27	21112	ALRED	FALSE	--	--	TRUE	-	--	3-21-95	hs,
4	37	2	L-GASCONADE	--	--	5-3-01	15-2-01	28-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-21-95	3 small headslopes
4	38	2	U-GASCONADE	--	--	8-1-01	--	16-1-01	24-2-01	--	31111	SND	FALSE	--	--	FALSE	-	--	3-21-95	some Ls, no ELT, incl 18, see soils
4	39	2	L-GASCONADE	--	--	5-2-01	--	29-2-01	14-1-06	34	21112	ALRED	FALSE	--	--	FALSE	-	--	3-21-95	part on shoulder ridge
4	40	2	GUNTER	EMINENCE	--	6-5-02	--	21-0-06	27- -12	6	81212	BARDLEY	TRUE	2	1	FALSE	-	4	3-21-95	Gunter at 720",
4	41	2	EMINENCE	--	--	17-2-09	--	--	31-3-02	--	44434	MIDCO-LIKE	FALSE	--	--	FALSE	-	--	3-22-95	18" above channel
4	42	2	U-GASCONADE	--	--	5-2-01	--	33-2-01	38- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	3-21-95	stopped by chert
4	43	2	EMINENCE	--	--	6-1-01	--	26-0-06	30- -12	6	84212	ARKANA	TRUE	1	2	FALSE	-	3	4-3-95	74F unit, var depth
4	44	2	L-GASCONADE	--	--	4-3-01	13-3-01	25-2-03	6-1-06	--	41112	REUTER	FALSE	--	--	TRUE	-	--	3-22-95	2 units, 82F & 82D
4	45	2	L-GASCONADE	--	--	7-5-01	8-2-01	19-5-03	14-1-06	34	21112	ALRED	FALSE	0	0	FALSE	1	1	1-24-96	--
4	46	2	GUNTER	EMINENCE	--	4-5-01	--	9-2-04	32-0-06	13	21212	OCIE	TRUE	1	1	TRUE	-	3	3-22-95	bedrock 45",
4	47	2	L-GASCONADE	--	--	3-3-01	11-3-01	34-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	1	4-3-95	82D unit
4	48	2	L-GASCONADE	--	--	5-2-01	--	15-2-03	28-0-06	20	21112	ALRED	FALSE	--	--	FALSE	-	--	3-21-95	--
4	49	2	U-GASCONADE	--	--	7-2-01	8-2-01	12-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	3	3-22-95	samp on NS, HS to N, stopped by chert
4	50	2	L-GASCONADE	--	--	06-0-01	--	39-1-03	03-0-06	--	31312	VIRATON	FALSE	--	--	FALSE	1	--	3-22-95	perched zone 35, 73C unit
4	51	2	EMINENCE	--	--	4-5-01	--	--	44-0-06	4	81112	GEPP	FALSE	--	--	FALSE	-	2	4-3-95	75D & 75F units
4	52	2	EMINENCE	--	--	2-6-05	--	46-0-06	48- -12	2	81212	NIANGUA	TRUE	1	2	FALSE	-	5	3-22-95	74F UNIT
4	53	2	EMINENCE	--	--	5-1-01	--	43-1-03	--	--	31112	POMME	FALSE	--	--	FALSE	-	--	4-3-95	--
4	54	2	EMINENCE	--	--	8-6-03	--	--	09- -12	--	43213	MOKO	TRUE	1	3	FALSE	-	5	4-3-95	70D unit
4	55	2	EMINENCE	--	--	5-6-01	--	13-2-05	12-0-06	18	84212	ARKANA	TRUE	1	2	FALSE	-	3	4-3-95	74F unit, mollic
4	56	2	EMINENCE	--	--	6-2-01	--	5-2-03	37-0-06	11	81112	GEPP	TRUE	1	1	FALSE	-	1	4-3-95	75F & 74F units
4	57	2	EMINENCE	--	--	7-6-01	--	26-3-03	15-0-06	33	21112	ALRED	TRUE	1	1	TRUE	-	5	4-3-95	74F unit
4	58	2	EMINENCE	--	--	7-5-02	--	41-2-02	--	--	48212	WABEN	FALSE	--	--	FALSE	-	--	4-3-95	alluvial fan,
4	59	2	EMINENCE	--	--	5-5-03	--	7-2-06	12- -12	5	53213	GASCONADE	TRUE	1	3	FALSE	-	4	4-3-95	74F & 70F units, samp 74F
4	60	2	L-GASCONADE	--	--	6-1-01	--	33-1-01	39- -12	--	31312	VIRATON	FALSE	--	--	FALSE	-	--	3-14-95	73C unit
4	61	2	EMINENCE	--	--	5-2-01	--	3-2-03	28-1-06	8	81212	GATEWOOD	TRUE	1	1	FALSE	-	1	3-16-95	varsoils, 74F & 75F units, samp 74F
4	62	2	EMINENCE	--	--	6-5-01	--	11-3-01	31-2-06	17	51112	GOSS	FALSE	--	--	FALSE	-	2	3-16-95	draw splits plot, 75D unit
4	63	2	EMINENCE	--	--	6-4-09	--	42-5-09	--	--	41111	COULSTONE	TRUE	2	1	FALSE	1	4	3-16-95	Gunter col, sandy, Gunter at 700"
4	64	2	EMINENCE	--	--	6-3-09	2-3-09	5-2-04	35-1-06	13	22212	MANO-LIKE	TRUE	1	2	FALSE	-	3	3-14-95	74F UNIT
4	65	2	L-GASCONADE	--	--	3-2-01	2-2-01	21-2-01	22-0-06	26	21112	ALRED	FALSE	--	--	FALSE	-	--	3-14-95	cobbles on surface
4	66	2	EMINENCE	--	--	5-6-02	--	8-2-04	35-0-06	13	21212	MANO	TRUE	1	2	FALSE	-	3	3-16-95	varsoils, 74F unit
4	67	2	EMINENCE	--	--	5-2-01	--	17-2-03	26-0-06	22	21112	ALRED	FALSE	--	--	FALSE	1	1	3-16-95	samp on edge of concave-convex part
4	68	2	GUNTER	EMINENCE	--	7-2-02	--	10-2-04	12-0-06	17	21212	BARDLEY-LIKE	TRUE	1	2	FALSE	-	3	3-16-95	74F unit, ss outcrop
4	69	2	L-GASCONADE	--	--	4-3-01	--	26-2-01	18-1-06	30	21112	ALRED	FALSE	--	--	FALSE	-	--	3-16-95	below 82D bench
4	70	2	U-GASCONADE	--	--	6-2-01	--	24-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	3-15-95	stopped by chert
4	71	2	U-GASCONADE	--	--	4-3-01	3-2-01	33-2-01	8-2-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-14-95	80F unit

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
4	72	2	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	4	0	8	0	--	--	PROTECTED	860	860	SUMMIT	--	LINEAR	LINEAR
4	73	2	UNEVEN-AGE	BREAKS	375	11	GUBN	73c	8	4	12	315	10	260	NEUTRAL-WEST	690	700	BENCH	--	CONVEX	CONVEX
4	74	2	UNEVEN-AGE	BREAKS	9	11	UGASU	80c	3	--	--	0	--	--	PROTECTED	905	905	SUMMIT	--	LINEAR	LINEAR
5	1	2	EVEN-AGE	BREAKS	11	11	UGASHR	80d	14	12	17	45	0	85	PROTECTED	910	910	SHOULDER RIDGE	--	LINEAR	CONVEX
5	2	2	EVEN-AGE	BREAKS	66	18	UGABS	82f	28	--	--	300	--	--	NEUTRAL-WEST	840	860	BACKSLOPE	UPPER	CONVEX	LINEAR
5	3	2	EVEN-AGE	BREAKS	66	17	UGABS	82f	29	--	--	250	--	--	EXPOSED	830	850	BACKSLOPE	MIDDLE	LINEAR	LINEAR
5	4	2	EVEN-AGE	BREAKS	38	19	LGABN	89d	12	10	14	245	--	--	EXPOSED	760	760	BENCH	--	LINEAR	CONVEX
5	5	2	EVEN-AGE	BREAKS	53	17	EMBS	75f	25	--	--	270	--	--	NEUTRAL-WEST	670	690	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONCAVE
5	6	2	EVEN-AGE	BREAKS	52	17	GEBS	75f	32	20	45	120	100	140	NEUTRAL-EAST	700	720	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
5	7	2	EVEN-AGE	BREAKS	65	18	LGABS	82f	22	14	29	95	--	--	NEUTRAL-EAST	760	780	BACKSLOPE	LOWER	CONVEX	CONVEX
5	8	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	25	--	--	205	--	--	EXPOSED	800	820	BACKSLOPE	UPPER	LINEAR	CONVEX
5	9	2	EVEN-AGE	BREAKS	18	18	UGABS	80f	32	--	--	350	--	--	PROTECTED	780	800	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
5	10	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	37	--	--	225	--	--	EXPOSED	840	860	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
5	11	2	EVEN-AGE	BREAKS	66	17	LGABS	82f	32	30	35	315	270	360	NEUTRAL-WEST	750	770	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONCAVE
5	12	2	EVEN-AGE	BREAKS	11	11	UGASHR	80d	13	11	15	30	125	290	PROTECTED	900	910	SHOULDER RIDGE	--	LINEAR	CONVEX
5	13	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	30	--	--	300	--	--	NEUTRAL-WEST	810	830	BACKSLOPE	MIDDLE	LINEAR	LINEAR
5	14	2	EVEN-AGE	BREAKS	53	17	GEBS	75f/89d	37	--	--	280	--	--	NEUTRAL-WEST	715	725	BACKSLOPE	LOWER	CONVEX	CORRUGATED
5	15	2	EVEN-AGE	BREAKS	66	17	LGABS	82f	27	22	32	205	--	--	EXPOSED	770	790	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
5	16	2	EVEN-AGE	BREAKS	66	18	LGABS	82f	29	--	--	135	--	--	NEUTRAL-EAST	740	760	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONCAVE
5	17	2	EVEN-AGE	BREAKS	17	18	UGABS	80f	40	--	--	140	--	--	NEUTRAL-EAST	800	820	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
5	18	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	30	--	--	225	--	--	EXPOSED	840	860	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
5	19	2	EVEN-AGE	BREAKS	18	18	UGABS	80f	41	30	52	65	--	--	PROTECTED	840	860	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
5	20	2	EVEN-AGE	BREAKS	52	18	EMBS	75f	25	--	--	30	--	--	PROTECTED	770	790	BACKSLOPE	LOWER	LINEAR	CONVEX
5	21	2	EVEN-AGE	BREAKS	21	19	LGABS	71f	22	--	--	190	--	--	EXPOSED	860	880	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
5	22	2	EVEN-AGE	BREAKS	38	17	LGABN	89d	11	--	--	190	--	--	EXPOSED	820	840	BENCH	--	CONCAVE	LINEAR
5	23	2	EVEN-AGE	BREAKS	38	11	LGABN	89c	6	--	--	--	--	--	PROTECTED	865	865	BENCH	--	LINEAR	CONCAVE
5	24	2	EVEN-AGE	BREAKS	38	11	LGABN	89d	10	--	--	215	--	--	EXPOSED	840	840	BENCH	--	LINEAR	LINEAR
5	25	2	EVEN-AGE	BREAKS	1953	18	GEBS	74f	37	19	55	160	--	--	NEUTRAL-EAST	780	800	BACKSLOPE	LOWER	STAIRSTEPPED	CONVEX
5	26	2	EVEN-AGE	BREAKS	7	5	EMFS	45d	16	--	--	225	--	--	EXPOSED	710	710	FOOTSLOPE/STRATH TERRACE	--	LINEAR	LINEAR
5	27	2	EVEN-AGE	BREAKS	1953	17	GEBS	74f/89d	27	15	40	145	--	--	NEUTRAL-EAST	760	790	BACKSLOPE	UPPER	STAIRSTEPPED	LINEAR
5	28	2	EVEN-AGE	BREAKS	53	19	GEBS	75f/74f/89d	34	--	--	195	--	--	EXPOSED	760	780	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
5	29	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	35	--	--	125	75	235	NEUTRAL-EAST	890	910	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONVEX
5	30	2	EVEN-AGE	BREAKS	10	11	UGASHR	80d	13	7	19	285	80	130	NEUTRAL-WEST	955	955	SHOULDER RIDGE	--	LINEAR	CONVEX
5	31	2	EVEN-AGE	BREAKS	38	17	LGABN	89d	15	11	18	205	--	--	EXPOSED	830	850	BENCH	--	LINEAR	CONCAVE
5	32	2	EVEN-AGE	BREAKS	1953	17	GESHR	74d	16	--	--	200	--	--	EXPOSED	780	800	SHOULDER RIDGE	--	LINEAR	CONVEX
5	33	2	EVEN-AGE	BREAKS	9	11	UGASU	80c	7	3	20	0	--	--	PROTECTED	970	970	SUMMIT	--	LINEAR	LINEAR
5	34	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	26	--	--	190	--	--	EXPOSED	840	860	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
5	35	2	EVEN-AGE	BREAKS	11	18	UGASHR	80d	16	--	--	15	--	--	PROTECTED	840	860	SHOULDER RIDGE	--	LINEAR	CONVEX
5	36	2	EVEN-AGE	BREAKS	37	18	LGABN	89d	18	--	--	90	--	--	NEUTRAL-EAST	760	780	BENCH	--	CONCAVE	LINEAR
5	37	2	EVEN-AGE	BREAKS	11	11	UGASH	80d	10	--	--	115	--	--	NEUTRAL-EAST	920	920	SHOULDER	--	CONVEX	CONVEX
5	38	2	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	285	--	--	NEUTRAL-WEST	820	840	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
5	39	2	EVEN-AGE	BREAKS	18	18	UGABS	80f	23	20	27	60	--	--	PROTECTED	840	860	BACKSLOPE	UPPER	CONVEX	LINEAR
5	40	2	EVEN-AGE	BREAKS	375	18	LGABN	73d	19	--	--	90	--	--	NEUTRAL-EAST	760	780	BENCH	--	CONCAVE	CONCAVE
5	41	2	EVEN-AGE	BREAKS	52	18	GEBS	75f	34	--	--	40	--	--	PROTECTED	720	740	BACKSLOPE	UPPER	LINEAR	LINEAR
5	42	2	EVEN-AGE	BREAKS	37	18	LGABN	89d	20	--	--	75	--	--	NEUTRAL-EAST	780	800	BENCH	--	LINEAR	LINEAR
5	43	2	EVEN-AGE	BREAKS	65	18	LGABN	82d	12	12	20	75	--	--	NEUTRAL-EAST	730	750	BENCH	--	CONCAVE	LINEAR
5	44	2	EVEN-AGE	BREAKS	2052	17	EMBS	74f	30	25	35	75	--	--	NEUTRAL-EAST	660	680	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
5	45	2	EVEN-AGE	BREAKS	66	17	LGABS	82f/80f	25	21	29	150	--	--	NEUTRAL-EAST	800	820	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
5	46	2	EVEN-AGE	BREAKS	38	17	LGABN	89d/75f	16	16	45	125	--	--	NEUTRAL-EAST	710	730	BENCH	--	LINEAR	CONVEX
5	47	2	EVEN-AGE	BREAKS	7	5	EMFS	45d	14	10	18	105	65	140	NEUTRAL-EAST	610	620	FOOTSLOPE/STRATH TERRACE	--	CONCAVE	CORRUGATED
5	48	2	EVEN-AGE	BREAKS	10	11	UGASHR	80d	12	9	14	295	245	345	NEUTRAL-WEST	925	925	SHOULDER RIDGE	--	LINEAR	CONVEX
5	49	2	EVEN-AGE	BREAKS	65	18	LGABS	82f	35	--	--	15	--	--	PROTECTED	780	800	BACKSLOPE	UPPER	CONVEX	CORRUGATED
5	50	2	EVEN-AGE	BREAKS	66	17	LGABS	82f	27	20	35	290	--	--	NEUTRAL-WEST	750	770	BACKSLOPE	LOWER	STAIRSTEPPED	CONVEX
5	51	2	EVEN-AGE	BREAKS	66	18	LGABS	82f	24	--	--	320	--	--	NEUTRAL-WEST	750	770	BACKSLOPE	MIDDLE	CONVEX	CONVEX
5	52	2	EVEN-AGE	BREAKS	66	17	LGABS	82f	25	--	--	200	--	--	EXPOSED	770	780	BACKSLOPE	LOWER	LINEAR	LINEAR
5	53	2	EVEN-AGE	BREAKS	65	18	LGABS	82f	20	--	--	335	--	--	NEUTRAL-WEST	760	780	BACKSLOPE	MIDDLE	CONCAVE	LINEAR
5	54	2	EVEN-AGE	BREAKS	53	19	EMBS	75f	30	25	35	185	--	--	EXPOSED	670	690	BACKSLOPE	LOWER	CONVEX	LINEAR
5	55	2	EVEN-AGE	BREAKS	66	17	UGABS	82f	27	--	--	260	--	--	NEUTRAL-WEST	860	880	BACKSLOPE	UPPER	CONCAVE	CORRUGATED
5	56	2	EVEN-AGE	BREAKS	38	17	LGABN	89d/75f	19	19	32	275	250	300	NEUTRAL-WEST	710	730	BENCH	--	CONVEX	CONVEX
5	57	2	EVEN-AGE	BREAKS	1922	19	LGABS	81f	25	--	--	260	--	--	NEUTRAL-WEST	790	810	BACKSLOPE	UPPER	LINEAR	CONVEX
5	58	2	EVEN-AGE	BREAKS	10	11	UGASH	80d	14	--	--	160	--	--	NEUTRAL-EAST	820	8400	SHOULDER	--	CONVEX	LINEAR
5	59	2	EVEN-AGE	BREAKS	65	18	LGABS	82f	21	--	--	360	--	--	PROTECTED	750	770	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
5	60	2	EVEN-AGE	BREAKS	38	17	LGABN	89d	18	--	--	275	--	--	NEUTRAL-WEST	760	780	BENCH	--	CONVEX	CONCAVE
5	61	2	EVEN-AGE	BREAKS	37	18	LGABN	89d	17	14	21	45	--	--	PROTECTED	750	770	BENCH	--	CONVEX	LINEAR
5	62	2	EVEN-AGE	BREAKS	2052	20	GEBS	74f	42	--	--	55	--	--	PROTECTED	670	720	BACKSLOPE	UPPER	STAIRSTEPPED	CORRUGATED
5	63	2	EVEN-AGE	BREAKS	37	18	LGABN	89d	16	--	--	85	--	--	NEUTRAL-EAST	760	780	BENCH	--	CONCAVE	CONCAVE
5	64	2	EVEN-AGE	BREAKS	52	18	EMBS	75f	22	--	--	75	--	--	NEUTRAL-EAST	660	680	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
5	65	2	EVEN-AGE	BREAKS	1953	19	EMBS	74f	29	--	--	195	--	--	EXPOSED	660	680	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
5	66	2	EVEN-AGE	BREAKS	1953	19	EMBS	74f	26	22	30	285	--	--	NEUTRAL-WEST	610	630	BACKSLOPE	MIDDLE-LOWER	CONCAVE	CONVEX
5	67	2	EVEN-AGE	BREAKS	375	17	LGABN	73d	17	--	--	260	220	300	NEUTRAL-WEST	720	730	BENCH	--	CONVEX	CONCAVE
5	68	2	EVEN-AGE	BREAKS	1953	19	EMBS	74f	27	--	--	220	--	--	EXPOSED	680	700	BACKSLOPE	MIDDLE	CONCAVE	LINEAR
5	69	2	EVEN-AGE	BREAKS	6	5	EMFP	27	2	--	--	0	--	--	PROTECTED	670	670	FLOODPLAIN	--	LINEAR	LINEAR
5	70	2	EVEN-AGE	BREAKS	6	5	EMFP	27	4	--	--	0	--	--	PROTECTED	695	695	FLOODPLAIN	--	LINEAR	LINEAR

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or Slide	Windthrow	Surface Stoniness	Date Measured	Notes
4	72	2	U-GASCONADE	--	--	03-0-01	--	27-1-03	18-0-06	30	32111	VIBURNUM-LIKE	FALSE	--	--	FALSE	-	--	3-21-95	saddle, edge loamy-skeltal
4	73	2	GUNTER	--	--	7-3-01	10-2-01	7-3-01	20- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	--	3-14-95	iles on Gunter at 700", 73D unit
4	74	2	U-GASCONADE	--	--	4-1-01	--	15-1-01	23-3-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-15-95	some fine-loamy
5	1	2	U-GASCONADE	--	--	7-2-01	--	32-2-01	09-0-06	39	21111	POYNOR	FALSE	--	--	FALSE	-	--	3-7-95	--
5	2	2	U-GASCONADE	--	--	6-1-01	--	24-2-01	18-0-06	30	21112	ALRED	FALSE	--	--	FALSE	-	--	3-7-95	Landscape part of middle Gasconade
5	3	2	U-GASCONADE	--	--	2-2-01	4-2-01	22-3-03	20-0-06	28	21112	ALRED	FALSE	--	--	FALSE	-	--	3-7-95	Landscape part of middle Gasconade
5	4	2	L-GASCONADE	--	--	3-1-01	--	43-0-06	46- -12	3	81212	NIANGUA	TRUE	--	--	FALSE	-	--	3-7-95	89D unit,
5	5	2	EMINENCE	--	--	3-1-01	--	45-1-09	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	2	3-7-95	Gunter colluvium, probably Ultisol
5	6	2	GUNTER	EMINENCE	--	5-2-01	--	34-2-01	09-0-06	39	21112	ALRED	FALSE	--	--	FALSE	-	2	3-7-95	samp lower portion of plot, var soils
5	7	2	L-GASCONADE	--	--	5-2-01	3-1-01	40-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-7-95	Gunter at 720"
5	8	2	U-GASCONADE	--	--	6-1-01	3-1-01	39-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	9	2	U-GASCONADE	--	--	6-1-01	--	42-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	10	2	U-GASCONADE	--	--	4-1-01	--	31-1-01	13-2-01	--	31111	SND	FALSE	--	--	FALSE	-	--	3-7-95	cobs on surface,no ELT,incl 17,see soils
5	11	2	L-GASCONADE	--	--	07-0-01	--	14-1-01	27-2-01	--	31112	SND	FALSE	--	--	FALSE	-	--	3-7-95	two units, FL & 82F, incl 66, see soils
5	12	2	U-GASCONADE	--	--	3-3-01	7-3-01	34-3-01	04-0-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	13	2	U-GASCONADE	--	--	5-1-01	4-1-01	39-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	14	2	L-GASCONADE	GUNTER	EMINENCE	3-5-09	32-1-02	13-1-04	--	--	41112	REUTER	TRUE	2	1	FALSE	-	--	3-7-95	var soils, Gunter at 720", Gunter col
5	15	2	L-GASCONADE	--	--	5-3-01	5-3-01	38-1-03	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-7-95	Gasconade colluvium
5	16	2	L-GASCONADE	--	--	5-2-01	4-2-01	39-2-03	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-7-95	Gasconade colluvium
5	17	2	U-GASCONADE	--	--	4-2-01	6-2-01	38-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	18	2	U-GASCONADE	--	--	1-3-01	13-3-01	34-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	19	2	U-GASCONADE	--	--	--	--	--	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	no soils info, Gasconade colluvium
5	20	2	EMINENCE	--	--	--	--	--	--	--	81112	GEPP	FALSE	--	--	FALSE	-	--	3-7-95	no soils info, Gunter at 800"
5	21	2	L-GASCONADE	--	--	6-2-01	--	--	06- -12	--	43213	MOKO	TRUE	1	3	FALSE	-	2	3-7-95	2 units, 71F & 82F, maj 71F, samp 71F
5	22	2	L-GASCONADE	--	--	--	--	--	--	--	21212	MANO	FALSE	--	--	FALSE	-	--	3-7-95	variable depth to Bedrock, some 40-60"
5	23	2	L-GASCONADE	--	--	--	--	--	--	--	81212	OCIE-LIKE	TRUE	--	--	FALSE	-	--	3-7-95	variable depth to Bedrock, part over 60"
5	24	2	L-GASCONADE	--	--	--	--	--	--	--	81212	MANO-LIKE	TRUE	--	--	FALSE	-	--	3-7-95	yellow clays, high shrink-swell
5	25	2	GUNTER	EMINENCE	--	6-3-01	--	42-3-02	--	--	41112	REUTER	TRUE	2	1	FALSE	-	3	3-7-95	Gunter colluvium, Dolomite Br also,
5	26	2	EMINENCE	--	--	04-0-02	--	26-0-04	30- -12	--	01212	SND	FALSE	--	--	FALSE	-	--	3-7-95	part backslope:Gepp, dolo below plot,
5	27	2	L-GASCONADE	GUNTER	EMINENCE	--	--	--	--	--	41112	REUTER	TRUE	1	2	FALSE	-	2	3-7-95	SS Outcrop,samp 74F unit, 89D unit above
5	28	2	L-GASCONADE	GUNTER	EMINENCE	--	--	--	--	--	41112	REUTER	TRUE	2	2	FALSE	-	2	3-7-95	Gunter 780", 75F,74F,89D units,doloBr
5	29	2	U-GASCONADE	--	--	6-2-01	--	42-3-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	3-7-95	some cobbles
5	30	2	U-GASCONADE	--	--	7-6-01	--	42-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	3-7-95	darker than normal surface,
5	31	2	L-GASCONADE	--	--	8-2-01	3-2-01	--	37-0-06	11	84112	GEPP-LIKE	FALSE	--	--	FALSE	-	--	3-7-95	dark surface
5	32	2	GUNTER	EMINENCE	--	04-0-02	--	14-1-09	18- -12	--	13211	RAMSEY	TRUE	1	1	FALSE	-	2	3-7-95	samp Gunt 800,Em soils:81212;Bardley 74D
5	33	2	U-GASCONADE	--	--	--	--	--	--	--	41311	SCHOLTEN	FALSE	--	--	FALSE	-	--	3-7-95	summit & shoulder, samp summit
5	34	2	U-GASCONADE	--	--	2-2-01	--	--	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	35	2	U-GASCONADE	--	--	--	--	--	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	--
5	36	2	L-GASCONADE	--	--	--	--	--	--	--	21212	MANO	FALSE	--	--	FALSE	-	--	3-7-95	some fine-loamy
5	37	2	U-GASCONADE	--	--	7-1-01	--	40-1-03	47- -12	--	41211	BENDAVIS-LIK	TRUE	--	--	FALSE	2	--	3-7-95	crypt reef occurs in lower profile
5	38	2	U-GASCONADE	--	--	4-3-01	6-3-01	26-3-01	12-2-05	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	good site
5	39	2	U-GASCONADE	--	--	--	--	--	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	3-7-95	dense colluvial material: silty
5	40	2	L-GASCONADE	--	--	9-1-01	--	34-1-03	05-0-06	--	35112	SND	FALSE	--	--	FALSE	-	--	3-7-95	hs, free H2o 36",no ELT,incl 66, FL unit
5	41	2	GUNTER	EMINENCE	--	7-5-02	5-5-02	36-2-04	--	--	41112	REUTER	FALSE	--	--	FALSE	-	3	3-7-95	some fine-loamy, Gunter 740", sandy col
5	42	2	L-GASCONADE	--	--	--	--	--	--	--	21212	OCIE	TRUE	--	--	FALSE	-	--	3-7-95	Dolomite Br at 35", 20' from center
5	43	2	L-GASCONADE	--	--	5-1-01	10-1-01	10-3-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	3-7-95	stopped by chert,
5	44	2	EMINENCE	--	--	--	--	--	--	--	81212	BARDLEY	TRUE	1	2	FALSE	-	2	12-1-95	lower plot 41" Gunter colluvium\bedrock
5	45	2	U-GASCONADE	L-GASCONADE	--	5-2-01	2-2-01	39-2-01	--	--	41112	REUTER	FALSE	--	--	TRUE	-	--	10-17-95	contact of Ult&Alf, Br out of plot SE
5	46	2	L-GASCONADE	GUNTER	--	--	--	--	--	--	21212	MANO	TRUE	2	1	FALSE	-	--	12-1-95	Gunter outcrop on lower plot, samp Be
5	47	2	EMINENCE	--	--	--	--	--	--	--	31112	POMME	FALSE	--	--	FALSE	-	--	12-5-95	some loamy-skel, old cleared field
5	48	2	U-GASCONADE	--	--	6-3-01	--	18-3-01	24- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	12-12-94	stopped by chert or pan, some cobbles
5	49	2	L-GASCONADE	--	--	6-2-01	--	19-2-01	23-0-06	25	21112	ALRED	FALSE	--	--	FALSE	-	--	12-12-94	--
5	50	2	L-GASCONADE	--	--	4-2-01	--	44-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	12-12-94	bedrock just above plot
5	51	2	L-GASCONADE	--	--	5-2-01	--	14-2-03	29-0-06	19	21112	ALRED	FALSE	--	--	FALSE	-	--	12-12-94	on backslope below bench
5	52	2	L-GASCONADE	--	--	4-3-01	--	10-3-01	34-0-06	14	21112	ALRED	FALSE	--	--	FALSE	-	--	12-8-94	--
5	53	2	L-GASCONADE	--	--	5-2-01	--	18-2-01	25-0-06	23	21112	ALRED	FALSE	--	--	FALSE	-	--	12-12-94	--
5	54	2	EMINENCE	--	--	4-2-01	--	18-2-02	26-0-06	22	21112	ALRED	TRUE	1	1	FALSE	-	--	12-8-94	some outcrop, NE edge of plot
5	55	2	U-GASCONADE	--	--	2-2-01	4-2-01	14-2-01	28-0-06	20	21112	ALRED	FALSE	--	--	FALSE	-	1	12-8-94	just above glade area, 82F
5	56	2	L-GASCONADE	GUNTER	--	2-2-01	--	22-2-01	24-0-06	24	21112	ALRED	TRUE	2	1	FALSE	-	2	12-8-94	Be&Bs,sampBe,Bs:41211,SS at36"noslopeave
5	57	2	L-GASCONADE	--	--	2-3-01	2-3-01	29-0-06	33- -12	4	81212	BARDLEY	TRUE	1	1	FALSE	-	--	12-8-94	some outcrop in Hs, but soils >48"
5	58	2	U-GASCONADE	--	--	5-5-01	5-2-01	5-2-01	33-1-06	15	21111	POYNOR	FALSE	--	--	FALSE	-	1	10-17-95	Sh & Su, samp Sh, Su-4%, Stones-2,
5	59	2	L-GASCONADE	--	--	4-3-01	--	9-3-01	35-0-06	13	21112	ALRED	FALSE	--	--	FALSE	-	--	12-8-94	VB has stairstep morphology, red clays
5	60	2	L-GASCONADE	--	--	4-3-01	5-3-01	3-2-03	30-0-06	12	81212	NIANGUA	TRUE	--	--	FALSE	-	--	12-8-94	dolomite bedrock at 42"
5	61	2	L-GASCONADE	--	--	6-1-01	--	7-2-01	35-0-06	13	21112	ALRED	FALSE	--	--	FALSE	-	--	12-7-94	lower 1\4 of plot on Bs, soils same
5	62	2	GUNTER	EMINENCE	--	6-3-01	5-2-01	35-0-06	46- -12	13	81212	NIANGUA	TRUE	1	2	FALSE	-	2	12-7-94	samp S 1\2 PLOT, var soil depth,
5	63	2	L-GASCONADE	--	--	6-3-01	--	29-3-01	14-0-06	34	21212	MANO	FALSE	--	--	FALSE	-	--	12-7-94	--
5	64	2	EMINENCE	--	--	6-2-02	--	34-5-02	08-0-06	40	41112	REUTER	FALSE	--	--	FALSE	-	1	12-7-94	upper Bt 13" of Gr loam, Gunter 720"
5	65	2	EMINENCE	--	--	3-1-01	--	29-0-06	32- -12	3	81212	BARDLEY	TRUE	1	2	FALSE	-	2	12-8-94	var soil depth,samp low, up:83212Opequon
5	66	2	EMINENCE	--	--	2-2-03	--	--	46-0-06	2	81112	GEPP	TRUE	1	2	FALSE	-	2	12-8-94	soils from Ro to very deep, 74F unit
5	67	2	L-GASCONADE	--	--	4-1-01	--	20-1-03	24-0-06	24	41112	REUTER	FALSE	--	--	FALSE	-	--	12-7-94	var soils, bench part Fld, Gunter 720"
5	68	2	EMINENCE	--	--	5-2-02	--	28-2-04	15-0-06	33	21112	ALRED	TRUE	1	2	FALSE	-	2	12-7-94	Gunter col,var soil depth, 83212 Opequon
5	69	2	EMINENCE	--	--	10-0-02	--	35-0-08	3-1-09	--	30213	RACKET	FALSE	--	--	FALSE	-	--	1-4-94	upper part on footslope, soils: 31212
5	70	2	EMINENCE	--	--	--	--	--	--	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	-	--	11-3-94	plot iles on BS-FP-FS, var soils

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
6	1	2	NO HARVEST	BREAKS	17	17	UGABS	80f	40	--	--	150	120	180	NEUTRAL-EAST	960	1000	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
6	2	2	NO HARVEST	BREAKS	17	17	UGABS	80f	37	--	--	140	100	180	NEUTRAL-EAST	900	940	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
6	3	2	NO HARVEST	BREAKS	10	11	ROSHR	63d	9	2	16	250	155	325	EXPOSED	1005	1005	SHOULDER RIDGE	--	LINEAR	CONVEX
6	4	2	NO HARVEST	BREAKS	66	17	UGASHR	82d	17	17	31	160	130	190	NEUTRAL-EAST	910	950	SHOULDER RIDGE	--	CONCAVE	LINEAR
6	5	2	NO HARVEST	BREAKS	17	17	UGABS	80f	26	--	--	265	245	285	NEUTRAL-WEST	880	920	BACKSLOPE	MIDDLE	CONVEX	LINEAR
6	6	2	NO HARVEST	BREAKS	18	18	UGABS	80f	24	--	--	15	--	--	PROTECTED	870	900	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONCAVE
6	7	2	NO HARVEST	BREAKS	66	17	GEBS	82d/75f	20	17	23	135	--	--	NEUTRAL-EAST	830	860	BENCH/BACKSLOPE	--	CONCAVE	CORRUGATED
6	8	2	NO HARVEST	BREAKS	52	18	GEBS	75f	32	24	40	110	--	--	NEUTRAL-EAST	770	800	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CORRUGATED
6	9	2	NO HARVEST	BREAKS	53	17	EMSHR	75d	15	12	18	165	130	200	EXPOSED	770	790	SHOULDER RIDGE	--	LINEAR	CORRUGATED
6	10	2	NO HARVEST	BREAKS	52	18	GEBS	75f	41	30	52	340	--	--	NEUTRAL-WEST	770	805	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
6	11	2	NO HARVEST	BREAKS	38	17	LGABN	89d	20	16	24	180	--	--	EXPOSED	890	910	BENCH	--	CONCAVE	CORRUGATED
6	12	2	NO HARVEST	BREAKS	66	17	LGABS	82f/75f	25	--	--	185	--	--	EXPOSED	850	870	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
6	13	2	NO HARVEST	BREAKS	52	18	GEBS	75f	27	24	30	340	30	190	NEUTRAL-WEST	790	840	BACKSLOPE	LOWER	CONVEX	CONVEX
6	14	2	NO HARVEST	BREAKS	17	17	UGABS	80f	26	--	--	270	255	285	NEUTRAL-WEST	880	920	BACKSLOPE	LOWER	CONVEX	CONVEX
6	15	2	NO HARVEST	BREAKS	18	18	UGABS	80f	25	--	--	5	--	--	PROTECTED	880	920	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
6	16	2	NO HARVEST	BREAKS	17	17	UGABS	80f	39	--	--	230	--	--	EXPOSED	920	960	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
6	17	2	NO HARVEST	BREAKS	10	17	ROSH	63d/80d	15	--	--	200	--	--	EXPOSED	970	1010	SHOULDER	--	CONVEX	CONVEX
6	18	2	NO HARVEST	BREAKS	17	19	UGABS	80f	35	30	40	185	145	225	EXPOSED	900	940	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
6	19	2	NO HARVEST	BREAKS	10	11	ROSH	63d	9	--	--	215	--	--	EXPOSED	1030	1050	SHOULDER	--	LINEAR	LINEAR
6	20	2	NO HARVEST	BREAKS	17	17	UGABS	80f	40	--	--	145	--	--	NEUTRAL-EAST	960	1000	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
6	21	2	NO HARVEST	BREAKS	18	18	UGABS	80f	33	--	--	360	20	240	PROTECTED	870	900	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
6	22	2	NO HARVEST	BREAKS	18	18	UGABS	80f	28	--	--	40	20	60	PROTECTED	940	970	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
6	23	2	NO HARVEST	BREAKS	18	18	UGABS	80f	27	--	--	360	30	330	PROTECTED	900	940	BACKSLOPE	MIDDLE	CONVEX	CONVEX
6	24	2	NO HARVEST	BREAKS	9	11	UGASU	80c	6	4	8	0	--	--	PROTECTED	930	940	SUMMIT	--	LINEAR	LINEAR
6	25	2	NO HARVEST	BREAKS	18	18	UGABS	80f	27	--	--	10	--	--	PROTECTED	870	910	BACKSLOPE	MIDDLE	CONVEX	CONVEX
6	26	2	NO HARVEST	BREAKS	17	17	UGABS	80f/75f	29	25	33	220	--	--	EXPOSED	850	870	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
6	27	2	NO HARVEST	BREAKS	17	17	UGABS	80f	30	--	--	225	205	245	EXPOSED	840	880	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
6	28	2	NO HARVEST	BREAKS	18	18	UGABS	80f	30	--	--	345	--	--	PROTECTED	880	920	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
6	29	2	NO HARVEST	BREAKS	52	18	GEBS	75f	29	--	--	30	--	--	PROTECTED	760	800	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
6	30	2	NO HARVEST	BREAKS	1953	17	GEBS	74f	28	--	--	245	--	--	EXPOSED	720	760	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
6	31	2	NO HARVEST	BREAKS	1953	19	EMBS	74f	38	31	45	135	--	--	NEUTRAL-EAST	760	800	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
6	32	2	NO HARVEST	BREAKS	53	17	GEBS	75f/82d	35	--	--	235	210	260	EXPOSED	780	820	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
6	33	2	NO HARVEST	BREAKS	375	18	LGABN	73d	20	20	27	30	10	50	PROTECTED	800	830	BENCH	--	LINEAR	CORRUGATED
6	34	2	NO HARVEST	BREAKS	1922	17	LGABN	81d	12	--	--	290	--	--	NEUTRAL-WEST	800	820	BENCH	--	LINEAR	LINEAR
6	35	2	NO HARVEST	BREAKS	375	17	LGABN	73d/75f	14	--	--	230	--	--	EXPOSED	775	800	BENCH	--	STAIRSTEPPED	CONVEX
6	36	2	NO HARVEST	BREAKS	53	17	GUBS	75f	23	--	--	185	--	--	EXPOSED	700	720	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
6	37	2	NO HARVEST	BREAKS	375	17	LGABN	73d/75f	15	13	17	180	150	210	EXPOSED	750	770	BENCH	--	CONVEX	CONVEX
6	38	2	NO HARVEST	BREAKS	52	18	LGABS	75f/73d	25	--	--	360	--	--	PROTECTED	760	790	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
6	39	2	NO HARVEST	BREAKS	65	18	LGABS	82f	25	--	--	10	--	--	PROTECTED	700	740	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONVEX
6	40	2	NO HARVEST	BREAKS	66	18	LGABS	82f/80f	29	22	36	240	--	--	EXPOSED	750	790	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CORRUGATED
6	41	2	NO HARVEST	BREAKS	65	18	LGABS	82f	20	14	26	335	--	--	NEUTRAL-WEST	720	740	BACKSLOPE	LOWER	LINEAR	STAIRSTEPPED
6	42	2	NO HARVEST	BREAKS	17	17	UGABS	80f	29	24	34	250	--	--	EXPOSED	820	860	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONCAVE
6	43	2	NO HARVEST	BREAKS	18	18	UGABS	80f	35	--	--	355	--	--	PROTECTED	880	920	BACKSLOPE	UPPER	CONVEX	CONVEX
6	44	2	NO HARVEST	BREAKS	65	18	LGABS	82f	23	--	--	40	--	--	PROTECTED	760	800	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
6	45	2	NO HARVEST	BREAKS	9	11	UGASU	80c	5	2	8	0	--	--	PROTECTED	970	970	SUMMIT	--	LINEAR	LINEAR
6	46	2	NO HARVEST	BREAKS	18	18	UGABS	80f	26	--	--	35	--	--	PROTECTED	920	950	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
6	47	2	NO HARVEST	BREAKS	17	17	UGABS	80f	31	--	--	280	--	--	NEUTRAL-WEST	920	960	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
6	48	2	NO HARVEST	BREAKS	65	18	LGABS	82f	25	20	30	15	--	--	PROTECTED	920	960	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
6	49	2	NO HARVEST	BREAKS	38	17	LGABN	89d	12	10	14	225	180	270	EXPOSED	850	870	BENCH	--	LINEAR	CORRUGATED
6	50	2	NO HARVEST	BREAKS	17	17	UGABS	80f	35	31	39	190	--	--	EXPOSED	940	960	BACKSLOPE	MIDDLE	CONVEX	CORRUGATED
6	51	2	NO HARVEST	BREAKS	17	17	UGABS	80f	32	--	--	265	--	--	NEUTRAL-WEST	900	930	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
6	52	2	NO HARVEST	BREAKS	38	17	LGABN	89d	15	--	--	265	--	--	NEUTRAL-WEST	855	865	BENCH	--	LINEAR	LINEAR
6	53	2	NO HARVEST	BREAKS	10	11	UGASHR	80d	10	6	14	140	140	230	NEUTRAL-EAST	960	960	SHOULDER RIDGE	--	CONVEX	CONVEX
6	54	2	NO HARVEST	BREAKS	17	17	UGABS	80f/82f	27	--	--	275	--	--	NEUTRAL-WEST	890	910	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
6	55	2	NO HARVEST	BREAKS	18	18	UGABS	80f	36	29	43	100	--	--	NEUTRAL-EAST	920	940	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONVEX
6	56	2	NO HARVEST	BREAKS	52	18	GEBS	75f/82f	29	25	33	80	--	--	NEUTRAL-EAST	810	830	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
6	57	2	NO HARVEST	BREAKS	18	18	UGABS	80f	23	20	26	110	90	130	NEUTRAL-EAST	930	950	BACKSLOPE	MIDDLE	LINEAR	CONCAVE
6	58	2	NO HARVEST	BREAKS	17	17	UGABS	80f	24	--	--	260	--	--	NEUTRAL-WEST	910	930	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
6	59	2	NO HARVEST	BREAKS	1922	17	UGABS	81f	30	--	--	190	--	--	EXPOSED	870	910	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
6	60	2	NO HARVEST	BREAKS	18	18	UGABS	80f	27	24	30	30	--	--	PROTECTED	880	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
6	61	2	NO HARVEST	BREAKS	17	17	UGABS	80f	31	27	35	190	155	225	EXPOSED	900	940	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
6	62	2	NO HARVEST	BREAKS	17	17	UGABS	80f	44	--	--	255	220	290	NEUTRAL-WEST	940	980	BACKSLOPE	MIDDLE	CONVEX	CORRUGATED
6	63	2	NO HARVEST	BREAKS	9	11	ROSU	63c	3	1	5	0	--	--	PROTECTED	1000	1000	SUMMIT	--	LINEAR	LINEAR
6	64	2	NO HARVEST	BREAKS	17	17	UGABS	80f	31	20	31	255	215	295	NEUTRAL-WEST	880	920	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
6	65	2	NO HARVEST	BREAKS	17	17	UGABS	80f	43	41	45	200	--	--	EXPOSED	860	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
6	66	2	NO HARVEST	BREAKS	18	18	UGABS	80f	43	41	45	90	--	--	NEUTRAL-EAST	810	850	BACKSLOPE	LOWER	CONVEX	LINEAR
6	67	2	NO HARVEST	BREAKS	9	17	ROSU	63c	5	3	7	0	--	--	PROTECTED	960	960	SUMMIT	--	LINEAR	LINEAR
6	68	2	NO HARVEST	BREAKS	17	17	UGABS	80f	27	--	--	215	--	--	EXPOSED	870	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
6	69	2	NO HARVEST	BREAKS	53	17	EMSHR	75d	18	14	22	210	--	--	EXPOSED	800	820	SHOULDER RIDGE	--	CONCAVE	LINEAR
6	70	2	NO HARVEST	BREAKS	53	17	GEBS	75f/82f	35	15	35	305	--	--	NEUTRAL-WEST	810	825	BACKSLOPE	UPPER	STAIRSTEPPED	CONVEX
6	71	2	NO HARVEST	BREAKS	6	5	EMFP	27	2	--	--	0	--	--	PROTECTED	670	670	FLOODPLAIN	--	LINEAR	LINEAR
7	1	3	UNEVEN-AGE	HILLS	65	18	UGABS	82f	27	24	30	335	--	--	NEUTRAL-WEST	820	850	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
7	2	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	4	1	8	0	--	--	PROTECTED	945	945	SUMMIT	--	LINEAR	CONVEX

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Stump or Slide	Windthrow	Surface Stoniness	Date Measured	Notes
6	1	2	U-GASCONADE	--	--	4-6-02	5-5-02	21-5-08	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	2	12-12-95	sandy ELT 17
6	2	2	U-GASCONADE	--	--	06-0-02	--	39-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-5-95	few stones
6	3	2	ROUBIDOUX	--	--	5-6-01	5-2-01	18-2-01	28- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	12-7-95	small area of summit
6	4	2	U-GASCONADE	--	--	3-2-01	3-2-01	36-2-01	04-0-06	42	41112	REUTER	FALSE	--	--	FALSE	-	--	12-12-95	see notes
6	5	2	U-GASCONADE	--	--	4-2-01	3-2-01	41-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-11-95	see notes
6	6	2	U-GASCONADE	--	--	5-1-01	--	18-1-01	22-5-01	--	31111	SND	FALSE	--	--	FALSE	-	--	12-12-95	see notes
6	7	2	L-GASCONADE	GUNTER	--	5-2-01	--	12-2-03	28-0-06	17	21112	ALRED	FALSE	--	--	FALSE	1	--	12-12-95	see notes
6	8	2	GUNTER	EMINENCE	--	6-5-01	--	42-5-02	--	--	41112	REUTER	TRUE	1	1	TRUE	-	1	12-11-95	see notes
6	9	2	EMINENCE	--	--	4-2-01	4-2-01	34-2-03	03-0-06	42	41112	REUTER	FALSE	--	--	FALSE	-	--	12-11-95	75D unit
6	10	2	GUNTER	EMINENCE	--	7-6-02	--	28-6-02	35- -12	--	41211	BENDER	FALSE	--	--	FALSE	-	2	12-11-95	see notes
6	11	2	L-GASCONADE	--	--	5-2-01	3-2-01	4-2-03	33-0-06	12	21212	MANO	TRUE	1	1	FALSE	-	--	12-12-95	see notes
6	12	2	L-GASCONADE	GUNTER	--	3-2-01	--	25-2-01	17-0-06	28	21112	ALRED	FALSE	--	--	FALSE	-	--	12-6-95	see notes
6	13	2	GUNTER	EMINENCE	--	5-4-01	--	40-1-01	--	--	31112	SND	TRUE	--	--	FALSE	-	1	12-12-95	see notes
6	14	2	U-GASCONADE	--	--	6-2-01	3-2-01	36-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-5-95	lower plot on structural bench
6	15	2	U-GASCONADE	--	--	6-1-01	--	19-1-01	20-5-01	--	31111	SND	FALSE	--	--	FALSE	-	--	12-5-95	see notes
6	16	2	U-GASCONADE	--	--	3-6-02	4-5-02	38-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	1	1	12-6-95	good
6	17	2	ROUBIDOUX	U-GASCONADE	--	4-6-01	3-2-01	22-2-01	16-1-06	29	21111	POYNOR	TRUE	--	--	FALSE	-	2	12-12-95	sink hole plot center
6	18	2	U-GASCONADE	--	--	--	6-6-09	24-2-02	15-5-09	--	41111	COULSTONE	FALSE	--	--	FALSE	-	--	12-5-95	see notes
6	19	2	ROUBIDOUX	--	--	5-2-01	--	22-2-01	17-0-06	27	21111	POYNOR	FALSE	--	--	FALSE	1	--	12-6-95	see notes-good site
6	20	2	U-GASCONADE	--	--	4-6-01	3-3-01	38-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	12-5-95	below Roubidoux
6	21	2	U-GASCONADE	--	--	5-1-01	--	18-1-01	22-3-01	--	31111	SND	FALSE	--	--	FALSE	2	--	12-5-95	see notes
6	22	2	U-GASCONADE	--	--	6-1-01	4-2-01	26-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	10-19-95	stopped by chert
6	23	2	U-GASCONADE	--	--	7-5-01	--	38-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-5-95	few stones
6	24	2	U-GASCONADE	--	--	5-2-01	--	24-2-01	16-1-06	29	21111	POYNOR	FALSE	--	--	FALSE	-	--	12-12-95	good ELT 9
6	25	2	U-GASCONADE	--	--	6-2-01	--	39-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	12-12-95	good ELT 18
6	26	2	U-GASCONADE	GUNTER	--	4-3-01	7-2-01	18-2-01	17-1-06	29	21111	POYNOR	TRUE	--	--	FALSE	-	--	12-12-95	see notes
6	27	2	U-GASCONADE	--	--	4-5-01	3-2-01	38-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-12-95	good ELT 17
6	28	2	U-GASCONADE	--	--	5-2-01	--	40-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	12-7-95	fragic char
6	29	2	GUNTER	EMINENCE	--	8-1-01	--	17-5-01	23-5-02	--	41112	REUTER	FALSE	--	--	FALSE	-	1	12-11-95	thick Gunter colluvium
6	30	2	GUNTER	EMINENCE	--	4-2-02	5-2-02	13-2-04	13-0-06	22	21212	BARDLEY-LIKE	TRUE	--	--	FALSE	-	1	12-6-95	see notes
6	31	2	EMINENCE	--	--	2-5-04	--	5-2-06	20- -12	2	53213	GASCONADE	TRUE	1	2	FALSE	-	2	12-11-95	74F unit
6	32	2	L-GASCONADE	GUNTER	EMINENCE	1-5-02	11-5-02	--	12- -12	--	43545	RAMSEY-LIKE	TRUE	--	--	FALSE	1	1	12-6-95	see notes
6	33	2	L-GASCONADE	--	--	3-1-01	--	16-1-03	26-2-03	--	31111	SND	FALSE	--	--	FALSE	1	--	12-6-95	see notes
6	34	2	L-GASCONADE	--	--	3-2-01	--	17-0-06	20- -12	3	81212	BARDLEY	TRUE	1	1	FALSE	-	--	11-29-95	see notes
6	35	2	L-GASCONADE	GUNTER	--	5-2-01	--	21-2-01	26- -12	--	41211	BENDAVIS	TRUE	2	1	FALSE	-	--	11-29-95	see notes
6	36	2	GUNTER	EMINENCE	--	5-2-01	3-2-02	13-2-02	24-0-06	21	21112	ALRED	FALSE	--	--	FALSE	-	--	11-29-95	old road thru Plot
6	37	2	L-GASCONADE	GUNTER	--	5-2-01	24-2-01	9-2-01	38- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	11-29-95	see notes, shoulder of bench
6	38	2	L-GASCONADE	GUNTER	EMINENCE	7-1-02	2-1-02	09- -12	--	--	13211	RAMSEY-LIKE	TRUE	--	--	FALSE	-	2	11-29-95	see notes
6	39	2	L-GASCONADE	--	--	8-1-01	--	37-1-01	--	--	31112	SND	FALSE	--	--	FALSE	-	--	11-28-95	see notes
6	40	2	U-GASCONADE	L-GASCONADE	--	4-2-01	5-2-01	36-2-01	--	--	41112	REUTER	FALSE	--	--	TRUE	1	--	11-28-95	see notes
6	41	2	L-GASCONADE	--	--	6-2-01	--	8-2-01	31-0-06	14	21112	ALRED	FALSE	--	--	FALSE	1	--	11-28-95	see notes, good site, low end of slope
6	42	2	U-GASCONADE	--	--	6-2-01	2-2-01	37-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	11-28-95	plot on Hs, Bs, Ns; Hs is fine-loamy
6	43	2	U-GASCONADE	--	--	7-2-01	--	39-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	11-29-95	good 18 site
6	44	2	L-GASCONADE	--	--	5-1-01	--	40-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	11-28-95	see notes
6	45	2	U-GASCONADE	--	--	2-2-01	1-2-01	28-2-01	31- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	12-7-95	see notes
6	46	2	U-GASCONADE	--	--	5-1-01	--	40-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-7-95	good site
6	47	2	U-GASCONADE	--	--	4-2-01	4-2-01	22-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-7-95	stopped by chert
6	48	2	L-GASCONADE	--	--	5-1-01	--	20-1-01	20-5-01	--	31112	SND	FALSE	--	--	FALSE	-	--	12-7-95	see notes
6	49	2	L-GASCONADE	--	--	1-5-01	6-2-01	18-2-01	20-0-06	26	21212	MANO	FALSE	--	--	FALSE	-	--	12-7-95	good site ELT37
6	50	2	U-GASCONADE	--	--	4-5-01	5-2-01	36-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	11-27-95	good site
6	51	2	U-GASCONADE	--	--	6-5-01	--	39-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	12-7-95	see notes
6	52	2	L-GASCONADE	--	--	3-2-01	3-2-01	16-2-03	23-1-06	22	21212	MANO	FALSE	--	--	FALSE	-	--	11-29-95	good ELT 38 all very deep
6	53	2	U-GASCONADE	--	--	6-3-01	--	--	42-1-06	6	91111	DONIPHAN	FALSE	--	--	FALSE	-	--	11-8-94	chert in lower Bt
6	54	2	U-GASCONADE	L-GASCONADE	--	2-5-01	4-2-02	39-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	11-28-95	plot split 80F & 82F
6	55	2	U-GASCONADE	--	--	5-5-01	--	40-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	11-28-95	lower part fine-loamy
6	56	2	L-GASCONADE	GUNTER	EMINENCE	7-2-01	--	23-2-03	15-0-06	30	21112	ALRED	TRUE	--	--	FALSE	1	2	11-28-95	sandstone cobs & stones SSGUNTER
6	57	2	U-GASCONADE	--	--	6-1-01	--	30-1-01	9-2-01	--	31111	SND	FALSE	--	--	FALSE	-	--	11-27-95	Ls on convex edges of plot
6	58	2	U-GASCONADE	--	--	5-1-01	3-2-01	37-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	11-27-95	good site
6	59	2	U-GASCONADE	--	--	5-5-01	--	34-0-06	39- -12	5	81212	GATEWOOD	TRUE	1	2	FALSE	-	1	12-7-95	variable depth unit
6	60	2	U-GASCONADE	--	--	8-1-01	--	37-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	11-27-95	part on shoulder ridge
6	61	2	U-GASCONADE	--	--	4-5-01	5-2-02	36-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	11-27-95	see notes
6	62	2	U-GASCONADE	--	--	3-6-01	5-2-01	40-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	10-19-95	Roubidoux colluvium in profile,
6	63	2	ROUBIDOUX	--	--	3-2-01	3-2-01	16-2-01	22- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	10-19-95	portion of plot on Shoulder, samp Summit
6	64	2	U-GASCONADE	--	--	2-3-01	7-2-01	39-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	10-19-95	variable geomorphology, part secondridge
6	65	2	U-GASCONADE	--	--	3-3-01	6-2-01	39-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	10-19-95	--
6	66	2	U-GASCONADE	--	--	7-1-01	--	35-4-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	10-19-95	thin silty cap, FL units near,
6	67	2	ROUBIDOUX	--	--	4-6-01	6-5-01	23-5-01	33- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	10-19-95	Roub lower than majority of site
6	68	2	U-GASCONADE	--	--	--	--	--	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	11-30-94	--
6	69	2	EMINENCE	--	--	7-6-02	--	5-2-02	33-0-06	12	21112	ALRED	FALSE	--	--	FALSE	1	2	11-27-95	see notes
6	70	2	L-GASCONADE	GUNTER	EMINENCE	--	--	--	--	--	41112	REUTER	TRUE	2	1	FALSE	-	2	11-30-94	VB bench:21112,Alred, Emi dolo lowerplot
6	71	2	EMINENCE	--	--	8-2-01	11-2-02	29-5-02	--	--	44434	MIDCO-LIKE	FALSE	--	--	FALSE	-	--	11-29-95	19' dark surface
7	1	3	U-GASCONADE	--	--	7-2-02	--	39-2-04	--	--	41112	REUTER	FALSE	--	--	FALSE	-	1	5-19-95	lies below the Roub-Gas contact at 860'
7	2	3	ROUBIDOUX	--	--	5-2-01	--	13-2-03	30-1-06	18	21111	POYNOR	FALSE	--	--	FALSE	-	--	5-19-95	layers of bedded chert and clay

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
7	3	3	UNEVEN-AGE	HILLS	38	17	LGABN	89c	5	9	14	--	--	--	PROTECTED	815	815	BENCH	--	LINEAR	LINEAR
7	4	3	UNEVEN-AGE	HILLS	17	23	ROBS	63f/82f	25	--	--	195	185	205	EXPOSED	820	850	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CORRUGATED
7	5	3	UNEVEN-AGE	HILLS	18	18	ROBS	63f/82f	26	--	--	330	320	340	NEUTRAL-WEST	810	850	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONCAVE
7	6	3	UNEVEN-AGE	HILLS	17	23	ROBS	63f/82f	26	--	--	140	--	--	NEUTRAL-EAST	810	850	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
7	7	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	25	--	--	140	125	155	NEUTRAL-EAST	880	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
7	8	3	UNEVEN-AGE	HILLS	17	18	ROBS	63f	27	--	--	325	--	--	NEUTRAL-WEST	840	870	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
7	9	3	UNEVEN-AGE	HILLS	66	17	UGABS	82f/63f	23	--	--	295	--	--	NEUTRAL-WEST	800	840	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
7	10	3	UNEVEN-AGE	HILLS	11	18	ROSH	63d	14	--	--	5	--	--	PROTECTED	860	880	SHOULDER	--	LINEAR	LINEAR
7	11	3	UNEVEN-AGE	HILLS	17	18	ROBS	63f	23	15	23	315	305	325	NEUTRAL-WEST	880	910	BACKSLOPE	UPPER	LINEAR	LINEAR
7	12	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	5	--	--	0	--	--	PROTECTED	890	890	SUMMIT	--	LINEAR	LINEAR
7	13	3	UNEVEN-AGE	HILLS	18	18	ROBS	63f	24	22	28	70	35	105	NEUTRAL-EAST	860	880	BACKSLOPE	UPPER	LINEAR	CORRUGATED
7	14	3	UNEVEN-AGE	HILLS	65	18	UGABS	82f	22	18	25	55	--	--	PROTECTED	820	850	BACKSLOPE	MIDDLE	STAIRSTEPPED	CONVEX
7	15	3	UNEVEN-AGE	HILLS	375	18	LGABN	73c	5	3	8	0	--	--	PROTECTED	790	790	BENCH	--	LINEAR	LINEAR
7	16	3	UNEVEN-AGE	HILLS	65	18	UGASHR	82d	16	--	--	105	70	140	NEUTRAL-EAST	790	810	SHOULDER RIDGE	--	LINEAR	CONVEX
7	17	3	UNEVEN-AGE	HILLS	3	7	UGATR	15b	2	1	3	0	--	--	PROTECTED	785	785	TERRACE	--	LINEAR	LINEAR
7	18	3	UNEVEN-AGE	HILLS	21	21	UGASHR	71d	15	--	--	210	155	265	EXPOSED	820	840	SHOULDER RIDGE	--	STAIRSTEPPED	CONVEX
7	19	3	UNEVEN-AGE	HILLS	66	17	UGABS	82f	23	18	28	160	--	--	NEUTRAL-EAST	800	820	BACKSLOPE	LOWER	CORRUGATED	STAIRSTEPPED
7	20	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	25	--	--	160	--	--	NEUTRAL-EAST	860	880	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
7	21	3	UNEVEN-AGE	HILLS	15	15	ROSU	61c	4	2	6	0	--	--	PROTECTED	930	930	SUMMIT	--	LINEAR	LINEAR
7	22	3	UNEVEN-AGE	HILLS	11	18	ROSH	63d	16	--	--	80	--	--	NEUTRAL-EAST	870	890	SHOULDER RIDGE	--	CONVEX	LINEAR
7	23	3	UNEVEN-AGE	HILLS	10	18	ROSH	63d	12	--	--	125	85	160	NEUTRAL-EAST	880	890	SHOULDER	--	LINEAR	CONVEX
7	24	3	UNEVEN-AGE	HILLS	15	15	ROSU	61c	5	--	--	0	--	--	PROTECTED	950	950	SUMMIT	--	LINEAR	LINEAR
7	25	3	UNEVEN-AGE	HILLS	10	17	ROSH	63d	18	--	--	290	--	--	NEUTRAL-WEST	890	910	SHOULDER	--	CONVEX	CONVEX
7	26	3	UNEVEN-AGE	HILLS	18	18	ROBS	63f	23	--	--	45	--	--	PROTECTED	880	905	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
7	27	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	28	--	--	270	--	--	NEUTRAL-WEST	840	860	BACKSLOPE	MIDDLE	CONVEX	LINEAR
7	28	3	UNEVEN-AGE	HILLS	17	18	ROBS	63f	24	--	--	160	--	--	NEUTRAL-EAST	880	900	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
7	29	3	UNEVEN-AGE	HILLS	18	18	ROBS	63f	23	18	27	55	30	80	PROTECTED	840	860	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
7	30	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	4	2	6	0	--	--	PROTECTED	920	920	SUMMIT	--	LINEAR	LINEAR
7	31	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f/45d	29	--	--	145	--	--	NEUTRAL-EAST	835	860	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
7	32	3	UNEVEN-AGE	HILLS	66	17	UGABS	82f	30	27	33	265	--	--	NEUTRAL-WEST	820	840	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
7	33	3	UNEVEN-AGE	HILLS	7	18	ROFS	45d	17	10	24	360	--	--	PROTECTED	850	870	FOOTSLOPE/STRATH TERRACE	--	CONCAVE	LINEAR
7	34	3	UNEVEN-AGE	HILLS	5	5	UGAFP	31	2	1	3	0	--	--	PROTECTED	805	805	FLOODPLAIN	--	LINEAR	LINEAR
7	35	3	UNEVEN-AGE	HILLS	65	17	UGASHR	82d	15	12	18	100	65	135	NEUTRAL-EAST	805	815	SHOULDER RIDGE	--	CONVEX	CONVEX
7	36	3	UNEVEN-AGE	HILLS	5	5	UGAFP	31	2	--	--	0	--	--	PROTECTED	795	795	FLOODPLAIN	--	LINEAR	LINEAR
7	37	3	UNEVEN-AGE	HILLS	17	18	ROBS	63f/82f	39	31	47	125	--	--	NEUTRAL-EAST	835	860	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
7	38	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	25	--	--	210	--	--	EXPOSED	860	880	BACKSLOPE	UPPER-MIDDLE	LINEAR	CORRUGATED
7	39	3	UNEVEN-AGE	HILLS	10	17	ROSHR	63d	13	10	16	200	170	230	EXPOSED	900	920	SHOULDER RIDGE	--	LINEAR	LINEAR
7	40	3	UNEVEN-AGE	HILLS	11	18	ROSH	63d	18	--	--	85	55	115	NEUTRAL-EAST	880	900	SHOULDER	--	LINEAR	CONVEX
7	41	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	8	6	9	0	--	--	PROTECTED	905	920	SUMMIT	--	LINEAR	LINEAR
7	42	3	UNEVEN-AGE	HILLS	10	17	ROSH	63d	18	15	21	230	--	--	EXPOSED	880	900	SHOULDER	--	LINEAR	LINEAR
7	43	3	UNEVEN-AGE	HILLS	10	17	ROSH	63d	12	--	--	320	--	--	NEUTRAL-WEST	900	920	SHOULDER	--	LINEAR	LINEAR
7	44	3	UNEVEN-AGE	HILLS	18	17	ROBS	63f	28	--	--	90	--	--	NEUTRAL-EAST	880	900	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
7	45	3	UNEVEN-AGE	HILLS	17	18	ROBS	63f	22	--	--	270	--	--	NEUTRAL-WEST	870	890	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
7	46	3	UNEVEN-AGE	HILLS	11	18	ROSHR	63d	19	--	--	95	65	125	NEUTRAL-EAST	880	900	SHOULDER RIDGE	--	CONVEX	CONVEX
7	47	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	4	1	7	0	--	--	PROTECTED	950	950	SUMMIT	--	LINEAR	LINEAR
7	48	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	21	18	23	150	--	--	NEUTRAL-EAST	880	910	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	LINEAR
7	49	3	UNEVEN-AGE	HILLS	65	18	UGABS	63f/82f	21	18	23	345	--	--	PROTECTED	870	900	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CORRUGATED
7	50	3	UNEVEN-AGE	HILLS	66	17	UGASHR	82d	16	14	18	225	195	255	EXPOSED	860	880	SHOULDER RIDGE	--	LINEAR	CONVEX
7	51	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	5	--	--	0	--	--	PROTECTED	885	885	SUMMIT	--	LINEAR	LINEAR
7	52	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	3	1	6	0	--	--	PROTECTED	950	950	SUMMIT	--	LINEAR	LINEAR
7	53	3	UNEVEN-AGE	HILLS	375	17	LGABN	72d	11	--	--	305	--	--	NEUTRAL-WEST	880	900	BENCH	--	CONCAVE	LINEAR
7	54	3	UNEVEN-AGE	HILLS	66	17	UGASHR	82d/63d	19	13	25	255	225	285	NEUTRAL-WEST	895	925	SHOULDER RIDGE	--	STAIRSTEPPED	LINEAR
7	55	3	UNEVEN-AGE	HILLS	65	18	UGABS	82f	32	24	40	105	85	130	NEUTRAL-EAST	880	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
7	56	3	UNEVEN-AGE	HILLS	66	17	UGASHR	82d	15	12	18	240	--	--	EXPOSED	875	900	SHOULDER RIDGE	--	LINEAR	CORRUGATED
7	57	3	UNEVEN-AGE	HILLS	65	18	UGABS	82f	23	--	--	70	45	95	NEUTRAL-EAST	880	910	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
7	58	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	7	4	10	0	--	--	PROTECTED	960	960	SUMMIT	--	CONVEX	LINEAR
7	59	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	23	--	--	250	210	290	EXPOSED	880	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
7	60	3	UNEVEN-AGE	HILLS	5	5	ROFP	31	2	--	--	0	--	--	PROTECTED	830	830	FLOODPLAIN	--	LINEAR	LINEAR
7	61	3	UNEVEN-AGE	HILLS	5	5	ROFP	31	2	--	--	0	--	--	PROTECTED	850	850	FLOODPLAIN	--	LINEAR	LINEAR
7	62	3	UNEVEN-AGE	HILLS	11	18	ROSH	63d	18	--	--	335	--	--	NEUTRAL-WEST	920	940	SHOULDER	--	CONVEX	CORRUGATED
7	63	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	3	1	4	0	--	--	PROTECTED	950	950	SUMMIT	--	LINEAR	LINEAR
7	64	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	23	--	--	210	--	--	EXPOSED	920	945	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
7	65	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	25	--	--	215	190	220	EXPOSED	950	980	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
7	66	3	UNEVEN-AGE	HILLS	17	17	ROBS	63f	25	--	--	300	--	--	NEUTRAL-WEST	960	985	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONCAVE
7	67	3	UNEVEN-AGE	HILLS	10	17	ROSH	63d	18	16	20	220	195	245	EXPOSED	950	970	SHOULDER	--	LINEAR	CONVEX
7	68	3	UNEVEN-AGE	HILLS	9	11	ROSU	63c	5	--	--	0	--	--	PROTECTED	930	930	SUMMIT	--	LINEAR	LINEAR
7	69	3	UNEVEN-AGE	HILLS	66	17	UGABS	82f	30	--	--	255	--	--	NEUTRAL-WEST	800	830	BACKSLOPE	LOWER	CONVEX	CORRUGATED
7	70	3	UNEVEN-AGE	HILLS	66	17	UGABS	82f	22	20	25	225	215	235	EXPOSED	815	830	BACKSLOPE	LOWER	STAIRSTEPPED	CONVEX
7	71	3	UNEVEN-AGE	HILLS	5	7	UGAFP	31	2	0	4	0	--	--	PROTECTED	790	790	FLOODPLAIN	--	LINEAR	LINEAR
8	1	3	NO HARVEST	HILLS	9	17	ROSU	63c	5	3	7	0	--	--	PROTECTED	900	920	SUMMIT	--	LINEAR	CONVEX
8	2	3	NO HARVEST	HILLS	10	17	ROSH	63d	15	12	19	255	230	280	NEUTRAL-WEST	880	900	SHOULDER	--	LINEAR	CONVEX
8	3	3	NO HARVEST	HILLS	17	17	ROBS	63f	22	--	--	190	125	255	EXPOSED	900	920	BACKSLOPE	UPPER-MIDDLE	LINEAR	CORRUGATED
8	4	3	NO HARVEST	HILLS	17	18	ROBS	63f	23	--	--	310	--	--	NEUTRAL-WEST	880	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR

Site	Plot	Block	Geologic strata 1	Geologic Strata 2	Geologic strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or Slide	Windthrow	Surface stoniness	Date Measured	Notes
7	3	3	U-GASCONADE	--	--	6-2-01	--	20-2-03	22-1-06	26	21212	MIANO	FALSE	--	--	FALSE	-	1	5-19-95	sink on west part, Roub stones on upper,
7	4	3	ROUBIDOUX	U-GASCONADE	--	6-6-02	--	42-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	1	2	5-19-95	Roub-Gas cont, shoulder&BS, lower 21112
7	5	3	ROUBIDOUX	U-GASCONADE	--	7-6-02	--	37-5-09	44- -12	--	41211	BENDER-LIKE	TRUE	--	--	FALSE	2	1	5-19-95	Roub-Gas cont, Hs, lower-21112 ELT 65
7	6	3	ROUBIDOUX	U-GASCONADE	--	7-5-02	--	36-5-09	5-1-08	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	5-5-95	Roub_Gas cont 820',
7	7	3	ROUBIDOUX	--	--	5-6-02	--	29-5-02	34- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	3	5-5-95	thick chert bed
7	8	3	ROUBIDOUX	--	--	6-5-02	--	17-5-02	23- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	1	5-5-95	stopped by chert
7	9	3	ROUBIDOUX	U-GASCONADE	--	6-5-01	--	21-2-03	21-2-06	27	41112	REUTER	FALSE	--	--	FALSE	-	2	5-5-95	Roub-Gas cont, samp Gas, Roub 41111,sink
7	10	3	ROUBIDOUX	--	--	7-2-01	--	15-3-01	22- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	--	5-5-95	N plot on bs, slope 26%, same soils
7	11	3	ROUBIDOUX	--	--	5-5-02	--	26-5-03	17-1-06	31	21111	POYNOR	FALSE	--	--	FALSE	-	1	5-5-95	shoulder & backslope, shoulder same soil
7	12	3	ROUBIDOUX	--	--	5-2-01	--	18-5-01	23- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	5-5-95	stopped by chert
7	13	3	ROUBIDOUX	--	--	7-6-01	7-6-01	34-5-03	--	--	44111	CLARKSVILLE-	FALSE	--	--	FALSE	1	2	5-23-95	mollic surf, part Shoulder slope
7	14	3	U-GASCONADE	--	--	7-2-02	--	28-2-04	13-0-06	35	21112	ALRED	FALSE	--	--	FALSE	-	1	5-22-95	Roub-Gas cont at 860, Sandy-col,
7	15	3	U-GASCONADE	--	--	05-0-01	--	43-1-03	--	--	31112	SND	FALSE	--	--	FALSE	-	--	5-22-95	below dolo outcrop,no x,pickup x 72C uni
7	16	3	U-GASCONADE	--	--	4-2-02	--	5-1-02	39-2-03	--	41112	REUTER	FALSE	--	--	FALSE	-	--	5-22-95	some on Bs, 82D unit
7	17	3	U-GASCONADE	--	--	06-0-01	--	23-1-01	19-3-09	--	38212	SECESH	FALSE	--	--	FALSE	-	--	5-22-95	3 units: Fs-35212 ELT-7, Fp-44434 ELT-5,
7	18	3	U-GASCONADE	--	--	--	--	--	1-13-04	--	--	ROCKOUTCROP	TRUE	1	3	FALSE	-	3	5-22-95	on Gasconade glade, 71D unit
7	19	3	U-GASCONADE	--	--	5-5-02	5-5-02	22-5-02	32- -12	--	31212	SND	TRUE	--	--	FALSE	-	1	5-22-95	Bs & Shr, samp Bs sandy col over dolo
7	20	3	ROUBIDOUX	--	--	4-6-01	6-2-01	19-2-03	19-0-06	29	21111	POYNOR	FALSE	--	--	FALSE	1	1	5-23-95	Backslope and shoulder slope, samp Bs
7	21	3	ROUBIDOUX	--	--	04-0-01	--	16-1-03	--	--	31311	TONTI	FALSE	--	--	FALSE	-	--	5-23-95	Tonti or Hogcreek, edge-Scholten
7	22	3	ROUBIDOUX	--	--	5-2-02	4-2-02	21-5-02	30- -12	--	41211	BENDER	TRUE	--	--	FALSE	1	2	5-23-95	--
7	23	3	ROUBIDOUX	--	--	6-2-01	--	16-2-03	17-0-06	22	21111	POYNOR	FALSE	--	--	FALSE	1	1	5-23-95	stopped at 39" by chert bed, not Br
7	24	3	ROUBIDOUX	--	--	4-1-02	--	44-1-02	--	--	31311	TONTI	FALSE	--	--	FALSE	-	--	5-23-95	most unit had pan, center no pan 32111
7	25	3	ROUBIDOUX	--	--	5-3-01	6-2-01	22-2-03	15-2-06	33	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	2	5-23-95	Backslope and shoulder, samp Sh
7	26	3	ROUBIDOUX	--	--	5-6-01	11-2-02	17-5-04	33- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	1	5-23-95	Backslope and shoulder ridge, samp Bs
7	27	3	ROUBIDOUX	--	--	5-5-02	6-2-02	18-5-02	29- -12	--	41211	BENDER	TRUE	--	--	FALSE	2	2	5-23-95	--
7	28	3	ROUBIDOUX	--	--	5-2-01	3-2-01	21-2-04	19-1-06	29	21111	POYNOR	FALSE	--	--	FALSE	-	1	5-23-95	chert bed 45", first order drain in plot
7	29	3	ROUBIDOUX	--	--	6-2-01	--	27-2-02	15-5-02	--	41111	COULSTONE	FALSE	--	--	FALSE	1	1	5-23-95	above Roub-Gas contact
7	30	3	ROUBIDOUX	--	--	6-2-01	--	20-2-03	22-1-06	26	21111	POYNOR	FALSE	--	--	FALSE	-	--	5-4-95	chert layers in clay
7	31	3	ROUBIDOUX	U-GASCONADE	--	7-5-09	--	29-5-09	12-1-08	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	5-5-95	Roub-Gas cont, Gas: 18%, 31112, Lecoma
7	32	3	U-GASCONADE	--	--	5-6-09	--	31-5-10	12-0-06	36	21112	ALRED	FALSE	--	--	FALSE	-	1	5-4-95	below Roub-Gas cont, Roub above 41211
7	33	3	ROUBIDOUX	--	--	4-1-01	--	25-1-01	11-2-01	--	31111	SND	FALSE	--	--	FALSE	1	--	6-1-95	Bs & Fs, samp Fs, Bs:24% 41111 Coulstone
7	34	3	U-GASCONADE	--	--	8-5-02	--	40-5-09	--	--	64434	RELFE	FALSE	--	--	FALSE	-	1	6-1-95	--
7	35	3	U-GASCONADE	--	--	7-5-02	--	18-6-02	25- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	1	5-4-95	82D unit, does not fit concept
7	36	3	U-GASCONADE	--	--	6-2-02	--	19-1-09	23-3-10	--	61434	RELFE-LIKE	FALSE	--	--	FALSE	-	1	5-4-95	part on high floodplain
7	37	3	ROUBIDOUX	U-GASCONADE	--	6-6-01	--	25-5-02	31- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	3	5-24-95	Roub-Gas cont, samp Roub, Gas:21112Alred
7	38	3	ROUBIDOUX	--	--	3-5-02	7-2-02	23-2-04	33- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	2	5-4-95	--
7	39	3	ROUBIDOUX	--	--	3-5-01	--	5-2-03	40-1-06	8	21111	POYNOR	FALSE	--	--	FALSE	-	1	5-4-95	lenses of cherticlay
7	40	3	ROUBIDOUX	--	--	5-5-02	--	13-2-02	30-1-06	18	21111	POYNOR	FALSE	--	--	FALSE	-	--	5-4-95	lenses of cherticlay
7	41	3	ROUBIDOUX	--	--	5-2-01	--	18-1-03	25-1-06	23	21111	POYNOR	FALSE	--	--	FALSE	-	--	5-4-95	Sh&Su,samp edge of Su,signs of wetness
7	42	3	ROUBIDOUX	--	--	8-5-02	--	13-2-04	27-1-06	21	21111	POYNOR	FALSE	--	--	FALSE	-	1	5-4-95	Bs & Sh, samp Sh
7	43	3	ROUBIDOUX	--	--	7-2-01	--	15-2-01	22- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	5-4-95	stopped by chert
7	44	3	ROUBIDOUX	--	--	5-2-02	4-2-02	19-2-04	28- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	1	4-28-95	sink on E edge
7	45	3	ROUBIDOUX	--	--	5-2-02	--	16-2-03	27-0-06	21	21111	POYNOR	FALSE	--	--	FALSE	-	1	4-28-95	1st order drain on N part of plot
7	46	3	ROUBIDOUX	--	--	7-2-09	--	23-1-04	30- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	2	4-28-95	stopped by chert
7	47	3	ROUBIDOUX	--	--	4-2-01	--	11-2-04	33-1-06	15	21111	POYNOR	FALSE	--	--	FALSE	-	--	4-28-95	--
7	48	3	ROUBIDOUX	--	--	7-5-02	--	41-2-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	5-30-95	Roub-Gas cont at 880",
7	49	3	ROUBIDOUX	U-GASCONADE	--	8-5-09	--	20-2-08	20-0-06	28	21112	ALRED	FALSE	--	--	FALSE	-	--	6-1-95	Roub-Gas cont at 880", samp Gas
7	50	3	U-GASCONADE	--	--	7-1-02	--	17-1-04	24-0-06	24	01112	SND	FALSE	--	--	FALSE	-	--	6-1-95	FL/CL, Gas, sandy colluvium, 82D unit
7	51	3	ROUBIDOUX	--	--	6-2-01	--	8-2-03	34-1-06	14	21111	POYNOR	FALSE	--	--	FALSE	-	1	5-30-95	--
7	52	3	ROUBIDOUX	--	--	6-5-01	--	26-2-01	18-1-06	30	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-28-95	close to 21111, Poynor
7	53	3	U-GASCONADE	--	--	4-2-02	3-1-02	28-1-04	13-2-06	35	01112	SND	FALSE	--	--	FALSE	-	--	6-1-95	crypt reef, 72D unit
7	54	3	ROUBIDOUX	U-GASCONADE	--	5-5-01	5-2-02	25-2-04	13-0-06	35	21112	ALRED	FALSE	--	--	FALSE	-	--	5-30-95	Roub-Gas cont at 920", samp Gas 82D unit
7	55	3	U-GASCONADE	--	--	7-6-02	--	17-2-02	24-1-06	24	24112	ALRED-LIKE	FALSE	--	--	FALSE	-	1	5-30-95	mollic surface,
7	56	3	U-GASCONADE	--	--	5-2-01	--	35-2-02	08-0-06	40	41112	REUTER	FALSE	--	--	FALSE	-	--	5-30-95	Bs&Shr,samp Shr, 1st order drain in plot
7	57	3	U-GASCONADE	--	--	7-2-02	--	31-2-04	10-0-06	38	41112	REUTER	FALSE	--	--	FALSE	1	--	5-30-95	sandy col from Roub, cont at 910"
7	58	3	ROUBIDOUX	--	--	6-6-01	--	4-2-03	19-2-06	10	51111	NOARK	FALSE	--	--	FALSE	-	2	5-25-95	Sh & Su, samp Su
7	59	3	ROUBIDOUX	--	--	5-5-02	--	24-5-02	29- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	1	6-2-95	Roubidoux, no Gas here
7	60	3	ROUBIDOUX	--	--	9-5-09	--	39-5-10	--	--	44434	MIDCO-LIKE	FALSE	--	--	FALSE	-	--	6-2-95	--
7	61	3	ROUBIDOUX	--	--	7-2-09	--	16-1-09	21-4-09	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	-	--	6-2-95	Fp & Te, samp Fp, Te: 38212 Secesh
7	62	3	ROUBIDOUX	--	--	6-2-02	3-2-02	39-2-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	--	5-25-95	samp Hs of 1st order drain
7	63	3	ROUBIDOUX	--	--	5-2-01	--	10-2-04	33-1-06	15	21111	POYNOR	FALSE	--	--	FALSE	-	--	5-25-95	--
7	64	3	ROUBIDOUX	--	--	6-5-02	--	32-2-02	38- -12	--	41211	BENDER	TRUE	--	--	FALSE	1	--	5-25-95	Bs & Shr, samp Bs
7	65	3	ROUBIDOUX	--	--	6-5-09	5-2-09	27-2-09	38- -12	--	41211	BENDER	TRUE	--	--	FALSE	2	1	5-25-95	--
7	66	3	ROUBIDOUX	--	--	4-5-02	4-2-02	40-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	5-25-95	Bs & Shr, samp Bs in Hs,
7	67	3	ROUBIDOUX	--	--	4-5-09	4-2-02	19-2-02	26- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	2	5-25-95	--
7	68	3	ROUBIDOUX	--	--	5-5-01	--	21-2-02	12- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	5-24-95	--
7	69	3	U-GASCONADE	--	--	6-2-02	--	--	42-0-06	6	81112	GEPP	FALSE	--	--	FALSE	-	--	5-24-95	--
7	70	3	U-GASCONADE	--	--	6-2-09	--	25-2-08	17-1-06	31	21112	ALRED	FALSE	--	--	FALSE	-	--	5-24-95	Bs & Be, samp Bs, Be:Fl/Cl, 82D
7	71	3	U-GASCONADE	--	--	7-5-09	--	41-6-09	--	--	41434	MIDCO	FALSE	--	--	FALSE	-	1	5-22-95	plot at confluence of two drains
8	1	3	ROUBIDOUX	--	--	5-2-01	--	3-2-03	40-0-06	8	91111	DONIPHAN	FALSE	--	--	FALSE	-	--	6-6-95	--
8	2	3	ROUBIDOUX	--	--	6-5-01	9-2-01	14-5-01	19-1-06	29	21111	POYNOR	FALSE	--	--	FALSE	1	--	6-6-95	--
8	3	3	ROUBIDOUX	--	--	5-2-01	3-2-01	30-2-03	10-1-06	38	21111	POYNOR	FALSE	--	--	FALSE	-	1	6-6-95	Bs & Shr, samp Bs, Shr: 18%, same soils
8	4	3	ROUBIDOUX	--	--	6-6-02	3-2-02	19-2-09	28- -12	--	41211	BENDER	TRUE	--	--	FALSE	2	--	2-15-96	see notes

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
8	5	3	NO HARVEST	HILLS	9	11	ROSU	63c	3	1	5	0	--	--	PROTECTED	910	910	SUMMIT	--	LINEAR	LINEAR
8	6	3	NO HARVEST	HILLS	17	17	ROBS	63f	24	21	27	215	150	280	EXPOSED	860	880	BACKSLOPE	LOWER	CONVEX	CORRUGATED
8	7	3	NO HARVEST	HILLS	10	11	ROSH	63d	12	--	--	270	--	--	NEUTRAL-WEST	910	920	SHOULDER	--	LINEAR	LINEAR
8	8	3	NO HARVEST	HILLS	18	18	ROBS	63f	27	24	30	40	5	75	PROTECTED	880	920	BACKSLOPE	UPPER	CONVEX	CONCAVE
8	9	3	NO HARVEST	HILLS	17	17	ROBS	63f	36	30	42	310	--	--	NEUTRAL-WEST	840	880	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
8	10	3	NO HARVEST	HILLS	17	18	ROBS	63f	23	--	--	240	210	270	EXPOSED	840	880	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
8	11	3	NO HARVEST	HILLS	11	18	ROSHR	63d	11	--	--	350	30	310	PROTECTED	830	850	SHOULDER RIDGE	--	LINEAR	CONVEX
8	12	3	NO HARVEST	HILLS	17	17	ROBS	63f	21	--	--	290	--	--	NEUTRAL-WEST	855	885	BACKSLOPE	UPPER-MIDDLE	LINEAR	CORRUGATED
8	13	3	NO HARVEST	HILLS	36	11	ROSK	4	5	5	11	0	--	--	PROTECTED	920	900	SINKHOLE	--	CONCAVE	LINEAR
8	14	3	NO HARVEST	HILLS	17	17	ROBS	63f	21	18	24	250	220	280	EXPOSED	860	900	BACKSLOPE	MIDDLE-LOWER	LINEAR	CONVEX
8	15	3	NO HARVEST	HILLS	18	18	ROBS	63f	26	22	30	65	--	--	PROTECTED	860	900	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
8	16	3	NO HARVEST	HILLS	66	17	UGABS	82f/63f	28	--	--	215	--	--	EXPOSED	830	870	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
8	17	3	NO HARVEST	HILLS	65	18	UGABS	82f/63f	26	22	30	90	--	--	NEUTRAL-EAST	820	860	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
8	18	3	NO HARVEST	HILLS	10	11	ROSH	63d	9	5	12	320	--	--	NEUTRAL-WEST	880	900	SHOULDER	--	LINEAR	LINEAR
8	19	3	NO HARVEST	HILLS	10	17	ROSH	63d	19	18	20	290	--	--	NEUTRAL-WEST	880	910	SHOULDER	--	LINEAR	LINEAR
8	20	3	NO HARVEST	HILLS	17	18	ROBS	63f	23	20	26	320	--	--	NEUTRAL-WEST	850	880	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
8	21	3	NO HARVEST	HILLS	17	17	ROBS	63f/82f	21	--	--	210	170	250	EXPOSED	820	860	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
8	22	3	NO HARVEST	HILLS	9	11	ROSU	63c	5	3	7	0	--	--	PROTECTED	890	890	SUMMIT	--	LINEAR	LINEAR
8	23	3	NO HARVEST	HILLS	18	18	ROBS	63f/82f	27	25	29	330	--	--	NEUTRAL-WEST	820	8600	BACKSLOPE	MIDDLE-LOWER	LINEAR	CORRUGATED
8	24	3	NO HARVEST	HILLS	9	21	ROSU	63c	4	1	8	0	--	--	PROTECTED	930	930	SUMMIT	--	LINEAR	LINEAR
8	25	3	NO HARVEST	HILLS	15	11	ROSU	61c	3	1	5	0	--	--	PROTECTED	945	945	SUMMIT	--	CONCAVE	LINEAR
8	26	3	NO HARVEST	HILLS	18	18	ROBS	63f	24	--	--	120	--	--	NEUTRAL-EAST	890	920	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
8	27	3	NO HARVEST	HILLS	17	21	ROBS	63f	48	46	50	220	--	--	EXPOSED	860	900	BACKSLOPE	MIDDLE	CONVEX	LINEAR
8	28	3	NO HARVEST	HILLS	37	5	LGABN	89d	13	--	--	70	--	--	NEUTRAL-EAST	810	830	BENCH	--	CONCAVE	LINEAR
8	29	3	NO HARVEST	HILLS	21	23	UGABS	71f	29	--	--	200	--	--	EXPOSED	810	850	BACKSLOPE	MIDDLE	STAIRSTEPPED	LINEAR
8	30	3	NO HARVEST	HILLS	375	5	LGABN	73c	3	1	5	0	--	--	PROTECTED	755	765	BENCH	--	LINEAR	LINEAR
8	31	3	NO HARVEST	HILLS	37	18	LGABN	89d	12	--	--	40	--	--	PROTECTED	780	800	BENCH	--	STAIRSTEPPED	LINEAR
8	32	3	NO HARVEST	HILLS	65	18	UGABS	82f	33	25	40	50	--	--	PROTECTED	820	860	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CORRUGATED
8	33	3	NO HARVEST	HILLS	5	5	UGAFP	31	2	--	--	0	--	--	PROTECTED	755	770	FLOODPLAIN	--	LINEAR	LINEAR
8	34	3	NO HARVEST	HILLS	375	17	LGABN	73c	6	--	--	0	--	--	PROTECTED	780	800	BENCH	--	STAIRSTEPPED	LINEAR
8	35	3	NO HARVEST	HILLS	66	18	UGABS	82f	27	27	35	275	260	290	NEUTRAL-WEST	790	830	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	LINEAR
8	36	3	NO HARVEST	HILLS	1922	23	UGABS	81f	24	--	--	140	--	--	NEUTRAL-EAST	780	820	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CORRUGATED
8	37	3	NO HARVEST	HILLS	66	17	UGABS	82f/63f	31	27	35	265	--	--	NEUTRAL-WEST	855	895	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
8	38	3	NO HARVEST	HILLS	17	17	ROBS	63f	45	40	50	225	--	--	EXPOSED	880	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
8	39	3	NO HARVEST	HILLS	2023	18	UGABS	81f/82f/63f/89d	31	--	--	95	--	--	NEUTRAL-EAST	830	870	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	LINEAR
8	40	3	NO HARVEST	HILLS	17	18	ROBS	63f	34	--	--	325	--	--	NEUTRAL-WEST	880	920	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
8	41	3	NO HARVEST	HILLS	17	22	ROBS	63f/82f	40	--	--	215	--	--	EXPOSED	890	930	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
8	42	3	NO HARVEST	HILLS	37	18	LGABN	89d	17	--	--	5	--	--	PROTECTED	810	830	BENCH	--	LINEAR	LINEAR
8	43	3	NO HARVEST	HILLS	66	23	UGABS	82f	24	22	26	290	255	325	NEUTRAL-WEST	820	860	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CONVEX
8	44	3	NO HARVEST	HILLS	2023	22	LGABN	81d	14	--	--	345	--	--	PROTECTED	770	790	BENCH	--	CONVEX	CORRUGATED
8	45	3	NO HARVEST	HILLS	9	15	ROSU	63c	6	4	8	0	--	--	PROTECTED	970	970	SUMMIT	--	LINEAR	LINEAR
8	46	3	NO HARVEST	HILLS	17	17	ROBS	63f	36	--	--	235	--	--	EXPOSED	910	950	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
8	47	3	NO HARVEST	HILLS	37	18	LGABN	89d	11	6	16	360	--	--	PROTECTED	830	870	BENCH	--	STAIRSTEPPED	LINEAR
8	48	3	NO HARVEST	HILLS	7	22	UGAFS	45d	13	8	18	260	--	--	NEUTRAL-WEST	790	820	FOOTSLOPE/STRATH TERRACE	--	LINEAR	LINEAR
8	49	3	NO HARVEST	HILLS	5	5	UGAFP	31	3	--	--	0	--	--	PROTECTED	790	790	FLOODPLAIN	--	LINEAR	LINEAR
8	50	3	NO HARVEST	HILLS	38	7	LGABN	89d	14	--	--	310	--	--	NEUTRAL-WEST	810	830	BENCH	--	STAIRSTEPPED	LINEAR
8	51	3	NO HARVEST	HILLS	11	11	ROSH	63d	11	--	--	355	--	--	PROTECTED	890	910	SHOULDER	--	CONVEX	CORRUGATED
8	52	3	NO HARVEST	HILLS	17	17	ROBS	63f	31	--	--	255	240	270	NEUTRAL-WEST	890	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
8	53	3	NO HARVEST	HILLS	18	18	ROBS	63f/82f	40	--	--	345	--	--	PROTECTED	880	920	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
8	54	3	NO HARVEST	HILLS	17	17	ROBS	63f	23	--	--	255	220	290	NEUTRAL-WEST	960	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
8	55	3	NO HARVEST	HILLS	17	18	ROBS	63f/82f	31	28	34	140	120	160	NEUTRAL-EAST	830	870	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
8	56	3	NO HARVEST	HILLS	66	17	UGABS	82f/63f	24	--	--	140	--	--	NEUTRAL-EAST	810	850	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CORRUGATED
8	57	3	NO HARVEST	HILLS	66	18	UGABS	82f	23	21	25	310	--	--	NEUTRAL-WEST	800	840	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
8	58	3	NO HARVEST	HILLS	9	15	ROSU	63c	6	--	--	0	--	--	PROTECTED	890	890	SUMMIT	--	LINEAR	LINEAR
8	59	3	NO HARVEST	HILLS	66	17	UGABS	82f	24	--	--	205	--	--	EXPOSED	820	840	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CONVEX
8	60	3	NO HARVEST	HILLS	38	5	LGABN	89d	13	11	15	220	--	--	EXPOSED	770	790	BENCH	--	STAIRSTEPPED	LINEAR
8	61	3	NO HARVEST	HILLS	6	5	UGAFP	27	4	--	--	0	--	--	PROTECTED	760	760	FLOODPLAIN	--	LINEAR	LINEAR
8	62	3	NO HARVEST	HILLS	18	18	ROBS	63f/82f	34	--	--	35	10	60	PROTECTED	860	900	BACKSLOPE	LOWER	CONVEX	CORRUGATED
8	63	3	NO HARVEST	HILLS	11	15	ROSH	63d	9	7	11	75	--	--	NEUTRAL-EAST	955	965	SHOULDER	--	LINEAR	LINEAR
8	64	3	NO HARVEST	HILLS	2023	18	UGABS	81f	35	30	40	50	--	--	PROTECTED	820	860	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	CORRUGATED
8	65	3	NO HARVEST	HILLS	17	23	ROBS	63f/82f	45	--	--	220	--	--	EXPOSED	880	920	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
8	66	3	NO HARVEST	HILLS	375	5	LGABN	73c	5	3	8	0	--	--	PROTECTED	870	885	BENCH	--	LINEAR	LINEAR
8	67	3	NO HARVEST	HILLS	65	21	UGABS	82f/63f	21	17	25	45	--	--	PROTECTED	790	820	BACKSLOPE	UPPER	CONCAVE	LINEAR
8	68	3	NO HARVEST	HILLS	18	18	ROBS	63f	23	21	25	25	55	355	PROTECTED	850	870	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
8	69	3	NO HARVEST	HILLS	11	11	ROSHR	63d	9	--	--	100	--	--	NEUTRAL-EAST	930	910	SHOULDER RIDGE	--	LINEAR	CONVEX
8	70	3	NO HARVEST	HILLS	18	17	ROBS	63f	23	18	25	335	--	--	NEUTRAL-WEST	870	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
9	1	3	EVEN-AGE	BREAKS	7	7	UGAFS	41d	16	--	--	235	--	--	EXPOSED	700	710	FOOTSLOPE/STRATH TERRACE	--	LINEAR	LINEAR
9	2	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	26	--	--	300	--	--	NEUTRAL-WEST	750	760	BACKSLOPE	LOWER	LINEAR	LINEAR
9	3	3	EVEN-AGE	BREAKS	7	5	UGAFS	45d	7	3	11	310	--	--	NEUTRAL-WEST	750	770	FOOTSLOPE/STRATH TERRACE	--	CONCAVE	LINEAR
9	4	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	37	34	42	205	180	230	EXPOSED	790	820	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	5	3	EVEN-AGE	BREAKS	17	18	UGABS	80f	39	--	--	325	60	240	NEUTRAL-WEST	810	830	BACKSLOPE	LOWER	CONCAVE	CONCAVE
9	6	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	22	--	--	220	--	--	EXPOSED	720	740	BACKSLOPE	LOWER	LINEAR	LINEAR
9	7	3	EVEN-AGE	BREAKS	5	7	UGAFP	31	3	--	--	0	--	--	PROTECTED	680	680	FLOODPLAIN	--	LINEAR	LINEAR

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Slump or Slide	Windthrow	Surface Stoniness	Date Measured	Notes
8	5	3	ROUBIDOUX	--	--	5-5-01	--	19-5-02	24- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	3	--	2-15-96	see notes
8	6	3	ROUBIDOUX	--	--	4-6-01	--	15-2-02	29-1-06	19	21111	POYNOR	FALSE	--	--	FALSE	1	1	2-15-96	see notes
8	7	3	ROUBIDOUX	--	--	5-5-01	4-2-01	20-2-04	29- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	--	2-15-96	see notes
8	8	3	ROUBIDOUX	--	--	6-2-01	--	28-5-01	34- -12	--	41211	BENDAVIS	TRUE	--	--	TRUE	-	--	2-8-96	HS of BS, shoulder
8	9	3	ROUBIDOUX	--	--	5-5-02	4-1-02	15-2-02	24- -12	--	41211	BENDER	TRUE	--	--	FALSE	1	1	2-15-96	--
8	10	3	ROUBIDOUX	--	--	8-6-01	--	40-2-04	--	--	41111	COULSTONE	TRUE	--	--	FALSE	1	1	2-15-96	good ELT 17 Roubidoux
8	11	3	ROUBIDOUX	--	--	5-5-01	4-2-02	23-2-01	32- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	1	2-6-96	plot occurs in area of faulting
8	12	3	ROUBIDOUX	--	--	4-5-01	7-2-01	17-5-03	28- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	1	2-6-96	good Roub ELT 17
8	13	3	ROUBIDOUX	--	--	6-1-01	--	34-1-03	8-3-03	--	32111	SND	FALSE	--	--	FALSE	-	--	2-8-96	see notes, difficult to determine aspect
8	14	3	ROUBIDOUX	--	--	5-6-02	3-2-02	19-2-03	21-1-06	27	21111	POYNOR	FALSE	--	--	FALSE	-	1	2-8-96	goodroub
8	15	3	ROUBIDOUX	--	--	6-5-02	--	24-2-04	18-1-06	30	21111	POYNOR	TRUE	--	--	FALSE	-	2	2-8-96	above gas
8	16	3	ROUBIDOUX	U-GASCONADE	--	6-6-09	--	28-2-08	14-0-06	34	21112	ALRED	TRUE	--	--	FALSE	-	1	2-7-96	plot on contact R-G, up Bender,Coulstone
8	17	3	ROUBIDOUX	U-GASCONADE	--	8-6-02	--	26-5-08	14-1-06	34	21112	ALRED	TRUE	--	--	FALSE	-	4	2-7-96	plot on contact R-G, up Bender,Coulstone
8	18	3	ROUBIDOUX	--	--	5-5-01	4-5-01	18-2-01	27- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	2-8-96	sinkhole
8	19	3	ROUBIDOUX	--	--	6-6-02	3-2-02	12-2-04	27-2-06	21	41111	COULSTONE	FALSE	--	--	FALSE	1	1	2-8-96	see notes
8	20	3	ROUBIDOUX	--	--	6-6-01	3-2-01	11-2-03	28-1-06	20	21111	POYNOR	FALSE	--	--	FALSE	1	2	2-8-96	--
8	21	3	ROUBIDOUX	U-GASCONADE	--	4-6-01	--	15-2-01	29-2-06	19	21111	POYNOR	TRUE	--	--	FALSE	1	2	2-14-96	good elt 17 Roub
8	22	3	ROUBIDOUX	--	--	6-2-01	--	22-2-03	20-1-06	26	21111	POYNOR	FALSE	--	--	FALSE	-	--	2-14-96	good elt 9
8	23	3	ROUBIDOUX	U-GASCONADE	--	6-5-02	--	2-2-02	40-5-02	--	41111	COULSTONE	TRUE	--	--	TRUE	2	3	2-14-96	see notes
8	24	3	ROUBIDOUX	--	--	5-2-01	--	7-2-01	36-1-06	12	21111	POYNOR	FALSE	--	--	FALSE	-	--	6-6-95	Su & Sh, samp Su, Sh not considered
8	25	3	ROUBIDOUX	--	--	5-1-01	--	21-1-02	22-1-06	26	92111	VIBURNUM	FALSE	--	--	FALSE	-	--	6-7-95	mid 1/3 fits samp, rest 2/3 41111 Clarks
8	26	3	ROUBIDOUX	--	--	6-6-02	--	42-5-02	--	--	41111	COULSTONE	FALSE	--	--	FALSE	2	1	2-7-96	good Roub ELT 18/17
8	27	3	ROUBIDOUX	--	--	7-6-09	--	39-5-09	02-0-06	--	41111	COULSTONE	FALSE	--	--	FALSE	-	4	6-7-95	good site, Roub-Gas cont 860'
8	28	3	U-GASCONADE	--	--	6-1-02	--	5-1-04	18-0-06	11	24212	GATEWOOD-LIK	TRUE	--	--	FALSE	-	--	2-6-96	see notes
8	29	3	U-GASCONADE	--	--	6-5-01	--	10-3-02	16- -12	--	43213	MOKO	TRUE	1	3	FALSE	-	3	6-7-95	good elt 21
8	30	3	U-GASCONADE	--	--	8-1-01	--	15-1-03	3-3-03	--	31212	SND	FALSE	--	--	FALSE	-	--	2-5-96	ENE plot on 81D, BR=2, Bardley, Moko
8	31	3	U-GASCONADE	--	--	8-1-01	--	6-2-03	34-0-06	14	21212	MANO	FALSE	--	--	FALSE	-	--	2-5-96	good ELT 37
8	32	3	U-GASCONADE	--	--	7-2-01	--	31-1-04	10-0-06	38	01112	SND	TRUE	1	1	FALSE	-	1	2-5-96	fine/loamy-clayey,
8	33	3	U-GASCONADE	--	--	7-1-02	--	11-2-02	30-5-10	--	64434	RELFE	FALSE	--	--	FALSE	-	--	1-25-96	see notes
8	34	3	U-GASCONADE	--	--	6-1-01	--	42-1-03	--	--	31112	SND	FALSE	--	--	FALSE	-	--	1-25-96	see notes
8	35	3	U-GASCONADE	--	--	8-6-02	--	15-2-04	25-1-06	23	24112	ALRED-LIKE	FALSE	--	--	TRUE	-	2	1-29-96	see notes
8	36	3	U-GASCONADE	--	--	3-5-01	--	--	03- -12	--	43213	MOKO	TRUE	1	2	FALSE	-	1	1-29-96	variable depth 81F
8	37	3	ROUBIDOUX	U-GASCONADE	--	5-6-02	2-2-02	36-2-04	05-0-06	--	41112	REUTER	TRUE	--	--	FALSE	1	1	1-29-96	see notes
8	38	3	ROUBIDOUX	--	--	3-6-02	--	32-5-02	35- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	2	1-30-96	good Roub ELT 17
8	39	3	ROUBIDOUX	U-GASCONADE	--	8-2-02	--	7-2-04	31-0-06	15	24212	NIANGUA-LIKE	TRUE	1	1	FALSE	-	1	1-30-96	see notes
8	40	3	ROUBIDOUX	--	--	5-5-02	--	43-2-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	1-25-96	good elt 17
8	41	3	ROUBIDOUX	U-GASCONADE	--	4-6-09	7-5-09	23-1-04	14-0-06	34	21112	ALRED	TRUE	--	--	FALSE	-	2	1-25-96	see notes
8	42	3	U-GASCONADE	--	--	6-2-02	--	31-2-04	11-0-06	37	21112	ALRED	FALSE	--	--	FALSE	-	--	1-25-96	see notes
8	43	3	U-GASCONADE	--	--	6-5-02	--	6-1-04	36-0-06	12	81112	GEPP	FALSE	--	--	FALSE	-	3	1-25-96	see notes
8	44	3	U-GASCONADE	--	--	7-5-03	--	10-5-06	17- -12	7	53213	GASCONADE	TRUE	1	1	FALSE	-	1	1-25-96	see mega notes!
8	45	3	ROUBIDOUX	--	--	5-2-01	--	27-2-03	16-2-06	32	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	1-30-96	good Roub summit ELT 9
8	46	3	ROUBIDOUX	--	--	4-6-01	5-2-01	39-5-01	--	--	41111	CLARKSVILLE	TRUE	--	--	FALSE	-	2	1-29-96	good ELT 17, Roubidoux
8	47	3	U-GASCONADE	--	--	11-1-09	--	37-1-04	--	--	31112	SND	FALSE	--	--	FALSE	-	--	1-29-96	see notes
8	48	3	U-GASCONADE	--	--	4-1-01	--	44-1-03	--	--	31112	POMME	FALSE	--	--	FALSE	-	--	1-29-96	good elt 7
8	49	3	U-GASCONADE	--	--	10-3-02	--	8-5-02	30-5-10	--	64434	RELFE	FALSE	--	--	FALSE	-	--	2-6-96	part on footslope, see notes
8	50	3	U-GASCONADE	--	--	6-2-01	--	19-2-03	23-0-06	25	21212	MANO	FALSE	--	--	TRUE	-	--	2-6-96	see notes
8	51	3	ROUBIDOUX	--	--	5-5-01	--	39-5-01	4-2-06	--	41111	CLARKSVILLE	FALSE	--	--	TRUE	-	1	1-30-96	slump\sink in plot
8	52	3	ROUBIDOUX	--	--	3-6-10	--	32-5-09	35- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	2	1-30-96	good ELT 17 Roub
8	53	3	ROUBIDOUX	U-GASCONADE	--	7-5-09	--	21-2-04	27- -12	--	41211	BENDER	TRUE	--	--	FALSE	2	2	1-30-96	good ELT 18 Roub
8	54	3	ROUBIDOUX	--	--	6-6-09	--	18-5-08	24- -12	--	41211	BENDER	TRUE	--	--	FALSE	1	2	2-15-96	see notes
8	55	3	ROUBIDOUX	U-GASCONADE	--	8-6-02	--	13-2-02	21- -12	--	41211	BENDER	TRUE	--	--	TRUE	-	2	2-14-96	splits Gas-Roub
8	56	3	ROUBIDOUX	U-GASCONADE	--	6-5-01	--	24-2-04	18-0-06	30	21112	ALRED	TRUE	--	--	FALSE	-	2	2-14-96	see notes
8	57	3	U-GASCONADE	--	--	6-6-01	3-2-01	18-2-03	21-1-06	27	21212	MANO	FALSE	--	--	FALSE	-	1	2-14-96	yellow clays class Hapl
8	58	3	ROUBIDOUX	--	--	6-2-01	--	18-2-01	24- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	--	2-14-96	good ELT 9 Roubidoux
8	59	3	U-GASCONADE	--	--	7-6-02	--	4-5-05	48-0-06	11	81112	GEPP	FALSE	--	--	TRUE	-	4	2-15-96	see notes
8	60	3	U-GASCONADE	--	--	5-2-02	--	30-1-04	13-0-06	35	01112	SND	FALSE	--	--	FALSE	-	--	2-7-96	fine-loamy\clayey
8	61	3	U-GASCONADE	--	--	5-1-01	--	24-1-04	--	--	31212	SND	FALSE	--	--	FALSE	-	--	2-7-96	see notes
8	62	3	ROUBIDOUX	U-GASCONADE	--	9-5-02	--	39-5-02	--	--	41111	COULSTONE	TRUE	--	--	FALSE	-	2	2-6-96	ELT 18 and part on 65
8	63	3	ROUBIDOUX	--	--	5-2-01	--	21-2-03	26- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	1-30-96	good ELT 11
8	64	3	U-GASCONADE	--	--	9-5-09	--	15-2-02	13-0-06	24	21212	GATEWOOD-LIK	TRUE	1	1	FALSE	-	1	2-5-96	lower plot on bench-elt 37, same Mano
8	65	3	ROUBIDOUX	U-GASCONADE	--	7-6-02	30-5-02	11-5-02	--	--	41111	COULSTONE	TRUE	--	--	TRUE	-	1	1-25-96	see notes!
8	66	3	U-GASCONADE	--	--	8-1-02	--	20-1-04	20-0-06	--	01112	SND	FALSE	--	--	FALSE	-	--	6-7-95	73C & 89D, samp 73C, 89D:14%,160d,21212
8	67	3	ROUBIDOUX	U-GASCONADE	--	8-2-02	--	38-2-04	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	6-7-95	Roub & Gas cont app 800', Roub colluvium
8	68	3	ROUBIDOUX	--	--	9-6-02	14-5-09	--	23- -12	--	41211	BENDER	TRUE	--	--	FALSE	1	1	2-7-96	see notes
8	69	3	ROUBIDOUX	--	--	5-5-02	4-5-02	18-2-04	21-1-06	29	21111	POYNOR	FALSE	--	--	FALSE	-	--	2-8-96	see notes
8	70	3	ROUBIDOUX	--	--	5-5-01	--	31-5-02	12-1-06	36	21111	POYNOR	FALSE	--	--	FALSE	1	--	2-15-96	good ELT 18 Roub, small sink
9	1	3	U-GASCONADE	--	--	5-1-01	--	25-1-01	18-2-03	--	31112	POMME	FALSE	--	--	FALSE	-	--	4-10-95	some ls, pH 5.0 48", 41C unit
9	2	3	U-GASCONADE	--	--	4-3-01	6-2-01	38-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-10-95	some perching
9	3	3	U-GASCONADE	--	--	5-1-01	--	30-1-01	13-2-01	--	31211	SND	FALSE	--	--	FALSE	-	--	4-10-95	45D unit
9	4	3	U-GASCONADE	--	--	5-6-01	4-2-01	27-2-03	12-1-06	36	21111	POYNOR	FALSE	--	--	FALSE	-	1	4-10-95	--
9	5	3	U-GASCONADE	--	--	4-3-01	4-2-01	40-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-10-95	1st & 2nd order drain split plot
9	6	3	U-GASCONADE	--	--	3-2-01	--	32-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	4-10-95	some cobbles, stopped by chert
9	7	3	U-GASCONADE	--	--	10-3-01	--	15-3-02	23-3-09	--	44434	MIDCO-LIKE	FALSE	--	--	FALSE	-	1	4-10-95	Fp & StrTe, samp Fp

Site	Plot	Block	Treatment	Landtype Association	Ecological Landtype	Original Ecological Landtype	Geolandform	Soil Map Unit	Slope (%)	Min slope (%)	Max slope (%)	Aspect (deg)	Min aspect (deg)	Max aspect (deg)	Aspect Class	Min Elevation (ft)	Max Elevation (ft)	Landform	Slope Position	Landform geometry 1	Landform geometry 2
9	8	3	EVEN-AGE	BREAKS	7	7	UGAPS	45d	10	8	12	195	--	--	EXPOSED	695	700	FOOTSLOPE/STRATH TERRACE	--	LINEAR	LINEAR
9	9	3	EVEN-AGE	BREAKS	18	17	UGABS	80f	37	31	47	75	40	110	NEUTRAL-EAST	820	840	BACKSLOPE	UPPER-MIDDLE	CONVEX	LINEAR
9	10	3	EVEN-AGE	BREAKS	10	17	UGASHR	80d	11	4	18	180	1	360	EXPOSED	830	830	SHOULDER RIDGE	--	CONCAVE	CONVEX
9	11	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	26	--	--	110	75	155	NEUTRAL-EAST	800	820	BACKSLOPE	LOWER	LINEAR	CONCAVE
9	12	3	EVEN-AGE	BREAKS	66	17	LGABS	82f	22	14	30	295	250	340	NEUTRAL-WEST	740	760	BACKSLOPE	LOWER	STAIRSTEPPED	CORRUGATED
9	13	3	EVEN-AGE	BREAKS	5	5	UGAFP	31	4	--	--	0	--	--	PROTECTED	740	740	FLOODPLAIN	--	LINEAR	CONCAVE
9	14	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	33	--	--	290	270	310	NEUTRAL-WEST	790	820	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
9	15	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	31	--	--	105	85	135	NEUTRAL-EAST	800	840	BACKSLOPE	UPPER-MIDDLE	LINEAR	CONVEX
9	16	3	EVEN-AGE	BREAKS	10	11	UGASHR	80d	11	3	18	145	70	220	NEUTRAL-EAST	890	890	SHOULDER RIDGE	--	LINEAR	CONVEX
9	17	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	28	--	--	115	70	165	NEUTRAL-EAST	820	840	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	18	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	33	--	--	265	220	310	NEUTRAL-WEST	810	830	BACKSLOPE	MIDDLE-LOWER	CONVEX	CORRUGATED
9	19	3	EVEN-AGE	BREAKS	10	11	UGASHR	80d	14	9	17	160	24	90	NEUTRAL-EAST	945	945	SHOULDER RIDGE	--	LINEAR	CONVEX
9	20	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	31	--	--	115	90	140	NEUTRAL-EAST	870	900	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
9	21	3	EVEN-AGE	BREAKS	10	11	UGASHR	80d	13	8	18	180	90	270	EXPOSED	880	880	SHOULDER RIDGE	--	LINEAR	CONVEX
9	22	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	32	--	--	235	--	--	EXPOSED	830	850	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
9	23	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	28	24	32	285	--	--	NEUTRAL-WEST	900	940	BACKSLOPE	UPPER-MIDDLE	CONVEX	CORRUGATED
9	24	3	EVEN-AGE	BREAKS	9	11	UGASU	80c	6	4	8	0	--	--	PROTECTED	970	970	SUMMIT	--	CONVEX	LINEAR
9	25	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	40	--	--	190	150	230	EXPOSED	830	860	BACKSLOPE	UPPER-MIDDLE	CONCAVE	CORRUGATED
9	26	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	27	--	--	285	230	340	NEUTRAL-WEST	830	850	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	27	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	37	--	--	255	--	--	NEUTRAL-WEST	900	940	BACKSLOPE	UPPER	CONVEX	LINEAR
9	28	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	29	24	34	65	45	85	PROTECTED	840	860	BACKSLOPE	MIDDLE-LOWER	LINEAR	CORRUGATED
9	29	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	29	--	--	275	--	--	NEUTRAL-WEST	830	850	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	30	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	31	--	--	355	--	--	PROTECTED	910	940	BACKSLOPE	UPPER	CONVEX	CONVEX
9	31	3	EVEN-AGE	BREAKS	9	11	UGASU	80c	6	2	10	0	--	--	PROTECTED	970	970	SUMMIT	--	LINEAR	CONVEX
9	32	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	32	--	--	25	--	--	PROTECTED	860	900	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	33	3	EVEN-AGE	BREAKS	53	17	EMBS	75f	23	--	--	210	180	240	EXPOSED	790	810	BACKSLOPE	LOWER	CONVEX	CORRUGATED
9	34	3	EVEN-AGE	BREAKS	53	17	UGABS	75f	28	24	32	340	--	--	NEUTRAL-WEST	800	840	BACKSLOPE	MIDDLE-LOWER	LINEAR	LINEAR
9	35	3	EVEN-AGE	BREAKS	10	11	UGASHR	80d	14	--	--	290	250	330	NEUTRAL-WEST	880	880	SHOULDER RIDGE	--	LINEAR	CONVEX
9	36	3	EVEN-AGE	BREAKS	10	11	UGASHR	80d	11	9	14	155	90	220	NEUTRAL-EAST	830	830	SHOULDER RIDGE	--	LINEAR	CONVEX
9	37	3	EVEN-AGE	BREAKS	52	18	GEBS	75f	38	--	--	85	--	--	NEUTRAL-EAST	740	780	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	38	3	EVEN-AGE	BREAKS	52	18	GEBS	75f	26	20	32	110	70	150	NEUTRAL-EAST	730	750	BACKSLOPE	UPPER	CONCAVE	CONCAVE
9	39	3	EVEN-AGE	BREAKS	66	17	LGABN	82d	18	--	--	195	--	--	EXPOSED	680	700	BENCH	--	CONVEX	CONVEX
9	40	3	EVEN-AGE	BREAKS	66	17	LGABS	82f/75f	27	24	30	280	245	315	NEUTRAL-WEST	690	710	BACKSLOPE	MIDDLE-LOWER	CONCAVE	CONCAVE
9	41	3	EVEN-AGE	BREAKS	1953	23	EMSHR	74d	18	14	22	260	--	--	NEUTRAL-WEST	670	690	SHOULDER RIDGE	--	STAIRSTEPPED	LINEAR
9	42	3	EVEN-AGE	BREAKS	375	11	LGABN	73c	4	--	--	0	--	--	PROTECTED	760	760	BENCH	--	LINEAR	LINEAR
9	43	3	EVEN-AGE	BREAKS	53	17	GEBS	75f	31	--	--	265	--	--	NEUTRAL-WEST	700	740	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
9	44	3	EVEN-AGE	BREAKS	53	17	EMBS	75f	30	22	38	240	--	--	EXPOSED	660	690	BACKSLOPE	MIDDLE	STAIRSTEPPED	CORRUGATED
9	45	3	EVEN-AGE	BREAKS	53	17	EMBS	75f	33	--	--	200	--	--	EXPOSED	690	710	BACKSLOPE	MIDDLE-LOWER	STAIRSTEPPED	LINEAR
9	46	3	EVEN-AGE	BREAKS	6	5	EMFP	27	1	--	--	0	--	--	PROTECTED	635	635	FLOODPLAIN	--	LINEAR	LINEAR
9	47	3	EVEN-AGE	BREAKS	52	18	EMBS	75f	37	34	40	70	--	--	NEUTRAL-EAST	730	750	BACKSLOPE	MIDDLE	CONVEX	LINEAR
9	48	3	EVEN-AGE	BREAKS	65	11	LGABN	82d	5	--	--	--	--	--	PROTECTED	760	760	BENCH	--	LINEAR	LINEAR
9	49	3	EVEN-AGE	BREAKS	7	18	EMFS	45d	15	15	35	40	--	--	PROTECTED	640	660	FOOTSLOPE/STRATH TERRACE	--	STAIRSTEPPED	LINEAR
9	50	3	EVEN-AGE	BREAKS	66	17	LGABS	82f/75f	28	--	--	170	--	--	EXPOSED	700	730	BACKSLOPE	UPPER	CONVEX	LINEAR
9	51	3	EVEN-AGE	BREAKS	52	18	EMBS	75f	25	--	--	45	--	--	PROTECTED	650	680	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
9	52	3	EVEN-AGE	BREAKS	18	18	UGABS	80f/75f	22	--	--	20	--	--	PROTECTED	780	800	BACKSLOPE	UPPER	LINEAR	CORRUGATED
9	53	3	EVEN-AGE	BREAKS	1953	17	EMBS	74f	25	--	--	235	--	--	EXPOSED	670	690	BACKSLOPE	LOWER	STAIRSTEPPED	LINEAR
9	54	3	EVEN-AGE	BREAKS	53	17	GEBS	75f/80f	31	28	34	195	--	--	EXPOSED	780	820	BACKSLOPE	MIDDLE	CONVEX	CONVEX
9	55	3	EVEN-AGE	BREAKS	52	18	GEBS	82f/75f	43	--	--	90	--	--	NEUTRAL-EAST	770	810	BACKSLOPE	MIDDLE-LOWER	CONVEX	CONVEX
9	56	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	27	--	--	320	--	--	NEUTRAL-WEST	790	820	BACKSLOPE	UPPER-MIDDLE	CONVEX	CONVEX
9	57	3	EVEN-AGE	BREAKS	2427	17	PCBS	95f	20	--	--	185	170	200	EXPOSED	940	960	BACKSLOPE	UPPER	CONVEX	CONVEX
9	58	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	42	--	--	330	40	260	NEUTRAL-WEST	890	930	BACKSLOPE	UPPER	CONVEX	CORRUGATED
9	59	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	39	--	--	285	--	--	NEUTRAL-WEST	880	920	BACKSLOPE	MIDDLE-LOWER	LINEAR	CORRUGATED
9	60	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	35	30	40	10	40	340	PROTECTED	920	950	BACKSLOPE	UPPER	CONVEX	CONCAVE
9	61	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	40	--	--	155	--	--	NEUTRAL-EAST	830	870	BACKSLOPE	MIDDLE	CONVEX	CONVEX
9	62	3	EVEN-AGE	BREAKS	18	18	UGABS	80f	38	--	--	350	--	--	PROTECTED	830	870	BACKSLOPE	MIDDLE	CONVEX	CONVEX
9	63	3	EVEN-AGE	BREAKS	9	11	UGASU	80c	5	--	--	0	--	--	PROTECTED	1005	1005	SUMMIT	--	LINEAR	LINEAR
9	64	3	EVEN-AGE	BREAKS	17	18	UGABS	80f	39	--	--	320	--	--	NEUTRAL-WEST	890	930	BACKSLOPE	MIDDLE-LOWER	CONVEX	LINEAR
9	65	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	34	--	--	180	--	--	EXPOSED	870	900	BACKSLOPE	MIDDLE	CONVEX	CONVEX
9	66	3	EVEN-AGE	BREAKS	17	17	UGABS	80f	23	19	27	140	80	115	NEUTRAL-EAST	850	870	BACKSLOPE	UPPER	CONVEX	CONVEX
9	67	3	EVEN-AGE	BREAKS	53	17	GEBS	75f/80f	30	--	--	230	--	--	EXPOSED	780	810	BACKSLOPE	MIDDLE	CONVEX	LINEAR
9	68	3	EVEN-AGE	BREAKS	9	11	UGASU	80c	8	6	10	0	--	--	PROTECTED	820	830	SUMMIT	--	LINEAR	LINEAR
9	69	3	EVEN-AGE	BREAKS	52	18	GEBS	75f	35	--	--	90	--	--	NEUTRAL-EAST	710	750	BACKSLOPE	UPPER-MIDDLE	STAIRSTEPPED	CORRUGATED
9	70	3	EVEN-AGE	BREAKS	52	18	GEBS	75f	40	--	--	70	--	--	NEUTRAL-EAST	710	740	BACKSLOPE	UPPER-MIDDLE	LINEAR	LINEAR
9	71	3	EVEN-AGE	BREAKS	375	11	LGABN	73d	9	--	--	180	--	--	EXPOSED	750	750	BENCH	--	LINEAR	LINEAR

Site	Plot	Block	Geologic Strata 1	Geologic Strata 2	Geologic Strata 3	Surface	Subsurface	Subsoil	Subsoil2	Depth to clay	Classification	Soil series	Variable depth to bedrock	Rock outcrop	Outcrop %	Stump or slide	Windthrow	Surface stoniness	Date Measured	Notes
9	8	3	U-GASCONADE	--	--	8-1-01	--	29-1-03	11-2-03	--	31111	SND	FALSE	--	--	FALSE	-	--	4-12-95	45D unit
9	9	3	U-GASCONADE	--	--	5-5-01	11-2-01	21-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	4-10-95	Bs & Shr, samp Bs, Shr: 15% same soils
9	10	3	U-GASCONADE	--	--	3-6-01	25-2-01	9-2-01	34- -12	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	2	1	4-11-95	narrow saddle, stopped by chert
9	11	3	U-GASCONADE	--	--	7-2-01	--	28-2-01	13-2-05	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-11-95	--
9	12	3	L-GASCONADE	--	--	7-2-01	--	16-2-01	25-1-06	23	21112	ALRED	FALSE	--	--	FALSE	1	--	4-11-95	Bs & Be samp Bs, Be: 82D unit
9	13	3	U-GASCONADE	--	--	7-3-02	--	41-2-01	--	--	44212	WABEN-LIKE	FALSE	--	--	FALSE	-	--	4-7-95	--
9	14	3	U-GASCONADE	--	--	2-3-01	--	33-2-02	13-2-02	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-7-95	edge of hs, plot center fine-loamy
9	15	3	U-GASCONADE	--	--	6-2-01	--	27-3-01	15-1-06	33	21111	POYNOR	FALSE	--	--	FALSE	-	--	4-7-95	--
9	16	3	U-GASCONADE	--	--	3-3-01	3-3-01	18-2-01	24-1-06	24	21111	POYNOR	FALSE	--	--	FALSE	-	--	4-7-95	pH 5.0 at 47", close to Clarksville
9	17	3	U-GASCONADE	--	--	6-5-01	4-2-01	38-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-7-95	--
9	18	3	U-GASCONADE	--	--	3-6-01	26-3-01	19-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	4-7-95	good site
9	19	3	U-GASCONADE	--	--	6-6-01	6-2-01	12-5-01	24- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	3	4-7-95	--
9	20	3	U-GASCONADE	--	--	7-5-01	--	41-2-03	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	2	4-7-95	--
9	21	3	U-GASCONADE	--	--	6-6-01	16-3-01	15-2-03	11-2-06	37	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	4-7-95	--
9	22	3	U-GASCONADE	--	--	1-3-01	12-2-01	32-2-01	3-1-06	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	4-7-95	pH 5.0 AT 48"
9	23	3	U-GASCONADE	--	--	4-6-01	6-2-01	18-2-01	20-6-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	4-12-95	small headslope
9	24	3	U-GASCONADE	--	--	6-5-01	--	42-6-02	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	4-12-95	--
9	25	3	U-GASCONADE	--	--	7-6-01	23-3-02	18-2-02	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	4-19-95	concave-concave Hs samp, Bs same soils
9	26	3	U-GASCONADE	--	--	1-6-01	--	23-2-01	13-6-01	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-12-95	stopped at 37" by chert,
9	27	3	U-GASCONADE	--	--	2-6-01	6-2-01	29-6-01	37- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	3	4-12-95	Bs & Shr, samp Bs,
9	28	3	U-GASCONADE	--	--	7-2-01	--	21-2-01	28- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	4-12-95	1st order drain in plot, concave
9	29	3	U-GASCONADE	--	--	5-6-01	20-2-01	23-6-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	4-10-95	--
9	30	3	U-GASCONADE	--	--	3-6-01	3-2-01	42-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	1	4-10-95	--
9	31	3	U-GASCONADE	--	--	5-5-01	--	28-2-03	15-2-06	33	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-12-95	pH 5.5 at 46"
9	32	3	U-GASCONADE	--	--	1-6-01	8-2-01	38-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	4-13-95	--
9	33	3	EMINENCE	--	--	4-5-02	4-2-02	15-2-03	25-1-06	23	21112	ALRED	FALSE	--	--	FALSE	-	2	4-11-95	--
9	34	3	U-GASCONADE	GUNTER	EMINENCE	4-1-01	--	27-2-04	31- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	1	4-11-95	samp on Gunter
9	35	3	U-GASCONADE	--	--	7-3-01	--	35-2-01	6-2-03	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-11-95	--
9	36	3	U-GASCONADE	--	--	6-6-01	3-2-01	17-5-01	26- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	1	4-13-95	--
9	37	3	GUNTER	EMINENCE	--	6-5-01	4-2-01	38-2-01	--	--	41112	REUTER	FALSE	--	--	FALSE	-	3	4-13-95	Gunter at 780", colluvium from Gunter
9	38	3	L-GASCONADE	GUNTER	--	7-1-01	--	20-2-02	27- -12	--	41211	BENDER	TRUE	2	1	FALSE	-	--	4-12-95	Gunter740"samp Gunter, +drain, Gas:21112
9	39	3	L-GASCONADE	--	--	6-5-01	--	27-2-03	15-1-06	33	21112	ALRED	FALSE	--	--	FALSE	-	--	4-12-95	Gunter 660",
9	40	3	L-GASCONADE	GUNTER	--	9-6-01	--	13-2-01	26-0-06	26	21112	ALRED	TRUE	2	1	TRUE	-	1	4-12-95	Gunter 720", part on Fp,
9	41	3	EMINENCE	--	--	6-5-04	--	29-0-06	35- -12	6	84212	ARKANA	TRUE	1	1	FALSE	-	1	4-13-95	74D&Punits, wetter soils, seep, samp 74D
9	42	3	L-GASCONADE	--	--	5-2-01	--	23-2-01	--	--	41111	CLARKSVILLE	TRUE	--	--	FALSE	1	--	4-13-95	Gunter at 740", 73D unit
9	43	3	L-GASCONADE	GUNTER	EMINENCE	9-6-09	--	24-1-04	32- -12	--	31211	LILY	TRUE	2	1	FALSE	-	2	4-13-95	Gunter 740", samp on Gunter, var soils
9	44	3	EMINENCE	--	--	7-6-02	--	24-1-04	17-0-06	31	21112	ALRED	FALSE	--	--	TRUE	-	3	4-27-95	samp concave-concave
9	45	3	EMINENCE	--	--	5-6-02	3-2-02	40-2-04	--	--	41112	REUTER	FALSE	--	--	FALSE	-	3	4-13-95	SW edge step 16%
9	46	3	EMINENCE	--	--	10-1-02	--	16-2-09	22-3-11	--	44434	MIDCO-LIKE	FALSE	--	--	FALSE	-	--	4-13-95	frequently flooded
9	47	3	EMINENCE	--	--	9-5-01	--	37-2-01	02-0-06	--	41112	REUTER	FALSE	--	--	FALSE	-	3	4-13-95	E edge on step 20%
9	48	3	L-GASCONADE	--	--	5-2-01	--	30-2-03	13-0-06	35	21112	ALRED	FALSE	--	--	FALSE	2	--	4-21-95	bench above Gunter at 740", 82D unit
9	49	3	EMINENCE	--	--	6-1-02	--	29-1-04	13-0-06	35	01212	SND	TRUE	1	1	FALSE	-	2	4-24-95	Bs & Fs, samp Fs, Br NW plot, Bs:21112
9	50	3	L-GASCONADE	GUNTER	--	4-6-01	--	17-2-01	27-0-06	21	21112	ALRED	TRUE	2	1	FALSE	-	1	4-21-95	Gunter lower end of plot at 700"
9	51	3	EMINENCE	--	--	7-2-01	--	41-2-04	--	--	41112	REUTER	FALSE	--	--	FALSE	-	--	4-27-95	Gunter at 740", sandy colluvium
9	52	3	U-GASCONADE	GUNTER	--	7-2-01	--	41-2-01	--	--	41111	CLARKSVILLE	TRUE	2	1	FALSE	2	1	4-21-95	Gunter 780", samp Gas
9	53	3	EMINENCE	--	--	7-5-02	--	5-2-04	36-0-06	12	81212	NIANGUA	TRUE	1	1	FALSE	-	1	4-24-95	74F & 75F units
9	54	3	U-GASCONADE	GUNTER	EMINENCE	4-6-01	24-3-01	--	28- -12	--	41211	BENDAVIS	TRUE	2	1	FALSE	2	2	4-21-95	samp on Gunter at 800"
9	55	3	L-GASCONADE	GUNTER	EMINENCE	8-3-01	--	21-2-02	19-0-06	29	21112	ALRED	FALSE	--	--	FALSE	-	1	4-21-95	samp Eminence, Gunter at 800", sandy col
9	56	3	U-GASCONADE	--	--	4-2-01	--	30-3-01	34- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	2	--	4-21-95	stopped by chert
9	57	3	PC	--	--	5-6-01	--	26-5-02	31- -12	--	41211	IRONDALE	TRUE	4	2	FALSE	-	3	4-21-95	rhyolite knob
9	58	3	U-GASCONADE	--	--	10-6-01	--	23-2-01	15-1-06	33	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	3	4-20-95	sampled concave Hs
9	59	3	U-GASCONADE	--	--	6-6-01	11-3-01	31-2-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	1	4-19-95	planer-concave Hs
9	60	3	U-GASCONADE	--	--	8-5-01	--	27-2-02	13-5-02	--	41111	COULSTONE	FALSE	--	--	FALSE	-	2	4-20-95	--
9	61	3	U-GASCONADE	--	--	3-6-01	6-2-01	39-5-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	1	--	4-20-95	--
9	62	3	U-GASCONADE	--	--	2-3-01	7-2-01	39-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-20-95	eroded
9	63	3	U-GASCONADE	--	--	6-2-01	--	20-2-03	26- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	4-19-95	stopped by chert
9	64	3	U-GASCONADE	--	--	6-6-01	2-2-01	40-2-04	--	--	41111	COULSTONE	FALSE	--	--	FALSE	-	1	4-19-95	--
9	65	3	U-GASCONADE	--	--	3-5-01	16-2-01	29-3-01	--	--	41111	CLARKSVILLE	FALSE	--	--	FALSE	-	--	4-24-95	--
9	66	3	U-GASCONADE	--	--	8-2-01	--	20-3-01	28- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	1	--	4-20-95	stopped by chert
9	67	3	U-GASCONADE	GUNTER	--	5-6-02	--	22-2-09	27- -12	--	41211	BENDER	TRUE	--	--	FALSE	-	4	4-24-95	samp Gunter, Gas:41111, faulting,
9	68	3	U-GASCONADE	--	--	5-1-01	--	27-3-01	32- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	-	--	4-20-95	stopped by chert
9	69	3	GUNTER	EMINENCE	--	6-5-09	--	12-4-09	30-0-06	30	21112	ALRED	TRUE	2	1	FALSE	-	3	4-20-95	5% dolo Br, sandy conclay, 75F&74Funits
9	70	3	GUNTER	EMINENCE	--	5-4-02	--	43-5-02	--	--	41112	REUTER	TRUE	2	1	FALSE	--	4	4-20-95	2% dolo Br, sandy col, 75F & 74Funits
9	71	3	L-GASCONADE	--	--	6-2-01	--	17-2-01	23- -12	--	41211	BENDAVIS	TRUE	--	--	FALSE	2	--	4-20-95	bench above Gunter, at 740", 73D unit

APPENDIX C

Woody Vegetation Characteristics by Site and Plot

Lynn M. Roovers

See Appendix A for sampling methods and Shifley *et al.* (this volume) for additional information on analytical methods.

Aspect: 55 | Slope: 43 | ELT: 18 | Date Measured: 06/28/91 | Date Remeasured: 09/05/95 | White oak site index: 72 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 75 | Site: 1 | Plot: 1

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	455	78	69	--	--	--	--	--	--	-22.3	0.5
≥ 4.5"	100	65	51	835	5228	4	4.0	6.1	9.2	-1.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	4	0

Aspect: 255 | Slope: 44 | ELT: 17 | Date Measured: 06/28/91 | Date Remeasured: 10/04/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 2

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	486	77	72	--	--	--	--	--	--	-23.8	1.3
≥ 4.5"	176	64	54	917	3483	8	4.5	7.9	12.3	0.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	6	0

Aspect: 290 | Slope: 7 | ELT: 11 | Date Measured: 07/04/91 | Date Remeasured: 09/07/95 | White oak site index: 78 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 73 | Site: 1 | Plot: 3

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	445	113	96	--	--	--	--	--	--	-26.5	1.3
≥ 4.5"	210	104	82	1450	6950	2	1.0	0.5	0.5	-1.5	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	2	0

Aspect: 180 | Slope: 41 | ELT: 17 | Date Measured: 06/30/91 | Date Remeasured: 07/06/94 | White oak site index: 73 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 80 | Site: 1 | Plot: 4

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	475	83	78	--	--	--	--	--	--	-2.0	3.4
≥ 4.5"	230	71	62	978	3178	10	4.3	3.9	5.4	1.3	3.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
400	2420	2.1	0	0

Aspect: 315 | Slope: 34 | ELT: 18 | Date Measured: 07/01/91 | Date Remeasured: 10/04/95 | Shortleaf pine site index: 78 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 79 | Site: 1 | Plot: 5

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	452	104	86	--	--	--	--	--	--	-17.0	2.1
≥ 4.5"	202	94	72	1614	7410	6	3.0	0.8	0.8	0.5	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	2	0

Aspect: 125 | Date Measured: 06/30/91 | Site Treatment: No cutting | Site: 1
Slope: 38 | Date Remeasured: 09/05/95 | 1996 Plot Treatment: Leave | Plot: 6
ELT: 17 | White oak site index: 77 | Black oak site index: 88

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	620	89	91	--	--	--	--	--	--	-39.3	1.3
≥ 4.5"	230	73	69	890	3088	10	4.3	1.7	2.4	-0.5	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	0	0

Aspect: 45 | Date Measured: 07/04/91 | Site Treatment: No cutting | Site: 1
Slope: 1 | Date Remeasured: 09/05/95 | 1996 Plot Treatment: Leave | Plot: 7
ELT: 11 | Shortleaf pine site index: 84 | White oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	567	90	86	--	--	--	--	--	--	-13.0	1.3
≥ 4.5"	192	74	63	1032	4477	2	1.0	1.5	2.1	-0.5	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.1	2	0

Aspect: 355 | Date Measured: 07/01/91 | Site Treatment: No cutting | Site: 1
Slope: 18 | Date Remeasured: 10/04/95 | 1996 Plot Treatment: Leave | Plot: 8
ELT: 18 | White oak site index: 66 | Black oak site index: 82

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	505	105	98	--	--	--	--	--	--	-14.0	1.4
≥ 4.5"	180	93	81	1390	7066	20	11.1	5.9	6.3	-1.5	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	2	0

Aspect: 25 | Date Measured: 07/02/91 | Site Treatment: No cutting | Site: 1
Slope: 22 | Date Remeasured: 11/29/95 | 1996 Plot Treatment: Leave | Plot: 9
ELT: 18 | Scarlet oak site index: 77 | Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	506	89	84	--	--	--	--	--	--	-20.0	0.1
≥ 4.5"	146	73	63	1125	5749	2	1.4	1.5	2.0	-2.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	2	2

Aspect: 220 | Date Measured: 07/03/91 | Site Treatment: No cutting | Site: 1
Slope: 28 | Date Remeasured: 07/06/94 | 1996 Plot Treatment: Leave | Plot: 10
ELT: 17 | Shortleaf pine site index: 73 | Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	814	104	99	--	--	--	--	--	--	-77.7	-3.4
≥ 4.5"	134	80	64	1256	6272	2	1.5	0.7	0.9	0.7	-0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
356	1779	2.5	8	0

Aspect: 360 | Slope: 32 | ELT: 18 | Date Measured: 07/03/91 | Date Remeasured: 11/28/95 | White oak site index: 67 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 68 | Site: 1 | Plot: 11

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	597	111	99	--	--	--	--	--	--	-10.3	0.9
≥ 4.5"	152	94	76	1404	7197	2	1.3	7.1	7.6	-1.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	14	0

Aspect: 235 | Slope: 35 | ELT: 17 | Date Measured: 07/14/91 | Date Remeasured: 07/05/95 | White oak site index: 83 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 1 | Plot: 12

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	594	89	88	--	--	--	--	--	--	-29.5	1.2
≥ 4.5"	194	71	63	970	3938	10	5.2	5.5	7.7	-2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	2	2

Aspect: 155 | Slope: 14 | ELT: 17 | Date Measured: 07/05/91 | Date Remeasured: 07/05/95 | Shortleaf pine site index: 63 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | White oak site index: 68 | Site: 1 | Plot: 13

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	412	106	96	--	--	--	--	--	--	-15.8	1.2
≥ 4.5"	202	97	83	1361	6483	18	8.9	3.6	3.7	-2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
140	1127	1.9	2	0

Aspect: 15 | Slope: 30 | ELT: 18 | Date Measured: 07/14/91 | Date Remeasured: 09/07/95 | White oak site index: 77 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 91 | Site: 1 | Plot: 14

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	589	93	87	--	--	--	--	--	--	-21.3	0.7
≥ 4.5"	164	74	62	1002	4882	6	3.7	1.3	1.7	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.1	16	0

Aspect: 10 | Slope: 15 | ELT: 18 | Date Measured: 07/24/91 | Date Remeasured: 09/06/95 | White oak site index: 79 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 77 | Site: 1 | Plot: 15

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	533	106	98	--	--	--	--	--	--	-11.5	1.6
≥ 4.5"	228	93	80	1404	6084	2	0.9	0.2	0.2	-1.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	2	2

Aspect: 140 | Date Measured: 07/25/91 | Site Treatment: No cutting | Site: 1
Slope: 31 | Date Remeasured: 07/10/95 | 1996 Plot Treatment: Leave | Plot: 16
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	390	86	81	--	--	--	--	--	--	-5.8	1.7
≥ 4.5"	170	76	66	1086	4791	14	8.2	2.4	3.2	0.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	0	0

Aspect: 110 | Date Measured: 07/25/91 | Site Treatment: No cutting | Site: 1
Slope: 10 | Date Remeasured: 11/28/95 | 1996 Plot Treatment: Leave | Plot: 17
ELT: 11 | Shortleaf pine site index: 78 | Black oak site index: 87

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	541	83	83	--	--	--	--	--	--	-0.5	2.0
≥ 4.5"	176	70	63	905	3902	10	5.7	5.8	8.3	-0.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	4	0

Aspect: 355 | Date Measured: 07/26/91 | Site Treatment: No cutting | Site: 1
Slope: 10 | Date Remeasured: 11/28/95 | 1996 Plot Treatment: Leave | Plot: 18
ELT: 18 | White oak site index: 76 | Black oak site index: 82

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	504	104	100	--	--	--	--	--	--	-7.3	1.7
≥ 4.5"	254	92	84	1150	4435	12	4.7	2.3	2.5	-1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	6	2

Aspect: 185 | Date Measured: 07/15/91 | Site Treatment: No cutting | Site: 1
Slope: 35 | Date Remeasured: 09/05/95 | 1996 Plot Treatment: Leave | Plot: 19
ELT: 17 | Shortleaf pine site index: 72 | Black oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	468	92	87	--	--	--	--	--	--	-2.3	2.1
≥ 4.5"	198	81	71	1115	4862	18	9.1	3.5	4.4	-1.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	4	0

Aspect: 120 | Date Measured: 07/15/91 | Site Treatment: No cutting | Site: 1
Slope: 24 | Date Remeasured: 10/02/95 | 1996 Plot Treatment: Leave | Plot: 20
ELT: 18 | Scarlet oak site index: 79 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	489	79	78	--	--	--	--	--	--	-13.0	1.7
≥ 4.5"	164	67	61	883	3927	2	1.2	0.5	0.7	-0.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	2	0

Aspect: 200 | Date Measured: 07/16/91 | Site Treatment: No cutting | Site: 1
Slope: 41 | Date Remeasured: 09/06/95 | 1996 Plot Treatment: Leave | Plot: 21
ELT: 17 | White oak site index: 69 | Black oak site index: 72

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	460	82	79	--	--	--	--	--	--	-18.5	0.3
≥ 4.5"	170	67	59	964	4036	6	3.5	2.0	3.0	1.5	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.3	12	2

Aspect: 65 | Date Measured: 07/17/91 | Site Treatment: No cutting | Site: 1
Slope: 38 | Date Remeasured: 09/06/95 | 1996 Plot Treatment: Leave | Plot: 22
ELT: 18 | Scarlet oak site index: 67 | Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	592	90	90	--	--	--	--	--	--	-19.8	1.3
≥ 4.5"	202	73	68	940	3613	4	2.0	0.7	1.0	1.5	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.7	0	0

Aspect: 305 | Date Measured: 07/26/91 | Site Treatment: No cutting | Site: 1
Slope: 12 | Date Remeasured: 10/03/95 | 1996 Plot Treatment: Leave | Plot: 23
ELT: 11 | Black oak site index: 73 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	403	114	97	--	--	--	--	--	--	-21.0	1.2
≥ 4.5"	128	102	80	1688	9325	6	4.7	1.6	1.5	1.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	8	0

Aspect: 170 | Date Measured: 07/27/91 | Site Treatment: No cutting | Site: 1
Slope: 8 | Date Remeasured: 09/06/95 | 1996 Plot Treatment: Leave | Plot: 24
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	299	89	80	--	--	--	--	--	--	-5.0	1.5
≥ 4.5"	144	82	69	1198	6019	6	4.2	7.2	8.8	0.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	0	2

Aspect: 205 | Date Measured: 07/17/91 | Site Treatment: No cutting | Site: 1
Slope: 40 | Date Remeasured: 07/05/95 | 1996 Plot Treatment: Leave | Plot: 25
ELT: 17 | Scarlet oak site index: 75 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	361	80	74	--	--	--	--	--	--	-4.8	1.0
≥ 4.5"	146	71	61	1085	5303	18	12.3	9.6	13.6	-3.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	0	0

Aspect: 215 | Slope: 33 | ELT: 17 | Date Measured: 07/18/91 | Date Remeasured: 07/14/94 | Shortleaf pine site index: 72 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 69 | Site: 1 | Plot: 26

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	573	120	103	--	--	--	--	--	--	-9.7	2.4
≥ 4.5"	228	105	84	1607	7053	18	7.9	5.7	5.4	2.0	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
154	1130	0.5	8	2

Aspect: 225 | Slope: 33 | ELT: 17 | Date Measured: 07/18/91 | Date Remeasured: 07/01/94 | Shortleaf pine site index: 77 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 64 | Site: 1 | Plot: 27

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	538	85	80	--	--	--	--	--	--	-17.3	0.7
≥ 4.5"	148	71	61	1046	5275	18	12.2	6.3	8.8	-0.7	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
108	778	1.1	0	0

Aspect: 35 | Slope: 23 | ELT: 18 | Date Measured: 07/19/91 | Date Remeasured: 11/29/95 | White oak site index: 56 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 67 | Site: 1 | Plot: 28

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	449	101	93	--	--	--	--	--	--	-4.3	1.6
≥ 4.5"	164	89	76	1343	6922	4	2.4	3.7	4.1	-0.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.5	2	0

Aspect: 340 | Slope: 30 | ELT: 18 | Date Measured: 07/29/91 | Date Remeasured: 10/04/95 | Shortleaf pine site index: 87 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | White oak site index: 69 | Site: 1 | Plot: 29

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	528	102	92	--	--	--	--	--	--	-23.0	1.3
≥ 4.5"	198	89	74	1334	6386	10	5.1	9.2	10.3	-0.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	4	0

Aspect: 105 | Slope: 38 | ELT: 18 | Date Measured: 07/29/91 | Date Remeasured: 09/06/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 30

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	542	89	86	--	--	--	--	--	--	-15.8	0.9
≥ 4.5"	162	76	67	1033	4880	2	1.2	0.7	0.9	-2.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	8	0

Aspect: 170 | Slope: 29 | ELT: 17 | Date Measured: 07/30/91 | Date Remeasured: 07/11/95 | Scarlet oak site index: 70 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 31

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	482	88	84	--	--	--	--	--	--	-8.0	2.0
≥ 4.5"	192	76	67	1103	4503	16	8.3	5.2	6.9	-0.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	18	0

Aspect: 50 | Slope: 32 | ELT: 18 | Date Measured: 07/30/91 | Date Remeasured: 08/30/95 | Black oak site index: 79 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 32

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	578	87	88	--	--	--	--	--	--	-12.3	1.8
≥ 4.5"	188	72	65	941	3952	8	4.3	2.1	2.9	-1.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.2	6	0

Aspect: 225 | Slope: 36 | ELT: 17 | Date Measured: 07/31/91 | Date Remeasured: 09/07/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 33

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	565	84	80	--	--	--	--	--	--	-29.3	1.8
≥ 4.5"	210	71	61	995	3582	6	2.9	1.9	2.7	-0.5	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	8	0

Aspect: 145 | Slope: 12 | ELT: 11 | Date Measured: 08/02/91 | Date Remeasured: 11/28/95 | Scarlet oak site index: 85 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 79 | Site: 1 | Plot: 34

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	435	117	109	--	--	--	--	--	--	-6.5	1.3
≥ 4.5"	230	108	97	1446	6925	32	13.9	8.5	7.9	-4.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.8	8	8

Aspect: 305 | Slope: 36 | ELT: 17 | Date Measured: 07/31/91 | Date Remeasured: 08/30/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 35

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	556	92	89	--	--	--	--	--	--	-15.3	1.7
≥ 4.5"	226	77	69	1068	3700	12	5.3	2.4	3.2	-4.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.1	2	0

Aspect: 110 | Date Measured: 08/01/91 | Site Treatment: No cutting | Site: 1
Slope: 32 | Date Remeasured: 11/28/95 | 1996 Plot Treatment: Leave | Plot: 36
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	524	120	106	--	--	--	--	--	--	-4.3	2.4
≥ 4.5"	154	104	86	1625	8164	18	11.7	6.4	6.2	-0.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	10	2

Aspect: 250 | Date Measured: 08/01/91 | Site Treatment: No cutting | Site: 1
Slope: 39 | Date Remeasured: 09/07/95 | 1996 Plot Treatment: Leave | Plot: 37
ELT: 17 | Scarlet oak site index: 74 | Black oak site index: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	466	89	85	--	--	--	--	--	--	-27.3	1.0
≥ 4.5"	196	74	66	1000	4074	20	10.2	4.0	5.4	-1.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	6	6

Aspect: 65 | Date Measured: 08/07/91 | Site Treatment: No cutting | Site: 1
Slope: 15 | Date Remeasured: 11/30/95 | 1996 Plot Treatment: Leave | Plot: 38
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	561	109	106	--	--	--	--	--	--	-5.0	0.6
≥ 4.5"	206	93	83	1206	5694	14	6.8	4.6	4.9	-5.0	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	8	0

Aspect: 280 | Date Measured: 08/05/91 | Site Treatment: No cutting | Site: 1
Slope: 30 | Date Remeasured: 08/30/95 | 1996 Plot Treatment: Leave | Plot: 39
ELT: 17 | Scarlet oak site index: 74 | Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	519	88	86	--	--	--	--	--	--	-15.0	2.1
≥ 4.5"	244	76	68	1035	3430	10	4.1	1.8	2.4	-2.5	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	4	0

Aspect: 280 | Date Measured: 08/05/91 | Site Treatment: No cutting | Site: 1
Slope: 27 | Date Remeasured: 09/11/95 | 1996 Plot Treatment: Leave | Plot: 40
ELT: 17 | Scarlet oak site index: 82 | Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	575	87	90	--	--	--	--	--	--	-9.0	2.2
≥ 4.5"	250	76	73	922	2504	4	1.6	0.9	1.2	-1.5	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	18	8

Aspect: 295 | Date Measured: 08/06/91 | Site Treatment: No cutting | Site: 1
Slope: 27 | Date Remeasured: 10/03/95 | 1996 Plot Treatment: Leave | Plot: 41
ELT: 17 | White oak site index: 71 | Scarlet oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	403	92	83	--	--	--	--	--	--	-16.5	0.9
≥ 4.5"	148	81	68	1225	6294	16	10.8	4.8	6.0	-1.5	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	6	2

Aspect: 135 | Date Measured: 08/07/91 | Site Treatment: No cutting | Site: 1
Slope: 26 | Date Remeasured: 08/29/95 | 1996 Plot Treatment: Leave | Plot: 42
ELT: 18 | White oak site index: 80 | Scarlet oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	500	102	97	--	--	--	--	--	--	-6.5	2.0
≥ 4.5"	190	87	77	1271	5920	10	5.3	6.7	7.6	1.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	16	2

Aspect: 90 | Date Measured: 08/07/91 | Site Treatment: No cutting | Site: 1
Slope: 35 | Date Remeasured: 06/30/94 | 1996 Plot Treatment: Leave | Plot: 43
ELT: 18 | Black oak site index: 89 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	500	103	94	--	--	--	--	--	--	-3.3	2.3
≥ 4.5"	150	90	75	1450	7519	8	5.3	1.8	2.0	3.3	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
131	744	0.8	2	0

Aspect: 150 | Date Measured: 08/08/91 | Site Treatment: No cutting | Site: 1
Slope: 2 | Date Remeasured: 08/29/95 | 1996 Plot Treatment: Leave | Plot: 44
ELT: 11 | White oak site index: 72 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	551	105	98	--	--	--	--	--	--	-30.5	-0.6
≥ 4.5"	146	88	73	1320	6939	14	9.6	6.3	7.1	2.0	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	14	4

Aspect: 85 | Date Measured: 08/19/91 | Site Treatment: No cutting | Site: 1
Slope: 32 | Date Remeasured: 11/30/95 | 1996 Plot Treatment: Leave | Plot: 45
ELT: 18 | White oak site index: 69 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	621	109	100	--	--	--	--	--	--	-17.8	0.8
≥ 4.5"	136	89	73	1480	7643	4	2.9	0.6	0.6	1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	8	0

Aspect: 175 | Date Measured: 08/20/91 | Site Treatment: No cutting | Site: 1
Slope: 45 | Date Remeasured: 09/11/95 | 1996 Plot Treatment: Leave | Plot: 46
ELT: 17 | Shortleaf pine site index: 71 | Black oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	644	83	84	--	--	--	--	--	--	-47.0	-0.4
≥ 4.5"	164	61	53	899	3593	8	4.9	3.0	4.9	0.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	10	2

Aspect: 10 | Date Measured: 08/20/91 | Site Treatment: No cutting | Site: 1
Slope: 28 | Date Remeasured: 07/06/95 | 1996 Plot Treatment: Leave | Plot: 47
ELT: 18 | Scarlet oak site index: 82 | Black oak site index: 87

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	781	100	101	--	--	--	--	--	--	-33.8	1.1
≥ 4.5"	226	77	69	1019	3980	8	3.5	2.7	3.5	0.0	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
116	700	2.9	16	6

Aspect: 30 | Date Measured: 08/21/91 | Site Treatment: No cutting | Site: 1
Slope: 23 | Date Remeasured: 11/30/95 | 1996 Plot Treatment: Leave | Plot: 48
ELT: 18 | Scarlet oak site index: 80 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	684	106	103	--	--	--	--	--	--	-10.5	2.5
≥ 4.5"	184	87	76	1274	5692	12	6.5	2.9	3.3	-0.5	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	0

Aspect: 190 | Date Measured: 08/21/91 | Site Treatment: No cutting | Site: 1
Slope: 38 | Date Remeasured: 08/29/95 | 1996 Plot Treatment: Leave | Plot: 49
ELT: 17 | Shortleaf pine site index: 76 | Scarlet oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	482	84	84	--	--	--	--	--	--	-17.8	1.5
≥ 4.5"	232	73	69	955	2742	26	11.2	4.6	6.3	-4.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.4	12	0

Aspect: 235 | Date Measured: 09/06/91 | Site Treatment: No cutting | Site: 1
Slope: 35 | Date Remeasured: 10/02/95 | 1996 Plot Treatment: Leave | Plot: 50
ELT: 17 | White oak site index: 71 | Black oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	594	113	102	--	--	--	--	--	--	-27.5	1.9
≥ 4.5"	244	97	79	1509	6445	12	4.9	2.2	2.2	0.0	2.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavtics/ac
--	--	1.8	20	6

Aspect: 330 | Slope: 1 | ELT: 11 | Date Measured: 08/25/91 | Date Remeasured: 07/06/95 | White oak site index: 71 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 69 | Site: 1 | Plot: 51

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	383	87	78	--	--	--	--	--	--	3.8	0.8
≥ 4.5"	98	77	63	1217	7114	16	16.3	15.0	19.3	0.0	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.3	10	16

Aspect: 90 | Slope: 49 | ELT: 18 | Date Measured: 09/10/91 | Date Remeasured: 11/29/95 | White oak site index: 83 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 85 | Site: 1 | Plot: 52

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	484	92	85	--	--	--	--	--	--	5.8	2.5
≥ 4.5"	164	80	68	1198	5273	20	12.2	6.9	8.7	-0.5	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	6	0

Aspect: 105 | Slope: 37 | ELT: 18 | Date Measured: 09/11/91 | Date Remeasured: 11/29/95 | Scarlet oak site index: 78 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 81 | Site: 1 | Plot: 53

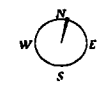
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	555	103	101	--	--	--	--	--	--	-30.0	0.4
≥ 4.5"	210	86	77	1184	4854	6	2.9	1.0	1.1	-2.5	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	14	4

Aspect: 215 | Slope: 50 | ELT: 17 | Date Measured: 09/11/91 | Date Remeasured: 08/29/95 | White oak site index: 63 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 82 | Site: 1 | Plot: 54

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	431	89	84	--	--	--	--	--	--	-5.0	2.1
≥ 4.5"	176	76	66	1043	4794	22	12.5	7.9	10.4	0.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	4	2



Aspect: 16 | Slope: 30 | ELT: 18 | Date Measured: 09/11/91 | Date Remeasured: 06/30/94 | Scarlet oak site index: 74 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 82 | Site: 1 | Plot: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	415	89	77	--	--	--	--	--	--	-1.7	1.3
≥ 4.5"	120	78	61	1236	6641	8	6.7	4.6	6.0	0.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
357	1711	2.7	6	4

Aspect: 60 | Slope: 28 | ELT: 18 | Date Measured: 09/12/91 | Date Remeasured: 07/06/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	511	98	92	--	--	--	--	--	--	-9.8	1.1
≥ 4.5"	186	85	73	1247	5679	18	9.7	3.1	3.7	-1.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.4

Cavities: Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 90 | Slope: 10 | ELT: 11 | Date Measured: 08/30/91 | Date Remeasured: 07/06/95 | White oak site index: 81 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 66 | Site: 1 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	362	82	80	--	--	--	--	--	--	-1.8	2.2
≥ 4.5"	192	74	68	961	3804	8	4.2	3.2	4.4	2.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.5

Cavities: Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 65 | Slope: 36 | ELT: 18 | Date Measured: 09/12/91 | Date Remeasured: 06/29/94 | White oak site index: 58 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 68 | Site: 1 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	519	96	92	--	--	--	--	--	--	-6.7	2.5
≥ 4.5"	164	80	70	1186	5557	6	3.7	10.2	12.7	0.0	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
259	1107	2.5

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 70 | Slope: 20 | ELT: 18 | Date Measured: 09/13/91 | Date Remeasured: 07/05/94 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	460	106	98	--	--	--	--	--	--	-8.0	1.5
≥ 4.5"	190	93	80	1338	6340	12	6.3	2.2	2.3	2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
56	496	1.4

Cavities: Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 75 | Slope: 29 | ELT: 18 | Date Measured: 09/19/91 | Date Remeasured: 09/11/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	419	100	91	--	--	--	--	--	--	-8.0	2.0
≥ 4.5"	194	92	78	1377	6386	24	12.4	5.1	5.6	-0.5	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.3

Cavities: Natural cavities/ac	Excavated cavties/ac
6	2

Aspect: 360 | Slope: 33 | ELT: 18 | Date Measured: 09/19/91 | Date Remeasured: 09/11/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	461	90	83	--	--	--	--	--	--	-8.8	1.6
≥ 4.5"	126	78	65	1294	6579	16	12.7	11.1	14.3	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	10	0

Aspect: 190 | Slope: 53 | ELT: 17 | Date Measured: 09/23/91 | Date Remeasured: 10/02/95 | White oak site index: 60 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 63 | Site: 1 | Plot: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	417	81	74	--	--	--	--	--	--	-7.3	0.7
≥ 4.5"	202	72	61	1013	3708	16	7.9	6.0	8.3	-3.5	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	10	0

Aspect: 355 | Slope: 35 | ELT: 18 | Date Measured: 09/23/91 | Date Remeasured: 10/02/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 1 | Plot: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	537	96	91	--	--	--	--	--	--	-32.0	-1.1
≥ 4.5"	182	81	70	1276	5807	4	2.2	1.0	1.2	-2.0	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	14	0

Aspect: 145 | Slope: 53 | ELT: 17 | Date Measured: 09/23/91 | Date Remeasured: 10/03/95 | Shortleaf pine site index: 67 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 1 | Plot: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	485	91	86	--	--	--	--	--	--	-29.0	-1.0
≥ 4.5"	210	77	67	1136	4753	6	2.9	2.6	3.4	-1.5	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	16	12

Aspect: 155 | Slope: 56 | ELT: 17 | Date Measured: 09/24/91 | Date Remeasured: 09/11/95 | Shortleaf pine site index: 73 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 78 | Site: 1 | Plot: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	518	89	87	--	--	--	--	--	--	-25.5	0.9
≥ 4.5"	228	74	65	959	3434	14	6.1	10.2	13.8	-0.5	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.9	20	0

Aspect: 55 | Date Measured: 09/23/91 | Site Treatment: No cutting | Site: 1
Slope: 6 | Date Remeasured: 08/30/95 | 1996 Plot Treatment: Leave | Plot: 66
ELT: 11 | White oak site index: 70 | Black oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	517	117	106	--	--	--	--	--	--	-4.0	1.7
≥ 4.5"	212	105	89	1488	7327	16	7.5	4.4	4.2	-1.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	10	0

Aspect: 210 | Date Measured: 09/24/91 | Site Treatment: No cutting | Site: 1
Slope: 19 | Date Remeasured: 08/30/95 | 1996 Plot Treatment: Leave | Plot: 67
ELT: 17 | Scarlet oak site index: 77 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	527	90	84	--	--	--	--	--	--	-6.8	2.2
≥ 4.5"	232	81	70	1132	4071	20	8.6	3.8	4.7	-0.5	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.8	4	0

Aspect: 25 | Date Measured: 09/25/91 | Site Treatment: No cutting | Site: 1
Slope: 24 | Date Remeasured: 07/06/95 | 1996 Plot Treatment: Leave | Plot: 68
ELT: 18 | Shortleaf pine site index: 82 | Scarlet oak site index: 85

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	504	82	78	--	--	--	--	--	--	-14.8	0.8
≥ 4.5"	124	65	55	1069	5074	0	0.0	0.0	0.0	1.5	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
52	391	0.9	2	0

Aspect: 15 | Date Measured: 09/25/91 | Site Treatment: No cutting | Site: 1
Slope: 9 | Date Remeasured: 11/29/95 | 1996 Plot Treatment: Leave | Plot: 69
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	543	105	103	--	--	--	--	--	--	-5.5	0.8
≥ 4.5"	218	89	81	1261	5233	24	11.0	5.1	5.7	-3.0	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	2	4

Aspect: 40 | Date Measured: 09/25/91 | Site Treatment: No cutting | Site: 1
Slope: 30 | Date Remeasured: 10/03/95 | 1996 Plot Treatment: Leave | Plot: 70
ELT: 18 | Scarlet oak site index: 79 | Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	612	99	95	--	--	--	--	--	--	-20.3	1.4
≥ 4.5"	202	81	71	1181	5278	4	2.0	0.8	1.0	-1.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	24	0

Aspect: 5 | Date Measured: 09/25/91 | Site Treatment: No cutting | Site: 1
Slope: 17 | Date Remeasured: 10/03/95 | 1996 Plot Treatment: Leave | Plot: 71
ELT: 11 | White oak site index: 77 | Scarlet oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	602	99	96	--	--	--	--	--	--	-32.0	-0.7
≥ 4.5"	162	76	64	985	4883	2	1.2	0.4	0.5	-2.0	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	2	0

Aspect: 25 | Date Measured: 09/25/91 | Site Treatment: No cutting | Site: 1
Slope: 28 | Date Remeasured: 11/29/95 | 1996 Plot Treatment: Leave | Plot: 72
ELT: 18 | Scarlet oak site index: 86 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	482	86	82	--	--	--	--	--	--	-11.5	1.2
≥ 4.5"	162	72	63	1001	4606	20	12.3	3.7	5.1	-1.5	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	6	18

Aspect: 10 | Date Measured: 09/25/91 | Site Treatment: No cutting | Site: 1
Slope: 12 | Date Remeasured: 08/29/95 | 1996 Plot Treatment: Leave | Plot: 73
ELT: 18 | White oak site index: 77 | Scarlet oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	658	112	102	--	--	--	--	--	--	-17.5	0.9
≥ 4.5"	168	92	74	1396	7389	14	8.3	3.9	4.3	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	6	0

Aspect: 105 | Date Measured: 07/06/95 | Site Treatment: No cutting | Site: 1
Slope: 3 | Date Remeasured: -- | 1996 Plot Treatment: Leave | Plot: 74
ELT: 5 | Shortleaf pine site index: 79 | Scarlet oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	570	85	82	--	--	--	--	--	--	--	--
≥ 4.5"	160	69	60	1018	4049	4	2.5	2.4	3.5	--	--

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6		

Aspect: 125 | Date Measured: 07/06/95 | Site Treatment: No cutting | Site: 1
Slope: 3 | Date Remeasured: -- | 1996 Plot Treatment: Leave | Plot: 75
ELT: 5 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	558	82	83	--	--	--	--	--	--	--	--
≥ 4.5"	188	65	60	833	3040	0	0.0	0.0	0.0	--	--

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5		

Aspect: 125 Date Measured: 07/10/95 Site Treatment: No cutting Site: 1
Slope: 1 Date Remeasured: -- 1996 Plot Treatment: Leave Plot: 76
ELT: 5 White oak site index: 70 Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	325	82	72	--	--	--	--	--	--	--	--
≥ 4.5"	130	75	62	1176	5579	14	10.8	7.5	10.0	--	--

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.3		

Aspect: 185 Date Measured: 09/27/91 Site Treatment: Uneven-aged Site: 2
Slope: 39 Date Remeasured: 05/25/95 1996 Plot Treatment: Old growth Plot: 1
ELT: 23 White oak site index: 67 Shortleaf pine site index: 46

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	550	77	72	--	--	--	--	--	--	-13.3	0.5
≥ 4.5"	140	63	52	745	3057	12	8.6	3.2	5.0	0.0	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	12	0

Aspect: 345 Date Measured: 09/27/91 Site Treatment: Uneven-aged Site: 2
Slope: 35 Date Remeasured: 07/25/95 1996 Plot Treatment: Old growth Plot: 2
ELT: 18 White oak site index: 72 Scarlet oak site index: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	576	95	89	--	--	--	--	--	--	-22.3	1.0
≥ 4.5"	166	77	64	1204	5304	6	3.6	5.4	7.0	1.5	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	2	4

Aspect: 190 Date Measured: 09/30/91 Site Treatment: Uneven-aged Site: 2
Slope: 40 Date Remeasured: 07/25/95 1996 Plot Treatment: Old growth Plot: 3
ELT: 17 Shortleaf pine site index: 63 Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	468	78	77	--	--	--	--	--	--	-31.3	0.2
≥ 4.5"	148	64	57	880	4117	20	13.5	8.0	12.5	0.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	28	4

Aspect: 295 Date Measured: 09/26/91 Site Treatment: Uneven-aged Site: 2
Slope: 7 Date Remeasured: 05/09/95 1996 Plot Treatment: Uneven-aged Plot: 4
ELT: 11 Scarlet oak site index: 63 Black oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	629	92	94	--	--	--	--	--	--	-34.3	1.6
≥ 4.5"	184	73	65	995	4163	6	3.3	1.6	2.2	0.7	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	6	0

Aspect: 200 | Date Measured: 09/30/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 7 | Date Remeasured: 11/30/95 | 1996 Plot Treatment: Uneven-aged | Plot: 5
ELT: 11 | White oak site index: 52 | Black oak site index: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	655	95	92	--	--	--	--	--	--	-16.0	-0.5
≥ 4.5"	120	76	62	1083	5760	12	10.0	8.8	11.7	-1.0	-0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.8	18	0

Aspect: 200 | Date Measured: 09/30/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 41 | Date Remeasured: 07/21/94 | 1996 Plot Treatment: Old growth | Plot: 6
ELT: 17 | Scarlet oak site index: 67 | Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	491	85	83	--	--	--	--	--	--	-17.7	0.7
≥ 4.5"	196	73	65	969	4014	6	3.1	0.9	1.2	0.7	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
319	1445	1.3	6	0

Aspect: 290 | Date Measured: 09/30/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 37 | Date Remeasured: 10/02/95 | 1996 Plot Treatment: Old growth | Plot: 7
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	474	80	77	--	--	--	--	--	--	-23.8	0.6
≥ 4.5"	174	67	58	1009	4199	10	5.7	5.9	8.7	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	4	4

Aspect: 155 | Date Measured: 09/30/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 30 | Date Remeasured: 07/25/95 | 1996 Plot Treatment: Uneven-aged | Plot: 8
ELT: 17 | Scarlet oak site index: 67 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	779	78	82	--	--	--	--	--	--	-54.5	1.5
≥ 4.5"	224	57	51	727	1749	2	0.9	0.4	0.7	3.0	3.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	4	0

Aspect: 45 | Date Measured: 10/01/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 29 | Date Remeasured: 07/19/94 | 1996 Plot Treatment: Uneven-aged | Plot: 9
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	693	82	84	--	--	--	--	--	--	-50.3	0.9
≥ 4.5"	178	64	58	889	3607	4	2.2	0.5	0.8	4.7	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
143	736	1.0	2	0

Aspect: 235 | Date Measured: 10/01/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 42 | Date Remeasured: 09/28/95 | 1996 Plot Treatment: Old growth | Plot: 10
ELT: 17 | Shortleaf pine site index: 67 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	431	99	90	--	--	--	--	--	--	-16.0	1.4
≥ 4.5"	196	88	75	1166	5658	20	10.2	10.9	12.5	1.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	10	6

Aspect: 140 | Date Measured: 10/01/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 31 | Date Remeasured: 07/26/95 | 1996 Plot Treatment: Uneven-aged | Plot: 11
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	494	82	79	--	--	--	--	--	--	-23.8	0.2
≥ 4.5"	154	69	60	952	4396	0	0.0	0.0	0.0	0.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	6	0

Aspect: 340 | Date Measured: 10/02/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 34 | Date Remeasured: 11/30/95 | 1996 Plot Treatment: Old growth | Plot: 12
ELT: 17 | Scarlet oak site index: 73 | Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	506	95	89	--	--	--	--	--	--	-9.8	1.7
≥ 4.5"	166	78	67	1124	5057	6	3.6	0.8	1.0	1.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	8	0

Aspect: 70 | Date Measured: 10/02/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 54 | Date Remeasured: 10/02/95 | 1996 Plot Treatment: Old growth | Plot: 13
ELT: 18 | Scarlet oak site index: 68 | Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	313	86	74	--	--	--	--	--	--	-2.3	0.9
≥ 4.5"	138	78	65	1180	5811	8	5.8	3.4	4.3	-1.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	10	0

Aspect: 310 | Date Measured: 10/04/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 25 | Date Remeasured: 11/30/95 | 1996 Plot Treatment: Old growth | Plot: 14
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	469	112	95	--	--	--	--	--	--	15.5	2.6
≥ 4.5"	144	101	79	1496	8091	16	11.1	8.6	8.5	0.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	2	0

Aspect: 220 | Slope: 48 | ELT: 17 | Date Measured: 10/04/91 | Date Remeasured: 07/24/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 15

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	435	97	86	--	--	--	--	--	--	-13.0	0.7
≥ 4.5"	140	85	69	1308	6758	12	8.6	7.1	8.3	-0.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	4	0

Aspect: 75 | Slope: 30 | ELT: 18 | Date Measured: 10/07/91 | Date Remeasured: 07/26/95 | Black oak site index: 75 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 16

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	554	97	88	--	--	--	--	--	--	-17.5	1.1
≥ 4.5"	134	79	63	1147	6088	2	1.5	0.4	0.5	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	14	0

Aspect: 140 | Slope: 42 | ELT: 17 | Date Measured: 10/07/91 | Date Remeasured: 09/14/95 | Scarlet oak site index: 65 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 66 | Site: 2 | Plot: 17

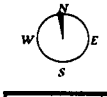
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	601	92	84	--	--	--	--	--	--	-30.0	-3.5
≥ 4.5"	116	75	59	1141	5827	6	5.2	3.2	4.2	-2.5	-2.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	12	6

Aspect: 140 | Slope: 11 | ELT: 11 | Date Measured: 10/07/91 | Date Remeasured: 12/02/95 | Black oak site index: 67 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 18

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	577	107	105	--	--	--	--	--	--	-13.5	1.7
≥ 4.5"	222	90	81	1237	4617	16	7.2	4.0	4.4	-1.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	8	0



Aspect: 360 | Slope: 12 | ELT: 11 | Date Measured: 10/08/91 | Date Remeasured: 05/09/95 | Scarlet oak site index: 61 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 61 | Site: 2 | Plot: 19

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	616	113	109	--	--	--	--	--	--	-13.7	1.9
≥ 4.5"	226	95	83	1285	5257	2	0.9	3.8	4.0	1.3	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	10	0

Aspect: 320 | Date Measured: 10/08/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 45 | Date Remeasured: 09/14/95 | 1996 Plot Treatment: Old growth | Plot: 20
ELT: 18 | Scarlet oak site index: 62 | Black oak site index: 84

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	571	84	82	--	--	--	--	--	--	-41.3	-3.1
≥ 4.5"	116	65	54	1085	5190	6	5.2	2.3	3.5	0.0	-1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	12	0

Aspect: 300 | Date Measured: 10/08/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 38 | Date Remeasured: 09/14/95 | 1996 Plot Treatment: Old growth | Plot: 21
ELT: 17 | White oak site index: 57 | Scarlet oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	394	98	83	--	--	--	--	--	--	-3.8	1.7
≥ 4.5"	154	88	69	1509	7923	10	6.5	8.0	9.0	0.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	2	0

Aspect: 335 | Date Measured: 10/08/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 24 | Date Remeasured: 09/14/95 | 1996 Plot Treatment: Old growth | Plot: 22
ELT: 18 | White oak site index: 76 | Scarlet oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	492	101	88	--	--	--	--	--	--	-15.5	1.0
≥ 4.5"	142	89	72	1508	6638	12	8.5	5.1	5.8	-0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	2	0

Aspect: 70 | Date Measured: 10/09/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 45 | Date Remeasured: 07/24/95 | 1996 Plot Treatment: Uneven-aged | Plot: 23
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	423	103	90	--	--	--	--	--	--	-7.5	1.7
≥ 4.5"	128	91	74	1391	7846	8	6.3	5.6	6.2	0.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	14	0

Aspect: 180 | Date Measured: 10/09/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 46 | Date Remeasured: 07/24/95 | 1996 Plot Treatment: Leave | Plot: 24
ELT: 17 | Shortleaf pine site index: 67 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	416	90	76	--	--	--	--	--	--	-16.8	-2.0
≥ 4.5"	86	77	59	1278	7020	6	7.0	2.5	3.2	-0.5	-1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.3	16	0

Aspect: 100 | Date Measured: 10/09/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 33 | Date Remeasured: 07/26/95 | 1996 Plot Treatment: Uneven-aged | Plot: 25
ELT: 18 | Scarlet oak site index: 81 | Black oak site index: 90

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	629	96	96	--	--	--	--	--	--	-34.8	1.5
≥ 4.5"	214	80	74	1058	4251	6	2.8	0.9	1.2	-1.0	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	6	0

Aspect: 160 | Date Measured: 10/10/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 41 | Date Remeasured: 09/28/95 | 1996 Plot Treatment: Leave | Plot: 26
ELT: 17 | Scarlet oak site index: 77 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	632	93	93	--	--	--	--	--	--	-37.5	0.6
≥ 4.5"	212	77	71	1014	4132	8	3.8	1.2	1.5	-2.5	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	2	0

Aspect: 5 | Date Measured: 10/10/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 29 | Date Remeasured: 09/28/95 | 1996 Plot Treatment: Uneven-aged | Plot: 27
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	639	94	91	--	--	--	--	--	--	-35.3	-0.6
≥ 4.5"	164	74	63	1074	5339	10	6.1	7.6	10.3	-1.5	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	8	4

Aspect: 20 | Date Measured: 10/10/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 30 | Date Remeasured: 07/19/94 | 1996 Plot Treatment: Uneven-aged | Plot: 28
ELT: 18 | Scarlet oak site index: 70 | Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	500	102	91	--	--	--	--	--	--	-36.3	0.4
≥ 4.5"	140	86	70	1457	7173	10	7.1	7.9	9.2	2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
351	1712	3.0	6	0

Aspect: 60 | Date Measured: 10/10/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 30 | Date Remeasured: 07/26/95 | 1996 Plot Treatment: Leave | Plot: 29
ELT: 18 | Scarlet oak site index: 80 | Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	602	97	92	--	--	--	--	--	--	-40.8	-0.3
≥ 4.5"	142	80	67	1234	6579	6	4.2	1.5	1.9	0.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	4	0

Aspect: 150 | Date Measured: 10/11/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 10 | Date Remeasured: 12/02/95 | 1996 Plot Treatment: Uneven-aged | Plot: 30
ELT: 11 | Scarlet oak site index: 76 | Black oak site index: 82

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	500	99	93	--	--	--	--	--	--	-7.3	1.7
≥ 4.5"	190	85	73	1228	5736	24	12.6	8.4	9.8	-1.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	4	0

Aspect: 235 | Date Measured: 10/11/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 40 | Date Remeasured: 07/21/94 | 1996 Plot Treatment: Uneven-aged | Plot: 31
ELT: 17 | Scarlet oak site index: 65 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	583	83	80	--	--	--	--	--	--	6.0	3.5
≥ 4.5"	168	69	59	1039	4657	10	6.0	10.8	15.7	2.7	3.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
190	1163	1.7	2	2

Aspect: 195 | Date Measured: 10/11/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 10 | Date Remeasured: 09/27/95 | 1996 Plot Treatment: Uneven-aged | Plot: 32
ELT: 11 | Scarlet oak site index: 77 | Black oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	494	106	99	--	--	--	--	--	--	-14.8	-0.8
≥ 4.5"	164	90	77	1339	6733	10	6.1	5.0	5.5	-1.0	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	8	0

Aspect: 70 | Date Measured: 10/14/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 25 | Date Remeasured: 07/19/94 | 1996 Plot Treatment: Uneven-aged | Plot: 33
ELT: 18 | Scarlet oak site index: 84 | Black oak site index: 84

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	552	94	90	--	--	--	--	--	--	-23.0	1.4
≥ 4.5"	162	78	68	1111	5613	12	7.4	3.3	4.2	2.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
97	895	0.9	4	0

Aspect: 145 | Date Measured: 10/14/91 | Site Treatment: Uneven-aged | Site: 2
Slope: 7 | Date Remeasured: 07/27/95 | 1996 Plot Treatment: Uneven-aged | Plot: 34
ELT: 11 | Scarlet oak site index: 73 | Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	528	103	100	--	--	--	--	--	--	-16.8	2.1
≥ 4.5"	188	90	80	1220	5802	12	6.4	3.8	4.2	-0.5	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	0	2

Aspect: 240 | Slope: 30 | ELT: 17 | Date Measured: 10/14/91 | Date Remeasured: 09/27/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 35

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	682	87	88	--	--	--	--	--	--	-42.0	-0.6
≥ 4.5"	182	69	61	924	3692	12	6.6	3.0	4.3	-2.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	10	2

Aspect: 315 | Slope: 20 | ELT: 18 | Date Measured: 10/15/91 | Date Remeasured: 09/12/95 | Scarlet oak site index: 75 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 36

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	590	93	87	--	--	--	--	--	--	-3.8	1.5
≥ 4.5"	150	75	62	1199	5954	14	9.3	10.5	14.0	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.2	4	0

Aspect: 180 | Slope: 35 | ELT: 23 | Date Measured: 10/15/91 | Date Remeasured: 05/25/95 | Scarlet oak site index: 62 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 37

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	802	93	96	--	--	--	--	--	--	-43.0	1.5
≥ 4.5"	222	73	65	1009	2773	10	4.5	4.4	6.0	2.0	2.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	10	0

Aspect: 220 | Slope: 29 | ELT: 17 | Date Measured: 10/16/91 | Date Remeasured: 12/02/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 38

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	625	85	85	--	--	--	--	--	--	-24.8	1.3
≥ 4.5"	170	65	57	984	3566	20	11.8	8.3	12.8	-1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	12	6

Aspect: 200 | Slope: 9 | ELT: 11 | Date Measured: 10/16/91 | Date Remeasured: 09/12/95 | White oak site index: 71 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 63 | Site: 2 | Plot: 39

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	509	108	99	--	--	--	--	--	--	-11.5	1.9
≥ 4.5"	174	96	81	1352	6644	2	1.1	0.4	0.4	1.0	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	16	4

Aspect: 130 | Slope: 3 | ELT: 5 | Date Measured: 10/17/91 | Date Remeasured: 04/27/95 | White oak site index: 71 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 2 | Plot: 40

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	535	92	88	--	--	--	--	--	--	-23.0	1.6
≥ 4.5"	230	79	71	1023	3703	20	8.7	6.9	8.7	2.0	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.7

Cavities: Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 165 | Slope: 5 | ELT: 5 | Date Measured: 10/17/91 | Date Remeasured: 04/26/95 | Scarlet oak site index: 67 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 41

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	800	85	90	--	--	--	--	--	--	-30.7	1.4
≥ 4.5"	190	61	55	854	2693	4	2.1	7.1	11.5	2.7	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.3

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 250 | Slope: 35 | ELT: 17 | Date Measured: 10/21/91 | Date Remeasured: 05/25/95 | White oak site index: 67 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 42

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	867	55	64	--	--	--	--	--	--	-51.7	0.0
≥ 4.5"	112	31	29	367	766	10	8.9	5.6	18.0	3.3	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
85	698	2.2

Cavities: Natural cavities/ac	Excavated cavties/ac
8	0

Aspect: 25 | Slope: 15 | ELT: 18 | Date Measured: 10/21/91 | Date Remeasured: 09/12/95 | White oak site index: 72 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 63 | Site: 2 | Plot: 43

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	762	99	94	--	--	--	--	--	--	-39.3	-1.2
≥ 4.5"	192	76	63	1138	4823	6	3.1	4.2	5.5	-0.5	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.5

Cavities: Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 80 | Slope: 39 | ELT: 18 | Date Measured: 10/22/91 | Date Remeasured: 07/27/95 | Scarlet oak site index: 75 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 76 | Site: 2 | Plot: 44

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	604	101	98	--	--	--	--	--	--	-22.5	0.2
≥ 4.5"	214	85	76	1189	4782	10	4.7	1.6	1.9	-2.5	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities: Natural cavities/ac	Excavated cavties/ac
14	2

Aspect: 285 Date Measured: 10/22/91 Site Treatment: Uneven-aged Site: 2
Slope: 20 Date Remeasured: 10/02/95 1996 Plot Treatment: Uneven-aged Plot: 45
ELT: 17 Shortleaf pine site index: 67 Black oak site index: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	545	99	98	--	--	--	--	--	--	-23.8	0.5
≥ 4.5"	220	81	73	1094	4234	14	6.4	2.1	2.6	0.0	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	6	0

Aspect: 330 Date Measured: 10/23/91 Site Treatment: Uneven-aged Site: 2
Slope: 25 Date Remeasured: 07/31/95 1996 Plot Treatment: Uneven-aged Plot: 46
ELT: 18 Scarlet oak site index: 72 Black oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	558	108	102	--	--	--	--	--	--	-36.3	0.3
≥ 4.5"	208	94	82	1343	6185	6	2.9	1.1	1.1	-2.5	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	8	0

Aspect: 355 Date Measured: 10/23/91 Site Treatment: Uneven-aged Site: 2
Slope: 36 Date Remeasured: 07/31/95 1996 Plot Treatment: Uneven-aged Plot: 47
ELT: 18 Scarlet oak site index: 76 Black oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	602	100	95	--	--	--	--	--	--	-32.8	-0.6
≥ 4.5"	172	81	70	1172	5674	6	3.5	1.5	1.9	-1.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	4	8

Aspect: 150 Date Measured: 10/23/91 Site Treatment: Uneven-aged Site: 2
Slope: 20 Date Remeasured: 05/09/95 1996 Plot Treatment: Uneven-aged Plot: 48
ELT: 17 Scarlet oak site index: 86 Black oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	558	92	94	--	--	--	--	--	--	-15.3	1.4
≥ 4.5"	218	74	68	937	3384	4	1.8	1.0	1.4	1.3	2.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
84	660	1.3	0	0

Aspect: 5 Date Measured: 10/24/91 Site Treatment: Uneven-aged Site: 2
Slope: 4 Date Remeasured: 07/31/95 1996 Plot Treatment: Uneven-aged Plot: 49
ELT: 11 Scarlet oak site index: 68 Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	585	113	106	--	--	--	--	--	--	-27.5	0.7
≥ 4.5"	200	95	81	1228	5518	6	3.0	1.9	2.0	0.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	16	16

Aspect: 260 | Slope: 17 | ELT: 17 | Date Measured: 10/24/91 | Date Remeasured: 09/26/95 | Scarlet oak site index: 76 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 75 | Site: 2 | Plot: 50

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	546	104	98	--	--	--	--	--	--	-34.5	0.5
≥ 4.5"	186	89	76	1355	6026	8	4.3	5.1	5.7	-2.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	4	0

Aspect: 325 | Slope: 21 | ELT: 18 | Date Measured: 10/24/91 | Date Remeasured: 05/09/95 | Scarlet oak site index: 76 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 76 | Site: 2 | Plot: 51

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	581	96	92	--	--	--	--	--	--	-16.0	1.8
≥ 4.5"	186	81	70	1278	5594	10	5.4	1.7	2.1	0.7	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
17	146	0.2	14	2

Aspect: 345 | Slope: 8 | ELT: 11 | Date Measured: 10/25/91 | Date Remeasured: 12/01/95 | Scarlet oak site index: 76 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 71 | Site: 2 | Plot: 52

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	527	117	112	--	--	--	--	--	--	-13.3	1.6
≥ 4.5"	252	99	88	1370	5580	28	11.1	7.8	7.8	0.5	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	4	0

Aspect: 165 | Slope: 26 | ELT: 17 | Date Measured: 10/25/91 | Date Remeasured: 09/26/95 | Scarlet oak site index: 71 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 66 | Site: 2 | Plot: 53

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	519	101	95	--	--	--	--	--	--	-5.3	1.8
≥ 4.5"	184	89	77	1223	5784	20	10.9	6.1	6.8	-1.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	14	0

Aspect: 145 | Slope: 12 | ELT: 17 | Date Measured: 10/25/91 | Date Remeasured: 08/01/95 | White oak site index: 53 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 57 | Site: 2 | Plot: 54

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	573	102	97	--	--	--	--	--	--	-20.0	1.7
≥ 4.5"	238	88	77	1183	4730	6	2.5	3.7	4.2	0.0	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	2	4

Aspect: 90 | Slope: 24 | ELT: 18 | Date Measured: 11/04/91 | Date Remeasured: 07/31/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	566	110	104	--	--	--	--	--	--	-43.3	-1.0
≥ 4.5"	206	95	84	1303	6050	12	5.8	3.2	3.4	-2.0	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.2	16	2

Aspect: 180 | Slope: 21 | ELT: 17 | Date Measured: 11/04/91 | Date Remeasured: 07/18/94 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	516	104	97	--	--	--	--	--	--	-26.0	0.8
≥ 4.5"	156	88	74	1320	6383	10	6.4	5.7	6.5	4.0	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
144	833	1.5	30	0

Aspect: 110 | Slope: 3 | ELT: 11 | Date Measured: 11/04/91 | Date Remeasured: 09/26/95 | Scarlet oak site index: 79 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 86 | Site: 2 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	437	111	99	--	--	--	--	--	--	-7.5	1.8
≥ 4.5"	182	100	84	1569	7584	22	12.1	5.1	5.1	-2.5	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	2	0

Aspect: 225 | Slope: 31 | ELT: 17 | Date Measured: 11/05/91 | Date Remeasured: 09/26/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	537	124	100	--	--	--	--	--	--	-31.5	1.3
≥ 4.5"	222	110	82	1843	8382	10	4.5	4.2	3.8	-1.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	24	0

Aspect: 70 | Slope: 24 | ELT: 17 | Date Measured: 11/05/91 | Date Remeasured: 08/01/95 | Scarlet oak site index: 75 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 77 | Site: 2 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	438	93	85	--	--	--	--	--	--	-26.8	-0.7
≥ 4.5"	168	80	68	1164	5403	12	7.1	4.7	5.9	-3.0	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	18	0

Aspect: 115 | Slope: 4 | ELT: 11 | Date Measured: 11/05/91 | Date Remeasured: 05/09/95 | Scarlet oak site index: 75 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	408	96	86	--	--	--	--	--	--	6.7	2.0
≥ 4.5"	138	84	70	1402	7116	8	5.8	1.7	2.1	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	4

Aspect: 90 | Slope: 10 | ELT: 11 | Date Measured: 11/06/91 | Date Remeasured: 09/12/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	446	114	103	--	--	--	--	--	--	-3.3	2.1
≥ 4.5"	196	104	88	1462	7384	32	16.3	7.6	7.3	-2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	12	0

Aspect: 275 | Slope: 11 | ELT: 11 | Date Measured: 11/06/91 | Date Remeasured: 12/01/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 62

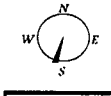
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	481	110	99	--	--	--	--	--	--	-2.5	1.6
≥ 4.5"	166	97	82	1479	7393	22	13.3	7.0	7.2	0.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.7	32	12

Aspect: 345 | Slope: 25 | ELT: 18 | Date Measured: 11/06/91 | Date Remeasured: 07/14/94 | Scarlet oak site index: 83 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 73 | Site: 2 | Plot: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	467	95	88	--	--	--	--	--	--	-1.7	-0.3
≥ 4.5"	162	83	71	1234	6233	16	9.9	5.7	6.9	0.0	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
199	1652	1.6	2	0



Aspect: 194 | Slope: 15 | ELT: 17 | Date Measured: 11/06/91 | Date Remeasured: 07/18/94 | Scarlet oak site index: 65 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 69 | Site: 2 | Plot: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	502	99	93	--	--	--	--	--	--	-13.3	-0.5
≥ 4.5"	172	85	73	1249	6182	6	3.5	1.7	2.0	0.0	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
80	674	1.7	6	0

Aspect: 50 | Slope: 26 | ELT: 18 | Date Measured: 11/07/91 | Date Remeasured: 09/27/95 | Scarlet oak site index: 92 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 97 | Site: 2 | Plot: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	410	119	101	--	--	--	--	--	--	-8.5	1.9
≥ 4.5"	140	108	87	1918	9796	16	11.4	5.5	5.1	-1.0	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	24	2

Aspect: 55 | Slope: 53 | ELT: 17 | Date Measured: 11/07/91 | Date Remeasured: 12/01/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 2 | Plot: 66

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	569	60	61	--	--	--	--	--	--	-11.8	0.8
≥ 4.5"	124	40	34	431	1466	16	12.9	6.5	16.5	4.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	20	0

Aspect: 145 | Slope: 7 | ELT: 11 | Date Measured: 11/09/91 | Date Remeasured: 11/30/95 | Scarlet oak site index: 68 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 72 | Site: 2 | Plot: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	607	99	100	--	--	--	--	--	--	-23.5	1.4
≥ 4.5"	262	84	79	1033	3316	8	3.1	3.1	3.7	-1.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	6	2

Aspect: 95 | Slope: 11 | ELT: 11 | Date Measured: 11/15/91 | Date Remeasured: 07/27/95 | Black oak site index: 75 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	660	99	99	--	--	--	--	--	--	-39.5	-0.1
≥ 4.5"	190	79	71	1086	4840	2	1.1	0.4	0.5	-2.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.9	8	0

Aspect: 210 | Slope: 38 | ELT: 17 | Date Measured: 11/15/91 | Date Remeasured: 10/02/95 | Scarlet oak site index: 69 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	485	95	92	--	--	--	--	--	--	-22.3	1.6
≥ 4.5"	230	84	77	1151	4675	8	3.5	1.1	1.3	-1.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	18	2

Aspect: 270 | Slope: 40 | ELT: 17 | Date Measured: 11/15/91 | Date Remeasured: 11/30/95 | Scarlet oak site index: 70 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 54 | Site: 2 | Plot: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	625	84	89	--	--	--	--	--	--	-23.5	1.7
≥ 4.5"	220	67	65	820	2570	0	0.0	0.0	0.0	1.5	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	10	4

Aspect: 145 | Slope: 15 | ELT: 17 | Date Measured: 11/25/91 | Date Remeasured: 08/01/95 | Scarlet oak site index: 78 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 85 | Site: 2 | Plot: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	546	79	78	--	--	--	--	--	--	-39.0	-0.2
≥ 4.5"	166	64	58	867	3689	4	2.4	1.2	1.8	-1.5	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	2	0

Aspect: 90 | Slope: 25 | ELT: 18 | Date Measured: 11/25/91 | Date Remeasured: 08/01/95 | Scarlet oak site index: 86 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 97 | Site: 2 | Plot: 72

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	653	84	85	--	--	--	--	--	--	-62.0	-0.6
≥ 4.5"	148	66	58	924	4399	10	6.8	2.0	3.0	-2.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	4	0

Aspect: 300 | Slope: 26 | ELT: 17 | Date Measured: 11/25/91 | Date Remeasured: 08/01/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 2 | Plot: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	670	109	102	--	--	--	--	--	--	-31.8	0.3
≥ 4.5"	160	91	75	1418	7371	8	5.0	2.0	2.2	-0.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	16	2

Aspect: 305 | Slope: 1 | ELT: 11 | Date Measured: 11/26/91 | Date Remeasured: 09/12/95 | Scarlet oak site index: 83 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 72 | Site: 3 | Plot: 1

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	451	99	90	--	--	--	--	--	--	-1.0	1.4
≥ 4.5"	176	87	73	1350	6320	8	4.5	2.5	2.9	-1.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	16	4

Aspect: 220 Slope: 27 ELT: 17
Date Measured: 11/26/91 Date Remeasured: 06/01/95 Scarlet oak site index: 79
Site Treatment: Even-aged 1996 Plot Treatment: Leave Black oak site index: 92
Site: 3 Plot: 2

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	468	97	91	--	--	--	--	--	--	-30.5	0.5
≥ 4.5"	168	82	70	1228	5538	8	4.8	4.4	5.3	2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	14	0

Aspect: 90 Slope: 36 ELT: 18
Date Measured: 11/26/91 Date Remeasured: 05/30/95 White oak site index: 83
Site Treatment: Even-aged 1996 Plot Treatment: Leave Black oak site index: 90
Site: 3 Plot: 3

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	513	100	98	--	--	--	--	--	--	-39.7	-1.7
≥ 4.5"	238	88	79	1078	4677	12	5.0	3.0	3.5	-8.0	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	18	0

Aspect: 45 Slope: 28 ELT: 18
Date Measured: 11/26/91 Date Remeasured: 06/01/95 White oak site index: 88
Site Treatment: Even-aged 1996 Plot Treatment: Leave Black oak site index: 90
Site: 3 Plot: 4

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	450	108	97	--	--	--	--	--	--	-36.5	-1.6
≥ 4.5"	180	97	80	1396	7279	8	4.4	1.2	1.2	-1.5	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	10	0

Aspect: 165 Slope: 33 ELT: 17
Date Measured: 11/27/91 Date Remeasured: 09/14/95 White oak site index: 80
Site Treatment: Even-aged 1996 Plot Treatment: Leave Black oak site index: 82
Site: 3 Plot: 5

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	496	103	94	--	--	--	--	--	--	-23.5	0.6
≥ 4.5"	136	89	73	1420	7421	2	1.5	2.0	2.3	-1.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	6	2

Aspect: 165 Slope: 32 ELT: 17
Date Measured: 11/27/91 Date Remeasured: 10/11/95 Scarlet oak site index: 81
Site Treatment: Even-aged 1996 Plot Treatment: Leave Black oak site index: 77
Site: 3 Plot: 6

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	514	107	101	--	--	--	--	--	--	-32.8	1.3
≥ 4.5"	184	90	79	1305	6256	16	8.7	2.4	2.6	-1.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	10	0

Aspect: 190 | Date Measured: 11/27/91 | Site Treatment: Even-aged | Site: 3
Slope: 5 | Date Remeasured: 10/17/95 | 1996 Plot Treatment: Leave | Plot: 7
ELT: 11 | Black oak site index: 77 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	478	102	95	--	--	--	--	--	--	-19.0	0.7
≥ 4.5"	188	89	77	1301	5941	10	5.3	1.8	2.0	-1.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	16	0

Aspect: 220 | Date Measured: 11/27/91 | Site Treatment: Even-aged | Site: 3
Slope: 29 | Date Remeasured: 09/12/95 | 1996 Plot Treatment: Leave | Plot: 8
ELT: 17 | Scarlet oak site index: 66 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	593	95	88	--	--	--	--	--	--	-14.3	0.4
≥ 4.5"	158	78	64	1107	5509	10	6.3	2.2	2.9	-0.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	8	4

Aspect: 310 | Date Measured: 11/29/91 | Site Treatment: Even-aged | Site: 3
Slope: 24 | Date Remeasured: 06/05/95 | 1996 Plot Treatment: Intermediate cut | Plot: 9
ELT: 17 | White oak site index: 78 | Black oak site index: 86

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	501	108	98	--	--	--	--	--	--	-18.3	1.3
≥ 4.5"	156	93	76	1464	7518	4	2.6	3.2	3.4	0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
92	814	2.5	4	0

Aspect: 110 | Date Measured: 11/29/91 | Site Treatment: Even-aged | Site: 3
Slope: 26 | Date Remeasured: 06/05/95 | 1996 Plot Treatment: Leave | Plot: 10
ELT: 18 | White oak site index: 87 | Scarlet oak site index: 92

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	523	93	88	--	--	--	--	--	--	-30.8	-0.2
≥ 4.5"	178	75	65	1061	4797	8	4.5	9.2	12.2	-2.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
709	3025	3.0	16	0

Aspect: 165 | Date Measured: 12/03/91 | Site Treatment: Even-aged | Site: 3
Slope: 30 | Date Remeasured: 06/05/95 | 1996 Plot Treatment: Old growth | Plot: 11
ELT: 17 | White oak site index: 83 | Scarlet oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	522	124	105	--	--	--	--	--	--	-22.5	0.9
≥ 4.5"	152	107	81	1852	10115	0	0.0	0.0	0.0	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	26	0

Aspect: 80 | Slope: 28 | ELT: 18 | Date Measured: 12/03/91 | Date Remeasured: 09/12/95 | White oak site index: 94 | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | Scarlet oak site index: 90 | Site: 3 | Plot: 12

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	544	108	100	--	--	--	--	--	--	-25.5	-5.1
≥ 4.5"	184	90	75	1308	6130	2	1.1	4.8	5.3	-5.5	-4.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	24	0

Aspect: 85 | Slope: 16 | ELT: 18 | Date Measured: 12/03/91 | Date Remeasured: 10/11/95 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 93 | Site: 3 | Plot: 13

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	510	96	90	--	--	--	--	--	--	-12.5	0.4
≥ 4.5"	140	79	67	1158	5971	8	5.7	2.3	2.9	0.0	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	0	8

Aspect: 290 | Slope: 36 | ELT: 17 | Date Measured: 12/03/91 | Date Remeasured: 09/14/95 | Shortleaf pine site index: 68 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | Scarlet oak site index: 71 | Site: 3 | Plot: 14

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	447	85	79	--	--	--	--	--	--	-24.8	-2.1
≥ 4.5"	132	73	61	1196	6174	12	9.1	4.1	5.6	-3.5	-1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	10	0

Aspect: 210 | Slope: 30 | ELT: 17 | Date Measured: 12/03/91 | Date Remeasured: 09/14/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Partial clearcut (CC/L) | -- site index: -- | Site: 3 | Plot: 15

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	505	97	93	--	--	--	--	--	--	-18.8	-1.4
≥ 4.5"	170	85	73	1212	5834	8	4.7	6.9	8.2	-2.5	-0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.5	22	0

Aspect: 220 | Slope: 31 | ELT: 17 | Date Measured: 12/04/91 | Date Remeasured: 10/17/95 | White oak site index: 71 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 63 | Site: 3 | Plot: 16

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	588	114	106	--	--	--	--	--	--	-12.8	0.5
≥ 4.5"	218	98	83	1443	5863	10	4.6	2.6	2.7	1.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	6	0

Aspect: 220 | Slope: 33 | ELT: 19 | Date Measured: 12/04/91 | Date Remeasured: 06/06/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 3 | Plot: 17

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	407	25	30	--	--	--	--	--	--	-27.3	-0.4
≥ 4.5"	52	13	13	169	241	6	11.5	6.4	48.2	1.5	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	0	0

Aspect: 255 | Slope: 25 | ELT: 17 | Date Measured: 12/04/91 | Date Remeasured: 09/14/95 | White oak site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 91 | Site: 3 | Plot: 18

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	499	108	97	--	--	--	--	--	--	-18.5	0.5
≥ 4.5"	184	93	77	1390	7018	10	5.4	1.4	1.5	-1.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	22	0

Aspect: 85 | Slope: 22 | ELT: 18 | Date Measured: 12/04/91 | Date Remeasured: 12/01/94 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | -- site index: -- | Site: 3 | Plot: 19

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	474	101	93	--	--	--	--	--	--	-23.7	1.8
≥ 4.5"	164	89	76	1398	6775	6	3.7	2.1	2.3	1.3	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
377	2360	1.8	8	0

Aspect: 70 | Slope: 33 | ELT: 18 | Date Measured: 12/05/91 | Date Remeasured: 10/17/95 | White oak site index: 74 | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | Scarlet oak site index: 81 | Site: 3 | Plot: 20

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	458	97	87	--	--	--	--	--	--	-9.3	-1.0
≥ 4.5"	148	87	73	1229	6463	14	9.5	3.7	4.3	-3.0	-0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	6	0

Aspect: 90 | Slope: 33 | ELT: 20 | Date Measured: 12/05/91 | Date Remeasured: 06/04/95 | White oak site index: 68 | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | Black oak site index: 77 | Site: 3 | Plot: 21

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	598	86	80	--	--	--	--	--	--	-62.8	-5.1
≥ 4.5"	98	68	54	1088	5817	2	2.0	1.3	1.9	-1.5	-3.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	18	4

Aspect: 160 | Date Measured: 12/05/91 | Site Treatment: Even-aged | Site: 3
Slope: 5 | Date Remeasured: 10/12/95 | 1996 Plot Treatment: Leave | Plot: 22
ELT: 11 | White oak site index: 59 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	533	116	104	--	--	--	--	--	--	-13.5	1.9
≥ 4.5"	158	102	83	1637	7100	12	7.6	10.2	10.0	1.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	22	2

Aspect: 80 | Date Measured: 12/05/91 | Site Treatment: Even-aged | Site: 3
Slope: 19 | Date Remeasured: 09/12/95 | 1996 Plot Treatment: Old growth | Plot: 23
ELT: 18 | White oak site index: 67 | Scarlet oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	534	92	90	--	--	--	--	--	--	-20.3	-1.5
≥ 4.5"	194	73	64	937	4007	10	5.2	4.0	5.5	-1.5	-0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	10	0

Aspect: 110 | Date Measured: 12/06/91 | Site Treatment: Even-aged | Site: 3
Slope: 16 | Date Remeasured: 09/12/95 | 1996 Plot Treatment: Leave | Plot: 24
ELT: 18 | White oak site index: 65 | Black oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	469	87	83	--	--	--	--	--	--	-31.3	-0.9
≥ 4.5"	154	74	64	1046	4861	0	0.0	0.0	0.0	-2.5	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	6	2

Aspect: 240 | Date Measured: 12/06/91 | Site Treatment: Even-aged | Site: 3
Slope: 27 | Date Remeasured: 10/12/95 | 1996 Plot Treatment: Leave | Plot: 25
ELT: 17 | White oak site index: 81 | Scarlet oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	550	100	89	--	--	--	--	--	--	-15.0	1.5
≥ 4.5"	160	84	67	1394	6765	8	5.0	2.8	3.4	0.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	0	0

Aspect: 230 | Date Measured: 12/06/91 | Site Treatment: Even-aged | Site: 3
Slope: 25 | Date Remeasured: 06/13/95 | 1996 Plot Treatment: Leave | Plot: 26
ELT: 19 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	489	37	42	--	--	--	--	--	--	-39.5	0.1
≥ 4.5"	74	23	21	294	535	8	10.8	8.7	38.4	0.5	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	12	4

Aspect: 80 | Date Measured: 12/06/91 | Site Treatment: Even-aged | Site: 3
Slope: 25 | Date Remeasured: 10/12/95 | 1996 Plot Treatment: Old growth | Plot: 27
ELT: 18 | White oak site index: 80 | Black oak site index: 82

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	473	91	85	--	--	--	--	--	--	-14.3	-1.9
≥ 4.5"	138	76	65	1288	5652	14	10.1	8.7	11.4	-0.5	-1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.0	2	0

Aspect: 255 | Date Measured: 12/09/91 | Site Treatment: Even-aged | Site: 3
Slope: 27 | Date Remeasured: 09/13/95 | 1996 Plot Treatment: Old growth | Plot: 28
ELT: 17 | Shortleaf pine site index: 64 | White oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	615	77	75	--	--	--	--	--	--	-8.3	0.1
≥ 4.5"	110	59	48	888	4096	10	9.1	9.8	16.7	0.5	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	18	2

Aspect: 150 | Date Measured: 12/09/91 | Site Treatment: Even-aged | Site: 3
Slope: 10 | Date Remeasured: 09/13/95 | 1996 Plot Treatment: Intermediate cut | Plot: 29
ELT: 11 | Scarlet oak site index: 78 | Black oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	503	100	95	--	--	--	--	--	--	-8.0	1.9
≥ 4.5"	228	88	77	1224	5335	8	3.5	1.6	1.8	-0.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	0	0

Aspect: 80 | Date Measured: 12/09/91 | Site Treatment: Even-aged | Site: 3
Slope: 21 | Date Remeasured: 11/22/94 | 1996 Plot Treatment: Intermediate cut | Plot: 30
ELT: 18 | Scarlet oak site index: 95 | Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	533	102	89	--	--	--	--	--	--	50.3	1.8
≥ 4.5"	178	89	71	1371	7099	6	3.4	0.9	1.0	-1.3	-0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
181	1486	1.9	12	0

Aspect: 280 | Date Measured: 12/10/91 | Site Treatment: Even-aged | Site: 3
Slope: 29 | Date Remeasured: 06/01/95 | 1996 Plot Treatment: Old growth | Plot: 31
ELT: 17 | Scarlet oak site index: 80 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	496	116	104	--	--	--	--	--	--	-41.3	-1.0
≥ 4.5"	186	104	86	1646	8097	8	4.3	1.0	1.0	-2.5	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
250	1692	1.2	22	2

Aspect: 290 | Date Measured: 12/10/91 | Site Treatment: Even-aged | Site: 3
Slope: 34 | Date Remeasured: 09/14/95 | 1996 Plot Treatment: Old growth | Plot: 32
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	518	93	85	--	--	--	--	--	--	-30.5	-2.0
≥ 4.5"	158	80	67	1172	5805	4	2.5	0.5	0.6	-3.0	-0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	10	0

Aspect: 205 | Date Measured: 12/10/91 | Site Treatment: Even-aged | Site: 3
Slope: 11 | Date Remeasured: 05/28/95 | 1996 Plot Treatment: Old growth | Plot: 33
ELT: 5 | White oak site index: 75 | Scarlet oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	542	92	86	--	--	--	--	--	--	-39.3	-0.3
≥ 4.5"	172	78	66	1156	4747	6	3.5	0.9	1.2	-2.7	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.1	4	0

Aspect: 325 | Date Measured: 12/10/91 | Site Treatment: Even-aged | Site: 3
Slope: 28 | Date Remeasured: 10/16/95 | 1996 Plot Treatment: Leave | Plot: 34
ELT: 17 | Scarlet oak site index: 83 | Black oak site index: 84

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	468	93	86	--	--	--	--	--	--	-10.5	-1.3
≥ 4.5"	138	80	66	1220	6349	6	4.3	1.6	1.9	-3.0	-1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	16	0

Aspect: 200 | Date Measured: 12/11/91 | Site Treatment: Even-aged | Site: 3
Slope: 1 | Date Remeasured: 06/06/95 | 1996 Plot Treatment: Old growth | Plot: 35
ELT: 5 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	536	93	81	--	--	--	--	--	--	-51.0	-1.2
≥ 4.5"	156	79	62	1146	5124	8	5.1	2.6	3.3	-3.5	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	14	6

Aspect: 125 | Date Measured: 12/11/91 | Site Treatment: Even-aged | Site: 3
Slope: 30 | Date Remeasured: 10/16/95 | 1996 Plot Treatment: Leave | Plot: 36
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	492	100	91	--	--	--	--	--	--	-7.3	0.6
≥ 4.5"	152	85	71	1260	6645	2	1.3	2.3	2.7	-1.0	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	10	0

Aspect: 260 | Slope: 37 | ELT: 17 | Date Measured: 12/11/91 | Date Remeasured: 05/28/95 | Scarlet oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 3 | Plot: 37

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	461	77	74	--	--	--	--	--	--	-33.0	1.1
≥ 4.5"	156	65	56	925	4117	4	2.6	5.3	8.2	2.0	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
204	1098	1.4

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 250 | Slope: 20 | ELT: 17 | Date Measured: 12/12/91 | Date Remeasured: 09/13/95 | White oak site index: 59 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | Scarlet oak site index: 68 | Site: 3 | Plot: 38

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	627	97	86	--	--	--	--	--	--	0.0	1.7
≥ 4.5"	122	80	63	1183	6783	18	14.8	10.2	12.7	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.0

Cavities: Natural cavities/ac	Excavated cavties/ac
14	2

Aspect: 75 | Slope: 20 | ELT: 18 | Date Measured: 12/12/91 | Date Remeasured: 12/01/94 | Scarlet oak site index: 81 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 91 | Site: 3 | Plot: 39

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	595	98	91	--	--	--	--	--	--	-42.0	0.7
≥ 4.5"	160	84	69	1151	6147	0	0.0	0.0	0.0	-2.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
162	1166	1.1

Cavities: Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 125 | Slope: 24 | ELT: 18 | Date Measured: 12/13/91 | Date Remeasured: 10/16/95 | Shortleaf pine site index: 77 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 77 | Site: 3 | Plot: 40

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	620	102	96	--	--	--	--	--	--	-19.0	1.2
≥ 4.5"	170	85	71	1268	5848	22	12.9	11.6	13.7	-1.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	4.0

Cavities: Natural cavities/ac	Excavated cavties/ac
10	2

Aspect: 265 | Slope: 36 | ELT: 17 | Date Measured: 12/13/91 | Date Remeasured: 10/12/95 | Scarlet oak site index: 72 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 70 | Site: 3 | Plot: 41

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	668	107	103	--	--	--	--	--	--	-23.5	-1.4
≥ 4.5"	198	86	75	1164	5214	16	8.1	5.2	6.0	-1.0	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.2

Cavities: Natural cavities/ac	Excavated cavties/ac
12	4

Aspect: 305 | Date Measured: 12/14/91 | Site Treatment: Even-aged | Site: 3
Slope: 24 | Date Remeasured: 10/12/95 | 1996 Plot Treatment: Leave | Plot: 42
ELT: 17 | Scarlet oak site index: 75 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	547	81	80	--	--	--	--	--	--	-12.8	0.8
≥ 4.5"	142	64	55	950	3914	2	1.4	2.1	3.3	-1.5	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	6	0

Aspect: 245 | Date Measured: 12/14/91 | Site Treatment: Even-aged | Site: 3
Slope: 25 | Date Remeasured: 06/06/95 | 1996 Plot Treatment: Intermediate cut | Plot: 43
ELT: 17 | Shortleaf pine site index: 82 | Black oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	449	117	103	--	--	--	--	--	--	-14.5	0.5
≥ 4.5"	254	109	91	1579	6896	26	10.2	4.9	4.5	-4.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	6	0

Aspect: 280 | Date Measured: 01/29/92 | Site Treatment: Even-aged | Site: 3
Slope: 24 | Date Remeasured: 10/11/95 | 1996 Plot Treatment: Intermediate cut | Plot: 44
ELT: 17 | Scarlet oak site index: 80 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	552	121	107	--	--	--	--	--	--	-7.0	1.7
≥ 4.5"	212	108	88	1697	8150	14	6.6	2.3	2.1	-2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	4	0

Aspect: 15 | Date Measured: 01/29/92 | Site Treatment: Even-aged | Site: 3
Slope: 50 | Date Remeasured: 06/06/95 | 1996 Plot Treatment: Leave | Plot: 45
ELT: 20 | White oak site index: 75 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	406	87	82	--	--	--	--	--	--	-15.8	-1.2
≥ 4.5"	176	78	69	1055	4683	4	2.3	1.5	1.9	-2.0	-0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	6	0

Aspect: 90 | Date Measured: 01/30/92 | Site Treatment: Even-aged | Site: 3
Slope: 35 | Date Remeasured: 06/19/95 | 1996 Plot Treatment: Leave | Plot: 46
ELT: 20 | White oak site index: 78 | Scarlet oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	654	100	92	--	--	--	--	--	--	-43.5	-0.2
≥ 4.5"	194	81	66	1198	5194	10	5.2	5.8	7.2	-1.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.8	6	0

Aspect: 80 | Slope: 29 | ELT: 20 | Date Measured: 01/30/92 | Date Remeasured: 06/14/95 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 75 | Site: 3 | Plot: 47

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	490	91	81	--	--	--	--	--	--	-12.8	0.0
≥ 4.5"	140	78	63	1117	5633	10	7.1	5.3	6.8	-1.5	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	20	0

Aspect: 50 | Slope: 29 | ELT: 18 | Date Measured: 01/31/92 | Date Remeasured: 06/15/95 | Scarlet oak site index: 73 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | Black oak site index: 83 | Site: 3 | Plot: 48

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	459	85	81	--	--	--	--	--	--	-29.5	-0.2
≥ 4.5"	154	71	62	983	4625	0	0.0	0.0	0.0	-2.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	12	0

Aspect: 80 | Slope: 26 | ELT: 20 | Date Measured: 01/31/92 | Date Remeasured: 06/15/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 3 | Plot: 49

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	383	101	86	--	--	--	--	--	--	-18.5	-6.2
≥ 4.5"	158	90	70	1206	6447	4	2.5	0.7	0.8	-3.5	-5.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	22	0

Aspect: 100 | Slope: 35 | ELT: 20 | Date Measured: 02/10/92 | Date Remeasured: 06/19/95 | Shortleaf pine site index: 71 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | White oak site index: 69 | Site: 3 | Plot: 50

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	601	76	76	--	--	--	--	--	--	-12.3	0.2
≥ 4.5"	166	60	54	796	2942	4	2.4	4.7	7.9	-1.0	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	8	0

Aspect: 75 | Slope: 5 | ELT: 11 | Date Measured: 02/10/92 | Date Remeasured: 06/05/95 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 74 | Site: 3 | Plot: 51

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	402	101	89	--	--	--	--	--	--	-26.3	0.4
≥ 4.5"	132	92	76	1341	7420	8	6.1	7.4	8.0	0.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	0	0

Aspect: 215 | Slope: 29 | ELT: 17 | Date Measured: 02/11/92 | Date Remeasured: 11/21/94 | Shortleaf pine site index: 71 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 66 | Site: 3 | Plot: 52

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	519	110	98	--	--	--	--	--	--	-6.3	-0.3
≥ 4.5"	164	97	80	1483	7214	10	6.1	6.6	6.8	2.0	-0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
314	1648	1.7	20	4

Aspect: 75 | Slope: 15 | ELT: 18 | Date Measured: 02/11/92 | Date Remeasured: 10/17/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | -- site index: -- | Site: 3 | Plot: 53

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	473	99	90	--	--	--	--	--	--	-8.0	0.5
≥ 4.5"	138	85	70	1234	6664	6	4.3	9.7	11.4	-0.5	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.7	6	0

Aspect: 5 | Slope: 27 | ELT: 18 | Date Measured: 02/11/92 | Date Remeasured: 09/13/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 3 | Plot: 54

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	371	127	102	--	--	--	--	--	--	-5.3	-2.7
≥ 4.5"	156	117	89	1839	10373	10	6.4	7.9	6.8	-1.5	-2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	16	0

Aspect: 160 | Slope: 31 | ELT: 17 | Date Measured: 02/13/92 | Date Remeasured: 10/16/95 | Scarlet oak site index: 77 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 73 | Site: 3 | Plot: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	373	89	81	--	--	--	--	--	--	0.3	1.5
≥ 4.5"	188	80	68	1014	4771	10	5.3	1.4	1.8	1.5	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	14	0

Aspect: 40 | Slope: 20 | ELT: 18 | Date Measured: 02/13/92 | Date Remeasured: 11/01/94 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 86 | Site: 3 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	433	118	102	--	--	--	--	--	--	-32.0	-5.1
≥ 4.5"	148	105	84	1840	9161	4	2.7	2.3	2.1	-5.3	-4.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
886	4028	0.7	12	0

Aspect: 240 | Slope: 33 | ELT: 17 | Date Measured: 02/13/92 | Date Remeasured: 11/28/94 | Scarlet oak site index: 83 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 76 | Site: 3 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	397	95	91	--	--	--	--	--	--	-3.0	2.1
≥ 4.5"	222	88	80	1161	4589	14	6.3	3.5	4.0	-4.7	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
124	1066	3.2	10	0

Aspect: 330 | Slope: 4 | ELT: 11 | Date Measured: 02/18/92 | Date Remeasured: 09/13/95 | Scarlet oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 72 | Site: 3 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	389	108	95	--	--	--	--	--	--	-8.5	-1.2
≥ 4.5"	134	97	78	1618	8400	4	3.0	3.0	3.0	-1.0	-1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	24	0

Aspect: 285 | Slope: 28 | ELT: 17 | Date Measured: 02/18/92 | Date Remeasured: 06/08/95 | Scarlet oak site index: 89 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 82 | Site: 3 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	427	107	97	--	--	--	--	--	--	-20.0	1.4
≥ 4.5"	202	98	83	1545	6999	12	5.9	1.9	1.9	0.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	16	0

Aspect: 275 | Slope: 32 | ELT: 17 | Date Measured: 02/19/92 | Date Remeasured: 10/10/95 | Scarlet oak site index: 68 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 81 | Site: 3 | Plot: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	522	94	94	--	--	--	--	--	--	-18.8	-0.1
≥ 4.5"	262	84	79	1100	3461	24	9.2	8.5	10.1	-7.5	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	4	4

Aspect: 25 | Slope: 39 | ELT: 18 | Date Measured: 02/19/92 | Date Remeasured: 10/10/95 | Scarlet oak site index: 86 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 71 | Site: 3 | Plot: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	455	107	95	--	--	--	--	--	--	-15.8	0.3
≥ 4.5"	180	95	79	1402	6991	6	3.3	1.0	1.0	-2.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	8	0

Aspect: 255 | Date Measured: 02/19/92 | Site Treatment: Even-aged | Site: 3
Slope: 30 | Date Remeasured: 10/10/95 | 1996 Plot Treatment: Leave | Plot: 62
ELT: 17 | Scarlet oak site index: 73 | Black oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	344	106	90	--	--	--	--	--	--	-6.5	1.5
≥ 4.5"	204	101	82	1459	7181	22	10.8	7.4	7.3	-4.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.0	20	0

Aspect: 325 | Date Measured: 02/20/91 | Site Treatment: Even-aged | Site: 3
Slope: 30 | Date Remeasured: 12/12/94 | 1996 Plot Treatment: Intermediate cut | Plot: 63
ELT: 17 | White oak site index: 76 | Black oak site index: 87

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	528	111	100	--	--	--	--	--	--	-23.8	0.8
≥ 4.5"	178	94	76	1519	7130	6	3.4	3.5	3.7	0.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
28	214	1.7	16	2

Aspect: 220 | Date Measured: 02/24/92 | Site Treatment: Even-aged | Site: 3
Slope: 30 | Date Remeasured: 10/16/95 | 1996 Plot Treatment: Leave | Plot: 64
ELT: 17 | White oak site index: 75 | Scarlet oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	402	97	87	--	--	--	--	--	--	-5.8	-0.3
≥ 4.5"	192	87	72	1339	6127	14	7.3	9.5	11.0	-2.0	-0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	6	0

Aspect: 100 | Date Measured: 02/25/92 | Site Treatment: Even-aged | Site: 3
Slope: 39 | Date Remeasured: 10/10/95 | 1996 Plot Treatment: Leave | Plot: 65
ELT: 18 | Scarlet oak site index: 85 | Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	540	109	101	--	--	--	--	--	--	-17.5	-0.3
≥ 4.5"	190	93	80	1285	5498	18	9.5	8.6	9.2	-5.0	0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	16	0

Aspect: 190 | Date Measured: 02/25/92 | Site Treatment: Even-aged | Site: 3
Slope: 36 | Date Remeasured: 10/10/95 | 1996 Plot Treatment: Leave | Plot: 66
ELT: 17 | Scarlet oak site index: 81 | Black oak site index: 83

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	359	83	79	--	--	--	--	--	--	-15.8	-0.1
≥ 4.5"	194	76	69	1033	4103	26	13.4	15.3	20.3	-2.0	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	24	4

Aspect: 100 | Date Measured: 02/26/92 | Site Treatment: Even-aged | Site: 3
Slope: 28 | Date Remeasured: 09/13/95 | 1996 Plot Treatment: Leave | Plot: 67
ELT: 18 | White oak site index: 77 | Black oak site index: 85

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	528	112	104	--	--	--	--	--	--	-17.8	2.3
≥ 4.5"	178	95	81	1395	6316	8	4.5	1.2	1.3	1.0	3.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	8	0

Aspect: 210 | Date Measured: 02/26/92 | Site Treatment: Even-aged | Site: 3
Slope: 24 | Date Remeasured: 10/17/95 | 1996 Plot Treatment: Intermediate cut | Plot: 68
ELT: 17 | Scarlet oak site index: 77 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	495	123	101	--	--	--	--	--	--	-11.0	2.0
≥ 4.5"	220	112	85	1863	9892	8	3.6	1.5	1.3	-1.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	12	0

Aspect: 150 | Date Measured: 02/26/92 | Site Treatment: Even-aged | Site: 3
Slope: 33 | Date Remeasured: 10/11/95 | 1996 Plot Treatment: Leave | Plot: 69
ELT: 17 | Black oak site index: 79 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	590	110	103	--	--	--	--	--	--	-26.3	-0.7
≥ 4.5"	190	92	77	1544	6483	2	1.1	3.1	3.3	0.0	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.0	16	2

Aspect: 190 | Date Measured: 02/27/92 | Site Treatment: Even-aged | Site: 3
Slope: 7 | Date Remeasured: 06/05/95 | 1996 Plot Treatment: Intermediate cut | Plot: 70
ELT: 11 | White oak site index: 76 | Black oak site index: 92

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	494	120	108	--	--	--	--	--	--	-26.5	-1.6
≥ 4.5"	184	106	88	1710	8133	6	3.3	1.1	1.0	-1.5	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	14	0

Aspect: 240 | Date Measured: 02/27/92 | Site Treatment: Even-aged | Site: 3
Slope: 26 | Date Remeasured: 06/06/95 | 1996 Plot Treatment: Leave | Plot: 71
ELT: 19 | White oak site index: 63 | Scarlet oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	625	103	94	--	--	--	--	--	--	-48.3	-0.1
≥ 4.5"	190	86	71	1279	5652	6	3.2	3.1	3.6	-2.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	6	0

Aspect: 165 | Date Measured: 03/02/92 | Site Treatment: Even-aged | Site: 3
Slope: 18 | Date Remeasured: 06/07/95 | 1996 Plot Treatment: Clearcut | Plot: 72
ELT: 17 | White oak site index: 73 | Scarlet oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	503	102	90	--	--	--	--	--	--	-42.8	0.4
≥ 4.5"	148	87	69	1318	6930	6	4.1	1.1	1.3	-1.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	10	0

Aspect: 265 | Date Measured: 06/24/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 29 | Date Remeasured: 10/23/95 | 1996 Plot Treatment: Leave | Plot: 1
ELT: 17 | Shortleaf pine site index: 73 | Scarlet oak site index: 83

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	330	85	74	--	--	--	--	--	--	-16.3	1.7
≥ 4.5"	140	76	62	1215	5752	6	4.3	7.2	9.5	2.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	8	0

Aspect: 90 | Date Measured: 06/24/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 30 | Date Remeasured: 06/01/94 | 1996 Plot Treatment: Leave | Plot: 2
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	531	85	84	--	--	--	--	--	--	197.5	12.1
≥ 4.5"	166	69	61	966	3994	0	0.0	0.0	0.0	0.0	3.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	12	0

Aspect: 260 | Date Measured: 06/24/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 33 | Date Remeasured: 08/10/94 | 1996 Plot Treatment: Leave | Plot: 3
ELT: 17 | Shortleaf pine site index: 78 | Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	539	95	93	--	--	--	--	--	--	-15.5	3.2
≥ 4.5"	254	84	78	1133	3889	18	7.1	3.8	4.5	2.0	3.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
76	684	1.6	6	0

Aspect: 145 | Date Measured: 06/25/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 31 | Date Remeasured: 07/25/94 | 1996 Plot Treatment: Uneven-aged | Plot: 4
ELT: 17 | Shortleaf pine site index: 79 | Black oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	390	107	93	--	--	--	--	--	--	4.0	1.4
≥ 4.5"	180	98	80	1499	7178	20	11.1	8.1	8.3	-1.0	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
212	1368	1.8	8	0

Aspect: 65 | Date Measured: 06/29/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 30 | Date Remeasured: 05/23/95 | 1996 Plot Treatment: Uneven-aged | Plot: 5
ELT: 18 | Shortleaf pine site index: 82 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	425	96	88	--	--	--	--	--	--	-9.5	1.9
≥ 4.5"	190	85	73	1173	5619	8	4.2	1.5	1.7	-2.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
65	539	0.3	14	0

Aspect: 160 | Date Measured: 06/29/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 35 | Date Remeasured: 10/24/95 | 1996 Plot Treatment: Uneven-aged | Plot: 6
ELT: 17 | White oak site index: 69 | Scarlet oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	485	82	74	--	--	--	--	--	--	-17.3	-0.8
≥ 4.5"	110	68	53	1177	5782	4	3.6	1.1	1.6	-0.7	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	16	0

Aspect: 230 | Date Measured: 06/29/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 30 | Date Remeasured: 10/19/95 | 1996 Plot Treatment: Uneven-aged | Plot: 7
ELT: 17 | Shortleaf pine site index: 73 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	448	81	80	--	--	--	--	--	--	-10.7	1.9
≥ 4.5"	178	66	59	915	3283	4	2.2	3.8	5.7	-0.7	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.0	4	0

Aspect: 60 | Date Measured: 06/30/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 5 | Date Remeasured: 10/19/95 | 1996 Plot Treatment: Uneven-aged | Plot: 8
ELT: 11 | White oak site index: 82 | Black oak site index: 86

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	475	89	86	--	--	--	--	--	--	16.3	2.5
≥ 4.5"	160	77	68	1079	5395	24	15.0	7.5	9.8	1.3	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	10	0

Aspect: 50 | Date Measured: 06/30/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 19 | Date Remeasured: 10/19/95 | 1996 Plot Treatment: Uneven-aged | Plot: 9
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	417	74	70	--	--	--	--	--	--	5.0	3.4
≥ 4.5"	172	63	54	894	2929	2	1.2	8.9	14.2	0.0	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	--	4	0

Aspect: 190 | Slope: 15 | ELT: 17 | Date Measured: 07/01/92 | Date Remeasured: 07/27/94 | White oak site index: 67 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 62 | Site: 4 | Plot: 10

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	648	90	88	--	--	--	--	--	--	-49.0	-0.1
≥ 4.5"	128	69	56	918	4849	0	0.0	0.0	0.0	6.0	2.6

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
78	420	0.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
10	0

Aspect: 155 | Slope: 28 | ELT: 17 | Date Measured: 07/01/92 | Date Remeasured: 05/18/95 | White oak site index: 97 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 96 | Site: 4 | Plot: 11

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	507	80	78	--	--	--	--	--	--	10.5	3.1
≥ 4.5"	142	67	58	937	4500	2	1.4	0.2	0.4	-2.0	2.4

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.9

Cavities:

Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 200 | Slope: 33 | ELT: 17 | Date Measured: 07/01/92 | Date Remeasured: 08/02/95 | Shortleaf pine site index: 100 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 80 | Site: 4 | Plot: 12

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	490	101	88	--	--	--	--	--	--	122.0	6.3
≥ 4.5"	190	87	68	1289	5934	6	3.2	1.0	1.2	-1.3	1.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.2

Cavities:

Natural cavities/ac	Excavated cavties/ac
16	0

Aspect: 160 | Slope: 37 | ELT: 17 | Date Measured: 07/02/92 | Date Remeasured: 05/15/95 | Scarlet oak site index: 62 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 75 | Site: 4 | Plot: 13

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	569	81	83	--	--	--	--	--	--	9.5	3.5
≥ 4.5"	154	62	56	753	3142	0	0.0	0.0	0.0	2.0	2.8

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	6.4

Cavities:

Natural cavities/ac	Excavated cavties/ac
16	0

Aspect: 95 | Slope: 25 | ELT: 18 | Date Measured: 07/02/92 | Date Remeasured: 05/18/95 | Black oak site index: 86 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 4 | Plot: 14

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	601	83	85	--	--	--	--	--	--	-36.0	1.5
≥ 4.5"	206	63	59	798	2472	0	0.0	0.0	0.0	-1.0	2.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
187	1106	0.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 10 | Date Measured: 07/02/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 2 | Date Remeasured: 10/19/95 | 1996 Plot Treatment: Uneven-aged | Plot: 15
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	485	103	100	--	--	--	--	--	--	-35.7	1.0
≥ 4.5"	220	91	83	1168	5125	16	7.3	9.8	10.8	-0.7	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	0	0

Aspect: 260 | Date Measured: 07/06/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 27 | Date Remeasured: 10/24/95 | 1996 Plot Treatment: Uneven-aged | Plot: 16
ELT: 17 | Shortleaf pine site index: 75 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	513	107	93	--	--	--	--	--	--	-10.0	1.7
≥ 4.5"	198	95	75	1504	7005	12	6.1	2.4	2.5	0.0	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	10	0

Aspect: 240 | Date Measured: 07/06/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 20 | Date Remeasured: 05/18/95 | 1996 Plot Treatment: Leave | Plot: 17
ELT: 17 | Scarlet oak site index: 74 | Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	389	100	87	--	--	--	--	--	--	-37.5	0.7
≥ 4.5"	174	90	74	1316	6305	18	10.3	6.9	7.6	-5.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	12	0

Aspect: 205 | Date Measured: 07/07/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 40 | Date Remeasured: 08/01/94 | 1996 Plot Treatment: Uneven-aged | Plot: 18
ELT: 17 | Shortleaf pine site index: 78 | Scarlet oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	545	106	91	--	--	--	--	--	--	-19.0	0.3
≥ 4.5"	210	92	72	1401	6234	4	1.9	0.5	0.5	-4.0	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
33	330	1.4	4	0

Aspect: 15 | Date Measured: 07/08/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 10 | Date Remeasured: 08/08/95 | 1996 Plot Treatment: Old growth | Plot: 19
ELT: 5 | Shortleaf pine site index: 80 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	483	84	76	--	--	--	--	--	--	87.7	4.1
≥ 4.5"	128	72	59	1070	5599	16	12.5	3.8	5.3	-0.7	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	12	0

Aspect: 350 | Date Measured: 07/08/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 24 | Date Remeasured: 10/18/95 | 1996 Plot Treatment: Uneven-aged | Plot: 20
ELT: 18 | Scarlet oak site index: 80 | Black oak site index: 88

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	368	104	92	--	--	--	--	--	--	0.7	0.9
≥ 4.5"	158	96	80	1443	7710	12	7.6	4.0	4.2	-2.7	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	2	0

Aspect: 165 | Date Measured: 07/08/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 20 | Date Remeasured: 08/08/95 | 1996 Plot Treatment: Uneven-aged | Plot: 21
ELT: 17 | Shortleaf pine site index: 80 | Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	451	87	82	--	--	--	--	--	--	63.0	3.2
≥ 4.5"	136	73	61	1095	5420	4	2.9	1.3	1.7	-2.0	-0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	6	0

Aspect: 65 | Date Measured: 07/09/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 21 | Date Remeasured: 08/08/95 | 1996 Plot Treatment: Uneven-aged | Plot: 22
ELT: 18 | White oak site index: 83 | Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	415	105	96	--	--	--	--	--	--	51.0	3.9
≥ 4.5"	200	97	85	1307	6402	14	7.0	2.3	2.3	-0.7	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	10	0

Aspect: 50 | Date Measured: 07/09/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 24 | Date Remeasured: 10/24/95 | 1996 Plot Treatment: Uneven-aged | Plot: 23
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	323	103	84	--	--	--	--	--	--	8.3	1.4
≥ 4.5"	118	94	71	1267	7627	0	0.0	0.0	0.0	0.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	30	0

Aspect: 105 | Date Measured: 07/09/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 6 | Date Remeasured: 08/07/95 | 1996 Plot Treatment: Uneven-aged | Plot: 24
ELT: 11 | White oak site index: 65 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	521	121	108	--	--	--	--	--	--	88.3	6.4
≥ 4.5"	176	107	87	1642	8505	16	9.1	5.9	5.6	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	6	0

Aspect: 195 Date Measured: 07/13/92 Site Treatment: Uneven-aged Site: 4
Slope: 6 Date Remeasured: 08/09/95 1996 Plot Treatment: Old growth Plot: 25
ELT: 5 -- site index: -- -- site index: --

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	508	84	79	--	--	--	--	--	--	86.0	5.5
≥ 4.5"	188	72	62	971	3939	20	10.6	10.7	14.9	-0.7	1.3

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.3

Cavities:

Natural cavities/ac	Excavated cavtics/ac
0	0

Aspect: 190 Date Measured: 07/14/92 Site Treatment: Uneven-aged Site: 4
Slope: 2 Date Remeasured: 08/07/95 1996 Plot Treatment: Uneven-aged Plot: 26
ELT: 11 -- site index: -- -- site index: --

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	423	111	96	--	--	--	--	--	--	31.0	3.8
≥ 4.5"	138	100	79	1735	9194	10	7.2	2.7	2.7	-0.7	1.8

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 70 Date Measured: 07/13/92 Site Treatment: Uneven-aged Site: 4
Slope: 25 Date Remeasured: 08/07/95 1996 Plot Treatment: Uneven-aged Plot: 27
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	479	90	86	--	--	--	--	--	--	61.7	5.3
≥ 4.5"	144	74	63	1124	5536	8	5.6	9.6	12.9	3.3	2.4

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	5.9

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 270 Date Measured: 07/14/92 Site Treatment: Uneven-aged Site: 4
Slope: 34 Date Remeasured: 05/15/95 1996 Plot Treatment: Uneven-aged Plot: 28
ELT: 17 Shortleaf pine site index: 71 Scarlet oak site index: 67

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	348	90	79	--	--	--	--	--	--	12.5	1.3
≥ 4.5"	138	82	66	1310	6803	12	8.7	4.0	4.9	0.0	0.9

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
187	1437	1.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
10	6

Aspect: 100 Date Measured: 07/15/92 Site Treatment: Uneven-aged Site: 4
Slope: 35 Date Remeasured: 08/07/95 1996 Plot Treatment: Uneven-aged Plot: 29
ELT: 18 Shortleaf pine site index: 74 Black oak site index: 78

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	380	100	87	--	--	--	--	--	--	79.3	4.6
≥ 4.5"	130	89	73	1362	7115	8	6.2	2.9	3.2	-0.7	1.3

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
16	0

Aspect: 70 | Slope: 21 | ELT: 18 | Date Measured: 07/15/92 | Date Remeasured: 08/03/95 | White oak site index: 78 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Scarlet oak site index: 84 | Site: 4 | Plot: 30

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	453	124	109	--	--	--	--	--	--	37.7	1.3
≥ 4.5"	188	113	94	1712	8834	4	2.1	1.0	0.9	-0.7	0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	16	0

Aspect: 110 | Slope: 4 | ELT: 11 | Date Measured: 07/16/92 | Date Remeasured: 10/23/95 | Shortleaf pine site index: 74 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Scarlet oak site index: 75 | Site: 4 | Plot: 31

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	454	113	96	--	--	--	--	--	--	-5.7	1.8
≥ 4.5"	164	103	81	1641	8608	12	7.3	4.3	4.2	-0.7	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.6	6	0

Aspect: 110 | Slope: 25 | ELT: 18 | Date Measured: 07/20/92 | Date Remeasured: 07/25/94 | White oak site index: 83 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 93 | Site: 4 | Plot: 32

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	553	95	91	--	--	--	--	--	--	-9.0	3.1
≥ 4.5"	148	76	66	1160	5558	20	13.5	5.3	6.9	6.0	3.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
104	796	2.5	4	0

Aspect: 310 | Slope: 26 | ELT: 18 | Date Measured: 07/20/92 | Date Remeasured: 07/25/94 | Scarlet oak site index: 68 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 83 | Site: 4 | Plot: 33

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	405	98	85	--	--	--	--	--	--	-38.0	-0.8
≥ 4.5"	110	88	70	1389	7880	4	3.6	1.6	1.8	2.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
151	836	1.9	4	0

Aspect: 190 | Slope: 25 | ELT: 17 | Date Measured: 07/21/92 | Date Remeasured: 08/02/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 4 | Plot: 34

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	471	95	85	--	--	--	--	--	--	111.0	7.2
≥ 4.5"	126	82	67	1302	7211	10	7.9	9.7	11.8	2.7	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.0	10	0

Aspect: 90 | Date Measured: 07/21/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 43 | Date Remeasured: 08/11/94 | 1996 Plot Treatment: Uneven-aged | Plot: 35
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	706	78	79	--	--	--	--	--	--	-103.5	-1.4
≥ 4.5"	176	58	53	779	2822	2	1.1	0.4	0.7	4.0	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
61	380	0.4	14	0

Aspect: 260 | Date Measured: 07/23/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 35 | Date Remeasured: 10/23/95 | 1996 Plot Treatment: Uneven-aged | Plot: 36
ELT: 17 | Shortleaf pine site index: 79 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	562	98	87	--	--	--	--	--	--	-28.3	0.7
≥ 4.5"	162	81	63	1244	5827	4	2.5	0.6	0.7	0.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	10	0

Aspect: 240 | Date Measured: 07/23/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 25 | Date Remeasured: 10/23/95 | 1996 Plot Treatment: Uneven-aged | Plot: 37
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	477	106	97	--	--	--	--	--	--	-6.0	1.9
≥ 4.5"	182	93	77	1413	6583	4	2.2	0.6	0.6	-2.7	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	4	0

Aspect: 65 | Date Measured: 07/23/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 25 | Date Remeasured: 05/17/95 | 1996 Plot Treatment: Uneven-aged | Plot: 38
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	484	116	102	--	--	--	--	--	--	123.0	6.2
≥ 4.5"	144	106	88	1713	9797	12	8.3	4.6	4.3	-2.0	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	6.0	8	0

Aspect: 270 | Date Measured: 07/24/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 20 | Date Remeasured: 08/09/95 | 1996 Plot Treatment: Uneven-aged | Plot: 39
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	495	97	90	--	--	--	--	--	--	93.0	4.4
≥ 4.5"	160	83	69	1263	6337	8	5.0	7.0	8.5	-2.0	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	16	0

Aspect: 270 | Slope: 36 | ELT: 17 | Date Measured: 07/24/92 | Date Remeasured: 08/09/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 4 | Plot: 40

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	623	97	92	--	--	--	--	--	--	77.7	4.7
≥ 4.5"	128	79	67	1135	5998	4	3.1	0.8	1.0	-0.7	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	34	0

Aspect: 185 | Slope: 1 | ELT: 5 | Date Measured: 07/28/92 | Date Remeasured: 10/23/95 | White oak site index: 71 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | Scarlet oak site index: 72 | Site: 4 | Plot: 41

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	496	83	76	--	--	--	--	--	--	2.7	0.4
≥ 4.5"	156	69	57	1000	4013	10	6.4	4.5	6.5	-0.7	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.9	8	0

Aspect: 310 | Slope: 3 | ELT: 11 | Date Measured: 07/28/92 | Date Remeasured: 10/23/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 4 | Plot: 42

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	481	108	100	--	--	--	--	--	--	-6.7	0.8
≥ 4.5"	186	95	82	1452	7048	14	7.5	7.1	7.4	0.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	10	0

Aspect: 90 | Slope: 46 | ELT: 18 | Date Measured: 07/28/92 | Date Remeasured: 05/17/95 | White oak site index: 79 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 86 | Site: 4 | Plot: 43

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	538	85	81	--	--	--	--	--	--	-40.5	0.8
≥ 4.5"	188	70	61	963	3519	2	1.1	1.1	1.6	-3.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	10	0

Aspect: 290 | Slope: 25 | ELT: 17 | Date Measured: 07/28/92 | Date Remeasured: 10/18/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 4 | Plot: 44

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	571	102	97	--	--	--	--	--	--	-44.0	0.5
≥ 4.5"	186	85	71	1270	5954	6	3.2	4.9	5.8	-0.7	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	10	0

Aspect: 275 | Date Measured: 07/29/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 20 | Date Remeasured: 10/18/95 | 1996 Plot Treatment: Leave | Plot: 45
ELT: 17 | Scarlet oak site index: 81 | Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	520	111	99	--	--	--	--	--	--	-11.3	0.9
≥ 4.5"	170	98	80	1510	7706	2	1.2	0.9	0.9	-1.3	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	12	0

Aspect: 300 | Date Measured: 07/29/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 29 | Date Remeasured: 10/18/95 | 1996 Plot Treatment: Old growth | Plot: 46
ELT: 17 | White oak site index: 72 | Scarlet oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	633	103	98	--	--	--	--	--	--	-25.7	0.3
≥ 4.5"	188	88	75	1298	6062	2	1.1	0.3	0.4	-0.7	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	6	0

Aspect: 190 | Date Measured: 07/30/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 14 | Date Remeasured: 10/18/95 | 1996 Plot Treatment: Uneven-aged | Plot: 47
ELT: 17 | Scarlet oak site index: 77 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	483	104	95	--	--	--	--	--	--	-0.3	1.7
≥ 4.5"	188	93	79	1377	6360	20	10.6	4.2	4.5	-2.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	6	0

Aspect: 170 | Date Measured: 08/03/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 22 | Date Remeasured: 05/22/95 | 1996 Plot Treatment: Old growth | Plot: 48
ELT: 17 | Scarlet oak site index: 73 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	449	87	85	--	--	--	--	--	--	-19.5	0.9
≥ 4.5"	184	76	68	987	4058	16	8.7	3.8	5.0	-2.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	8	0

Aspect: 50 | Date Measured: 08/03/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 25 | Date Remeasured: 10/18/95 | 1996 Plot Treatment: Uneven-aged | Plot: 49
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	447	102	91	--	--	--	--	--	--	-14.3	1.8
≥ 4.5"	142	89	74	1440	7160	8	5.6	2.1	2.4	0.7	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	10	0

Aspect: 140 | Date Measured: 08/04/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 4 | Date Remeasured: 08/09/95 | 1996 Plot Treatment: Uneven-aged | Plot: 50
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	374	109	94	--	--	--	--	--	--	172.7	9.9
≥ 4.5"	154	101	82	1572	8656	8	5.2	1.6	1.6	-0.7	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	14	0

Aspect: 70 | Date Measured: 08/04/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 23 | Date Remeasured: 05/17/95 | 1996 Plot Treatment: Leave | Plot: 51
ELT: 18 | White oak site index: 81 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	459	96	90	--	--	--	--	--	--	-27.0	-0.3
≥ 4.5"	174	84	73	1240	6429	10	5.7	4.5	5.4	-2.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	10	0

Aspect: 200 | Date Measured: 08/06/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 34 | Date Remeasured: 05/22/95 | 1996 Plot Treatment: Old growth | Plot: 52
ELT: 19 | White oak site index: 68 | Scarlet oak site index: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	836	67	74	--	--	--	--	--	--	-63.5	-0.2
≥ 4.5"	116	40	37	473	1648	6	5.2	10.5	26.3	4.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	18	0

Aspect: 105 | Date Measured: 08/06/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 12 | Date Remeasured: 05/16/95 | 1996 Plot Treatment: Old growth | Plot: 53
ELT: 5 | White oak site index: 68 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	491	91	87	--	--	--	--	--	--	-5.0	2.2
≥ 4.5"	236	80	73	1100	3810	12	5.1	2.6	3.3	-5.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	0	0

Aspect: 270 | Date Measured: 08/10/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 15 | Date Remeasured: 05/16/95 | 1996 Plot Treatment: Old growth | Plot: 54
ELT: 19 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	522	47	52	--	--	--	--	--	--	27.0	1.3
≥ 4.5"	102	30	27	386	590	12	11.8	6.4	21.8	2.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	2	0

Aspect: 200 | Slope: 35 | ELT: 17 | Date Measured: 08/10/92 | Date Remeasured: 08/02/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 4 | Plot: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	556	62	61	--	--	--	--	--	--	-43.3	-0.6
≥ 4.5"	106	44	36	644	2447	6	5.7	1.8	4.0	0.0	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	0	0

Aspect: 75 | Slope: 30 | ELT: 18 | Date Measured: 08/12/92 | Date Remeasured: 08/08/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 4 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	527	102	96	--	--	--	--	--	--	37.7	3.0
≥ 4.5"	262	93	83	1245	4592	8	3.1	1.3	1.4	-0.7	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	12	0

Aspect: 65 | Slope: 44 | ELT: 18 | Date Measured: 08/13/92 | Date Remeasured: 08/01/94 | Black oak site index: 83 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 4 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	521	78	76	--	--	--	--	--	--	-19.5	0.3
≥ 4.5"	146	63	55	945	3653	4	2.7	0.6	1.0	-2.0	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
21	171	0.9	14	0

Aspect: 40 | Slope: 5 | ELT: 5 | Date Measured: 08/13/92 | Date Remeasured: 08/02/95 | White oak site index: 74 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 80 | Site: 4 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	486	104	91	--	--	--	--	--	--	59.3	4.9
≥ 4.5"	216	94	78	1155	5712	6	2.8	1.3	1.4	-0.7	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.3	14	0

Aspect: 135 | Slope: 35 | ELT: 19 | Date Measured: 08/17/92 | Date Remeasured: 05/16/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 4 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	496	59	62	--	--	--	--	--	--	6.0	1.9
≥ 4.5"	126	43	40	558	1469	10	7.9	2.3	5.3	1.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	8	0

Aspect: 130 | Date Measured: 08/18/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 6 | Date Remeasured: 05/23/95 | 1996 Plot Treatment: Uneven-aged | Plot: 60
ELT: 11 | Shortleaf pine site index: 77 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	454	113	99	--	--	--	--	--	--	-5.0	-1.4
≥ 4.5"	204	102	84	1612	7520	20	9.8	4.1	4.0	-5.0	-1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	18	0

Aspect: 90 | Date Measured: 08/18/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 29 | Date Remeasured: 10/19/95 | 1996 Plot Treatment: Leave | Plot: 61
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	595	87	86	--	--	--	--	--	--	-9.3	1.9
≥ 4.5"	210	72	64	919	3180	12	5.7	5.4	7.5	0.7	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	6	0

Aspect: 120 | Date Measured: 08/19/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 14 | Date Remeasured: 05/24/95 | 1996 Plot Treatment: Old growth | Plot: 62
ELT: 5 | Scarlet oak site index: 84 | Black oak site index: 87

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	641	107	99	--	--	--	--	--	--	-66.0	0.3
≥ 4.5"	166	89	72	1353	7022	14	8.4	2.7	3.0	-1.0	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	2	0

Aspect: 70 | Date Measured: 08/20/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 39 | Date Remeasured: 10/19/95 | 1996 Plot Treatment: Uneven-aged | Plot: 63
ELT: 18 | Scarlet oak site index: 81 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	468	104	91	--	--	--	--	--	--	-41.3	-6.8
≥ 4.5"	158	92	74	1516	6844	10	6.3	1.9	2.0	-8.0	-5.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	16	0

Aspect: 250 | Date Measured: 09/02/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 32 | Date Remeasured: 05/23/95 | 1996 Plot Treatment: Leave | Plot: 64
ELT: 19 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	561	86	76	--	--	--	--	--	--	-42.5	-2.8
≥ 4.5"	156	68	52	1004	4075	6	3.8	0.9	1.3	0.0	-1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	8	0

Aspect: 185 | Date Measured: 09/01/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 16 | Date Remeasured: 08/03/95 | 1996 Plot Treatment: Leave | Plot: 65
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	498	107	101	--	--	--	--	--	--	47.3	4.5
≥ 4.5"	218	93	83	1259	5599	30	13.8	9.7	10.5	-2.7	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.1	8	0

Aspect: 135 | Date Measured: 09/03/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 38 | Date Remeasured: 05/24/95 | 1996 Plot Treatment: Leave | Plot: 66
ELT: 19 | White oak site index: 58 | Scarlet oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	689	72	74	--	--	--	--	--	--	-31.0	0.0
≥ 4.5"	134	50	44	648	2354	4	3.0	3.4	6.9	-1.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	6	0

Aspect: 100 | Date Measured: 09/07/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 27 | Date Remeasured: 08/09/95 | 1996 Plot Treatment: Uneven-aged | Plot: 67
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	518	110	99	--	--	--	--	--	--	120.0	5.6
≥ 4.5"	148	95	77	1444	7499	2	1.4	0.3	0.4	0.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	4	0

Aspect: 105 | Date Measured: 09/08/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 43 | Date Remeasured: 08/02/95 | 1996 Plot Treatment: Uneven-aged | Plot: 68
ELT: 18 | White oak site index: 70 | Black oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	615	91	86	--	--	--	--	--	--	111.7	5.9
≥ 4.5"	170	74	63	933	4205	8	4.7	8.1	11.0	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	6

Aspect: 190 | Date Measured: 09/07/92 | Site Treatment: Uneven-aged | Site: 4
Slope: 21 | Date Remeasured: 10/24/95 | 1996 Plot Treatment: Uneven-aged | Plot: 69
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	434	98	86	--	--	--	--	--	--	-5.3	0.6
≥ 4.5"	124	87	68	1435	7993	16	12.9	11.2	13.0	1.3	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	2	0

Aspect: 85 Date Measured: 09/01/92 Site Treatment: Uneven-aged Site: 4
Slope: 33 Date Remeasured: 10/24/95 1996 Plot Treatment: Uneven-aged Plot: 70
ELT: 18 Shortleaf pine site index: 97 Black oak site index: 85

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	488	113	99	--	--	--	--	--	--	-12.7	-1.8
≥ 4.5"	158	99	81	1417	7740	16	10.1	3.3	3.4	-2.7	-1.2

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 230 Date Measured: 09/03/92 Site Treatment: Uneven-aged Site: 4
Slope: 23 Date Remeasured: 08/03/95 1996 Plot Treatment: Uneven-aged Plot: 71
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	471	105	91	--	--	--	--	--	--	118.3	8.0
≥ 4.5"	136	89	69	1461	8196	6	4.4	4.2	4.7	0.0	1.6

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 195 Date Measured: 09/14/92 Site Treatment: Uneven-aged Site: 4
Slope: 3 Date Remeasured: 05/22/95 1996 Plot Treatment: Uneven-aged Plot: 72
ELT: 11 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	428	98	92	--	--	--	--	--	--	-15.0	1.8
≥ 4.5"	188	86	76	1191	5385	16	8.5	5.9	6.8	0.0	2.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 320 Date Measured: 09/10/92 Site Treatment: Uneven-aged Site: 4
Slope: 7 Date Remeasured: 08/03/95 1996 Plot Treatment: Uneven-aged Plot: 73
ELT: 11 Shortleaf pine site index: 89 Scarlet oak site index: 87

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	483	150	126	--	--	--	--	--	--	52.3	-3.4
≥ 4.5"	248	139	111	2264	11532	18	7.3	4.4	3.2	-12.7	-6.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 100 Date Measured: 09/11/92 Site Treatment: Uneven-aged Site: 4
Slope: 3 Date Remeasured: 10/23/95 1996 Plot Treatment: Uneven-aged Plot: 74
ELT: 11 Shortleaf pine site index: 73 Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	521	117	104	--	--	--	--	--	--	-23.3	0.9
≥ 4.5"	176	103	84	1772	8362	6	3.4	1.5	1.5	0.0	2.0

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.1

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 50 | Date Measured: 03/03/92 | Site Treatment: Even-aged | Site: 5
Slope: 11 | Date Remeasured: 10/30/95 | 1996 Plot Treatment: Intermediate cut | Plot: 1
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	554	122	111	--	--	--	--	--	--	0.3	2.1
≥ 4.5"	214	106	90	1639	6399	6	2.8	6.1	5.8	-1.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	6	4

Aspect: 290 | Date Measured: 03/03/92 | Site Treatment: Even-aged | Site: 5
Slope: 26 | Date Remeasured: 10/30/95 | 1996 Plot Treatment: Intermediate cut | Plot: 2
ELT: 18 | White oak site index: 68 | Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	398	101	90	--	--	--	--	--	--	7.5	1.4
≥ 4.5"	168	91	76	1338	6570	8	4.8	5.8	6.4	-2.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
42	428	1.3	10	0

Aspect: 270 | Date Measured: 03/04/92 | Site Treatment: Even-aged | Site: 5
Slope: 28 | Date Remeasured: 10/30/95 | 1996 Plot Treatment: Leave | Plot: 3
ELT: 17 | Shortleaf pine site index: 83 | Black oak site index: 80

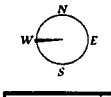
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	492	94	88	--	--	--	--	--	--	-11.3	0.7
≥ 4.5"	182	81	70	1144	5057	22	12.1	9.5	11.8	0.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	8	0

Aspect: 220 | Date Measured: 03/04/92 | Site Treatment: Even-aged | Site: 5
Slope: 9 | Date Remeasured: 06/21/95 | 1996 Plot Treatment: Leave | Plot: 4
ELT: 19 | Black oak site index: 70 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	705	86	84	--	--	--	--	--	--	-1.3	1.5
≥ 4.5"	120	63	54	892	4109	10	8.3	6.7	10.6	0.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	6	0



Aspect: 270 | Date Measured: 03/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 24 | Date Remeasured: 08/22/95 | 1996 Plot Treatment: Leave | Plot: 5
ELT: 17 | White oak site index: 74 | Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	448	94	86	--	--	--	--	--	--	-21.5	-1.4
≥ 4.5"	148	83	70	1304	6444	4	2.7	0.7	0.8	-1.5	-0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.6	6	4

Aspect: 140 | Date Measured: 03/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 31 | Date Remeasured: 10/30/95 | 1996 Plot Treatment: Intermediate cut | Plot: 6
ELT: 17 | White oak site index: 65 | Scarlet oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	483	88	81	--	--	--	--	--	--	2.5	1.9
≥ 4.5"	168	74	62	1112	5062	8	4.8	1.2	1.7	2.5	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
165	1161	3.0	6	4

Aspect: 100 | Date Measured: 03/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 25 | Date Remeasured: 10/30/95 | 1996 Plot Treatment: Leave | Plot: 7
ELT: 18 | Scarlet oak site index: 76 | Black oak site index: 85

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	440	100	88	--	--	--	--	--	--	11.0	0.0
≥ 4.5"	130	89	72	1307	6876	16	12.3	5.3	6.0	-1.5	-0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	16	0

Aspect: 195 | Date Measured: 03/09/92 | Site Treatment: Even-aged | Site: 5
Slope: 26 | Date Remeasured: 10/30/95 | 1996 Plot Treatment: Leave | Plot: 8
ELT: 17 | Scarlet oak site index: 81 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	359	97	86	--	--	--	--	--	--	7.0	2.0
≥ 4.5"	164	91	76	1364	6791	16	9.8	2.8	3.0	-0.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	0

Aspect: 340 | Date Measured: 03/10/92 | Site Treatment: Even-aged | Site: 5
Slope: 29 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Intermediate cut | Plot: 9
ELT: 18 | Scarlet oak site index: 76 | Black oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	441	97	86	--	--	--	--	--	--	-16.8	-0.5
≥ 4.5"	126	86	70	1325	7111	10	7.9	2.9	3.4	-0.5	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
278	1718	2.1	2	0

Aspect: 235 | Date Measured: 03/11/92 | Site Treatment: Even-aged | Site: 5
Slope: 30 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Intermediate cut | Plot: 10
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	596	116	104	--	--	--	--	--	--	0.5	2.2
≥ 4.5"	226	99	82	1469	6109	32	14.2	6.7	6.7	0.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	10	4

Aspect: 300 | Slope: 30 | ELT: 17 | Date Measured: 03/11/92 | Date Remeasured: 08/23/95 | Scarlet oak site index: 85 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 84 | Site: 5 | Plot: 11

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	455	98	89	--	--	--	--	--	--	-17.8	0.7
≥ 4.5"	140	84	69	1345	7082	2	1.4	0.3	0.3	1.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.3

Cavities: Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 220 | Slope: 2 | ELT: 11 | Date Measured: 03/12/92 | Date Remeasured: 10/31/95 | Black oak site index: 85 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | -- site index: -- | Site: 5 | Plot: 12

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	527	88	86	--	--	--	--	--	--	-1.8	2.6
≥ 4.5"	172	74	66	1003	4391	4	2.3	1.6	2.2	-0.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.7

Cavities: Natural cavities/ac	Excavated cavties/ac
14	0

Aspect: 315 | Slope: 28 | ELT: 17 | Date Measured: 03/12/92 | Date Remeasured: 10/31/95 | Scarlet oak site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 5 | Plot: 13

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	606	99	93	--	--	--	--	--	--	-8.8	1.6
≥ 4.5"	166	80	67	1170	5480	6	3.6	4.5	5.7	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.2

Cavities: Natural cavities/ac	Excavated cavties/ac
12	2

Aspect: 260 | Slope: 33 | ELT: 17 | Date Measured: 03/16/92 | Date Remeasured: 06/20/95 | Scarlet oak site index: 74 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 5 | Plot: 14

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	537	96	90	--	--	--	--	--	--	-27.5	0.8
≥ 4.5"	182	82	70	1185	5421	10	5.5	5.4	6.6	0.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.8

Cavities: Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 190 | Slope: 27 | ELT: 17 | Date Measured: 03/16/92 | Date Remeasured: 08/22/95 | Shortleaf pine site index: 74 | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | Black oak site index: 73 | Site: 5 | Plot: 15

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	589	94	87	--	--	--	--	--	--	-11.0	0.4
≥ 4.5"	144	77	64	1035	4871	12	8.3	6.5	8.4	-1.0	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	5.7

Cavities: Natural cavities/ac	Excavated cavties/ac
6	2

Aspect: 135 Date Measured: 03/17/92 Site Treatment: Even-aged Site: 5
Slope: 30 Date Remeasured: 06/20/95 1996 Plot Treatment: Old growth Plot: 16
ELT: 18 White oak site index: 92 Black oak site index: 84

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	482	96	89	--	--	--	--	--	--	-23.8	1.1
≥ 4.5"	182	85	74	1186	5331	4	2.2	1.0	1.2	-2.5	1.8

Down wood: Volume (ft^2/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	14	0

Aspect: 135 Date Measured: 03/18/92 Site Treatment: Even-aged Site: 5
Slope: 37 Date Remeasured: 08/22/95 1996 Plot Treatment: Old growth Plot: 17
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	469	89	84	--	--	--	--	--	--	-17.3	1.1
≥ 4.5"	144	74	63	1080	5017	6	4.2	2.3	3.1	1.5	2.0

Down wood: Volume (ft^2/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.7	4	0

Aspect: 235 Date Measured: 03/19/92 Site Treatment: Even-aged Site: 5
Slope: 33 Date Remeasured: 08/22/95 1996 Plot Treatment: Old growth Plot: 18
ELT: 17 Black oak site index: 78 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	411	86	78	--	--	--	--	--	--	-14.0	0.5
≥ 4.5"	136	75	61	1205	6181	12	8.8	5.1	6.9	-1.5	1.0

Down wood: Volume (ft^2/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	6	0

Aspect: 80 Date Measured: 03/19/92 Site Treatment: Even-aged Site: 5
Slope: 37 Date Remeasured: 08/23/95 1996 Plot Treatment: Clearcut Plot: 19
ELT: 18 Scarlet oak site index: 80 Black oak site index: 83

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	490	104	90	--	--	--	--	--	--	-0.5	1.5
≥ 4.5"	120	90	72	1415	7523	4	3.3	1.1	1.2	-0.5	1.3

Down wood: Volume (ft^2/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	16	2

Aspect: 45 Date Measured: 03/19/92 Site Treatment: Even-aged Site: 5
Slope: 28 Date Remeasured: 06/21/95 1996 Plot Treatment: Clearcut Plot: 20
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	390	101	89	--	--	--	--	--	--	0.0	1.4
≥ 4.5"	150	91	75	1428	7447	20	13.3	8.7	9.5	-2.5	1.0

Down wood: Volume (ft^2/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
206	1461	0.8	10	0

Aspect: 150 | Date Measured: 03/19/92 | Site Treatment: Even-aged | Site: 5
Slope: 25 | Date Remeasured: 06/19/95 | 1996 Plot Treatment: Leave | Plot: 21
ELT: 19 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	374	40	39	--	--	--	--	--	--	-16.8	-0.2
≥ 4.5"	64	29	24	360	1608	2	3.1	2.6	9.0	-0.5	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	10	0

Aspect: 175 | Date Measured: 03/26/92 | Site Treatment: Even-aged | Site: 5
Slope: 12 | Date Remeasured: 11/01/95 | 1996 Plot Treatment: Intermediate cut | Plot: 22
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	598	95	88	--	--	--	--	--	--	-14.5	0.3
≥ 4.5"	168	77	65	1065	4918	18	10.7	5.7	7.4	-2.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
390	1763	2.3	6	4

Aspect: 120 | Date Measured: 03/27/92 | Site Treatment: Even-aged | Site: 5
Slope: 4 | Date Remeasured: 06/19/95 | 1996 Plot Treatment: Intermediate cut | Plot: 23
ELT: 11 | Black oak site index: 69 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	398	99	88	--	--	--	--	--	--	-15.5	0.7
≥ 4.5"	108	85	69	1300	7010	8	7.4	5.0	5.8	-0.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	6	0

Aspect: 210 | Date Measured: 03/27/92 | Site Treatment: Even-aged | Site: 5
Slope: 10 | Date Remeasured: 11/01/95 | 1996 Plot Treatment: Intermediate cut | Plot: 24
ELT: 11 | White oak site index: 84 | Black oak site index: 86

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	507	95	86	--	--	--	--	--	--	3.8	2.2
≥ 4.5"	192	83	69	1185	5169	22	11.5	10.5	12.7	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	12	0

Aspect: 150 | Date Measured: 03/30/92 | Site Treatment: Even-aged | Site: 5
Slope: 39 | Date Remeasured: 08/22/95 | 1996 Plot Treatment: Intermediate cut | Plot: 25
ELT: 18 | Shortleaf pine site index: 60 | Black oak site index: 72

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	591	93	88	--	--	--	--	--	--	-13.5	1.3
≥ 4.5"	146	79	67	1154	5910	12	8.2	9.0	11.5	-1.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	10	0

Aspect: 230 | Slope: 14 | ELT: 5 | Date Measured: 03/30/92 | Date Remeasured: 08/22/95 | Shortleaf pine site index: 66 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 70 | Site: 5 | Plot: 26

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	561	80	76	--	--	--	--	--	--	11.0	2.0
≥ 4.5"	176	64	54	861	3347	4	2.3	0.9	1.3	1.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	8	0

Aspect: 140 | Slope: 35 | ELT: 17 | Date Measured: 03/31/92 | Date Remeasured: 08/22/95 | Shortleaf pine site index: 61 | Site Treatment: Even-aged | 1996 Plot Treatment: Partial intermediate cut (I/L) | Scarlet oak site index: 60 | Site: 5 | Plot: 27

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	574	105	96	--	--	--	--	--	--	-14.8	0.8
≥ 4.5"	194	90	75	1322	5875	14	7.2	5.1	5.7	-1.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	24	0

Aspect: 195 | Slope: 33 | ELT: 19 | Date Measured: 03/31/92 | Date Remeasured: 06/20/95 | Shortleaf pine site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Partial intermediate cut (I/L) | -- site index: -- | Site: 5 | Plot: 28

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	661	115	102	--	--	--	--	--	--	-35.0	0.5
≥ 4.5"	196	93	73	1369	6363	4	2.0	0.9	1.0	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	12	0

Aspect: 125 | Slope: 32 | ELT: 17 | Date Measured: 04/01/92 | Date Remeasured: 06/19/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 5 | Plot: 29

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	415	97	88	--	--	--	--	--	--	2.5	0.8
≥ 4.5"	150	89	75	1326	6483	8	5.3	1.9	2.1	0.0	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	18	0

Aspect: 95 | Slope: 8 | ELT: 11 | Date Measured: 04/01/92 | Date Remeasured: 06/19/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | -- site index: -- | Site: 5 | Plot: 30

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	574	124	113	--	--	--	--	--	--	-26.5	1.6
≥ 4.5"	204	110	92	1536	7384	2	1.0	0.4	0.4	-1.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	10	0

Aspect: 200 Date Measured: 04/02/92 Site Treatment: Even-aged Site: 5
Slope: 18 Date Remeasured: 08/22/95 1996 Plot Treatment: Clearcut Plot: 31
ELT: 17 White oak site index: 80 Scarlet oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	462	103	89	--	--	--	--	--	--	15.8	1.6
≥ 4.5"	102	90	72	1321	7325	12	11.8	5.0	5.6	-0.5	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	8	0

Aspect: 220 Date Measured: 04/02/92 Site Treatment: Even-aged Site: 5
Slope: 19 Date Remeasured: 10/26/95 1996 Plot Treatment: Intermediate cut Plot: 32
ELT: 17 Scarlet oak site index: 68 Black oak site index: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	545	108	94	--	--	--	--	--	--	-11.0	1.6
≥ 4.5"	200	94	74	1399	6562	8	4.0	1.7	1.8	1.5	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
119	695	0.6	6	0

Aspect: 70 Date Measured: 04/03/92 Site Treatment: Even-aged Site: 5
Slope: 8 Date Remeasured: 10/25/95 1996 Plot Treatment: Partial clearcut (CC/L) Plot: 33
ELT: 11 Scarlet oak site index: 64 Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	547	101	92	--	--	--	--	--	--	-25.8	0.2
≥ 4.5"	122	85	70	1292	6936	6	4.9	5.9	7.0	0.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	22	0

Aspect: 175 Date Measured: 04/06/92 Site Treatment: Even-aged Site: 5
Slope: 25 Date Remeasured: 08/23/95 1996 Plot Treatment: Clearcut Plot: 34
ELT: 17 Scarlet oak site index: 80 Black oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	359	86	75	--	--	--	--	--	--	22.8	2.3
≥ 4.5"	114	77	62	1265	6697	12	10.5	7.1	9.2	-1.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	10	0

Aspect: 60 Date Measured: 04/06/92 Site Treatment: Even-aged Site: 5
Slope: 19 Date Remeasured: 06/20/95 1996 Plot Treatment: Leave Plot: 35
ELT: 18 Scarlet oak site index: 82 Black oak site index: 91

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	389	98	86	--	--	--	--	--	--	-4.5	2.4
≥ 4.5"	134	86	70	1269	7063	16	11.9	3.0	3.4	0.5	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.5	8	0

Aspect: 135 Date Measured: 04/06/92 Site Treatment: Even-aged Site: 5
Slope: 20 Date Remeasured: 11/01/95 1996 Plot Treatment: Leave Plot: 36
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	403	89	83	--	--	--	--	--	--	-5.0	1.5
≥ 4.5"	158	76	66	1114	5220	4	2.5	1.4	1.8	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
61	461	0.8	12	0

Aspect: 100 Date Measured: 04/01/93 Site Treatment: Even-aged Site: 5
Slope: 8 Date Remeasured: 11/01/95 1996 Plot Treatment: Leave Plot: 37
ELT: 11 Scarlet oak site index: 84 Black oak site index: 84

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	444	102	94	--	--	--	--	--	--	-9.0	1.8
≥ 4.5"	154	89	75	1393	6626	6	3.9	2.7	3.0	-0.7	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	8	0

Aspect: 310 Date Measured: 04/07/92 Site Treatment: Even-aged Site: 5
Slope: 33 Date Remeasured: 08/21/95 1996 Plot Treatment: Old growth Plot: 38
ELT: 17 White oak site index: 79 Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	498	122	103	--	--	--	--	--	--	5.8	1.9
≥ 4.5"	158	108	82	1924	10344	6	3.8	2.3	2.2	-0.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	28	4

Aspect: 60 Date Measured: 04/09/92 Site Treatment: Even-aged Site: 5
Slope: 23 Date Remeasured: 11/01/95 1996 Plot Treatment: Clearcut Plot: 39
ELT: 18 Scarlet oak site index: 89 Black oak site index: 89

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	522	97	95	--	--	--	--	--	--	1.8	1.6
≥ 4.5"	212	81	74	1130	4761	14	6.6	10.7	13.1	0.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.9	6	0

Aspect: 80 Date Measured: 04/09/92 Site Treatment: Even-aged Site: 5
Slope: 18 Date Remeasured: 11/01/95 1996 Plot Treatment: Intermediate cut Plot: 40
ELT: 18 Scarlet oak site index: 86 Black oak site index: 95

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	439	85	82	--	--	--	--	--	--	-6.8	1.7
≥ 4.5"	174	72	65	981	4318	16	9.2	9.2	12.7	-0.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
162	1086	3.3	4	0

Aspect: 45 | Date Measured: 04/13/92 | Site Treatment: Even-aged | Site: 5
Slope: 32 | Date Remeasured: 11/01/95 | 1996 Plot Treatment: Intermediate cut | Plot: 41
ELT: 18 | Scarlet oak site index: 79 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	597	80	79	--	--	--	--	--	--	-3.5	1.8
≥ 4.5"	142	62	54	915	4023	12	8.5	7.2	11.5	-1.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
122	786	0.8

Cavities: Natural cavities/ac	Excavated cavties/ac
16	0

Aspect: 65 | Date Measured: 04/13/92 | Site Treatment: Even-aged | Site: 5
Slope: 23 | Date Remeasured: 08/23/95 | 1996 Plot Treatment: Leave | Plot: 42
ELT: 18 | Scarlet oak site index: 87 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	530	97	88	--	--	--	--	--	--	-33.0	0.3
≥ 4.5"	120	83	68	1347	6975	12	10.0	2.8	3.4	-0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.0

Cavities: Natural cavities/ac	Excavated cavties/ac
8	0

Aspect: 80 | Date Measured: 04/16/92 | Site Treatment: Even-aged | Site: 5
Slope: 11 | Date Remeasured: 08/23/95 | 1996 Plot Treatment: Leave | Plot: 43
ELT: 18 | Scarlet oak site index: 85 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	379	91	83	--	--	--	--	--	--	6.3	2.2
≥ 4.5"	174	82	71	1291	5773	10	5.7	6.9	8.4	0.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.6

Cavities: Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 100 | Date Measured: 04/16/92 | Site Treatment: Even-aged | Site: 5
Slope: 29 | Date Remeasured: 06/27/95 | 1996 Plot Treatment: Leave | Plot: 44
ELT: 17 | White oak site index: 70 | Scarlet oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	536	103	89	--	--	--	--	--	--	-20.8	1.2
≥ 4.5"	186	90	71	1401	6279	8	4.3	1.9	2.1	0.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.2

Cavities: Natural cavities/ac	Excavated cavties/ac
10	0

Aspect: 135 | Date Measured: 04/21/92 | Site Treatment: Even-aged | Site: 5
Slope: 27 | Date Remeasured: 06/26/95 | 1996 Plot Treatment: Leave | Plot: 45
ELT: 17 | Black oak site index: 84 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	547	95	88	--	--	--	--	--	--	-22.5	1.0
≥ 4.5"	142	80	66	1132	5719	6	4.2	0.9	1.1	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.3

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 110 | Date Measured: 04/21/92 | Site Treatment: Even-aged | Site: 5
Slope: 22 | Date Remeasured: 06/27/95 | 1996 Plot Treatment: Leave | Plot: 46
ELT: 17 | Shortleaf pine site index: 75 | Scarlet oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	623	102	94	--	--	--	--	--	--	-26.8	0.5
≥ 4.5"	168	82	66	1168	5270	6	3.6	3.0	3.7	-0.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	20	0

Aspect: 80 | Date Measured: 04/22/92 | Site Treatment: Even-aged | Site: 5
Slope: 8 | Date Remeasured: 08/23/95 | 1996 Plot Treatment: Leave | Plot: 47
ELT: 5 | Scarlet oak site index: 94 | Black oak site index: 98

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	413	98	86	--	--	--	--	--	--	-5.3	0.7
≥ 4.5"	178	87	72	1193	5427	12	6.7	3.7	4.3	-1.5	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	12	0

Aspect: 305 | Date Measured: 04/22/92 | Site Treatment: Even-aged | Site: 5
Slope: 11 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Intermediate cut | Plot: 48
ELT: 11 | Scarlet oak site index: 64 | Black oak site index: 73

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	469	105	97	--	--	--	--	--	--	-0.5	1.8
≥ 4.5"	184	94	80	1326	5942	14	7.6	3.9	4.2	-0.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	12	0

Aspect: 10 | Date Measured: 04/23/92 | Site Treatment: Even-aged | Site: 5
Slope: 34 | Date Remeasured: 06/27/95 | 1996 Plot Treatment: Old growth | Plot: 49
ELT: 18 | White oak site index: 74 | Black oak site index: 86

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	489	102	86	--	--	--	--	--	--	2.0	1.8
≥ 4.5"	124	87	65	1308	6875	10	8.1	3.6	4.2	-0.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
41	396	0.7	24	0

Aspect: 275 | Date Measured: 04/23/92 | Site Treatment: Even-aged | Site: 5
Slope: 25 | Date Remeasured: 06/20/95 | 1996 Plot Treatment: Old growth | Plot: 50
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	574	99	92	--	--	--	--	--	--	-21.0	0.8
≥ 4.5"	164	81	67	1219	6370	2	1.2	0.5	0.6	-1.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
98	667	5.4	8	0

Aspect: 310 | Date Measured: 04/27/92 | Site Treatment: Even-aged | Site: 5
Slope: 22 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Old growth | Plot: 51
ELT: 18 | White oak site index: 78 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	511	102	91	--	--	--	--	--	--	0.0	1.9
≥ 4.5"	136	90	74	1527	7730	2	1.5	1.7	1.9	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	14	0

Aspect: 215 | Date Measured: 04/28/92 | Site Treatment: Even-aged | Site: 5
Slope: 25 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Leave | Plot: 52
ELT: 17 | White oak site index: 57 | Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	696	92	91	--	--	--	--	--	--	-7.3	2.2
≥ 4.5"	166	72	62	948	3501	8	4.8	1.5	2.1	1.5	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	10	0

Aspect: 335 | Date Measured: 04/27/92 | Site Treatment: Even-aged | Site: 5
Slope: 19 | Date Remeasured: 08/21/95 | 1996 Plot Treatment: Old growth | Plot: 53
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	615	92	88	--	--	--	--	--	--	28.0	2.9
≥ 4.5"	120	75	63	1172	6061	2	1.7	1.4	1.8	0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	16	0

Aspect: 180 | Date Measured: 04/29/92 | Site Treatment: Even-aged | Site: 5
Slope: 26 | Date Remeasured: 06/22/95 | 1996 Plot Treatment: Leave | Plot: 54
ELT: 19 | White oak site index: 78 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	507	75	75	--	--	--	--	--	--	4.8	2.5
≥ 4.5"	182	64	59	775	2803	8	4.4	6.9	10.7	1.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	4	0

Aspect: 270 | Date Measured: 04/29/92 | Site Treatment: Even-aged | Site: 5
Slope: 26 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Partial clearcut (CC/I) | Plot: 55
ELT: 17 | Black oak site index: 65 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	491	93	88	--	--	--	--	--	--	-27.3	0.1
≥ 4.5"	176	80	69	1083	4582	6	3.4	0.9	1.1	-1.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	14	0

Aspect: 310 | Slope: 26 | ELT: 17 | Date Measured: 04/30/92 | Date Remeasured: 08/21/95 | White oak site index: 66 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 72 | Site: 5 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	465	92	84	--	--	--	--	--	--	-11.5	0.8
≥ 4.5"	160	83	70	1271	6202	2	1.3	0.6	0.7	-1.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	18	0

Aspect: 275 | Slope: 26 | ELT: 19 | Date Measured: 05/04/92 | Date Remeasured: 06/21/95 | White oak site index: 61 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 62 | Site: 5 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	708	81	81	--	--	--	--	--	--	-29.5	0.1
≥ 4.5"	178	58	51	791	2117	2	1.1	1.5	2.6	0.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	4	0

Aspect: 290 | Slope: 11 | ELT: 11 | Date Measured: 05/04/92 | Date Remeasured: 10/25/95 | Shortleaf pine site index: 70 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 74 | Site: 5 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	456	97	93	--	--	--	--	--	--	12.5	2.3
≥ 4.5"	246	85	76	1134	4291	14	5.7	8.0	9.5	0.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	2	0

Aspect: 355 | Slope: 20 | ELT: 18 | Date Measured: 05/04/92 | Date Remeasured: 10/25/95 | Scarlet oak site index: 83 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 79 | Site: 5 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	460	96	87	--	--	--	--	--	--	-4.8	1.3
≥ 4.5"	130	80	65	1203	6508	0	0.0	0.0	0.0	-1.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	6	0

Aspect: 235 | Slope: 20 | ELT: 17 | Date Measured: 05/04/92 | Date Remeasured: 08/21/95 | Shortleaf pine site index: 62 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 70 | Site: 5 | Plot: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	501	96	88	--	--	--	--	--	--	-6.5	1.1
≥ 4.5"	176	81	67	1132	5334	10	5.7	8.5	10.6	1.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	8	0

Aspect: 35 | Date Measured: 05/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 23 | Date Remeasured: 06/21/95 | 1996 Plot Treatment: Clearcut | Plot: 61
ELT: 18 | Scarlet oak site index: 69 | Black oak site index: 86

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	404	100	88	--	--	--	--	--	--	-8.0	1.0
≥ 4.5"	174	89	73	1291	6232	14	8.0	3.6	4.0	-0.5	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	18	0

Aspect: 60 | Date Measured: 05/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 39 | Date Remeasured: 10/31/95 | 1996 Plot Treatment: Leave | Plot: 62
ELT: 20 | Shortleaf pine site index: 62 | Black oak site index: 82

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	469	82	78	--	--	--	--	--	--	-2.0	1.3
≥ 4.5"	164	70	61	956	4065	12	7.3	7.9	11.4	0.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	26	0

Aspect: 95 | Date Measured: 05/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 17 | Date Remeasured: 10/25/95 | 1996 Plot Treatment: Clearcut | Plot: 63
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	384	91	81	--	--	--	--	--	--	-9.8	1.0
≥ 4.5"	164	82	68	1223	5998	4	2.4	0.6	0.7	-1.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	2	0

Aspect: 100 | Date Measured: 05/05/92 | Site Treatment: Even-aged | Site: 5
Slope: 23 | Date Remeasured: 08/23/95 | 1996 Plot Treatment: Leave | Plot: 64
ELT: 18 | Black oak site index: 75 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	489	90	82	--	--	--	--	--	--	14.3	1.8
≥ 4.5"	114	77	63	1300	7179	2	1.8	0.6	0.7	0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.6	0	0

Aspect: 195 | Date Measured: 05/06/92 | Site Treatment: Even-aged | Site: 5
Slope: 28 | Date Remeasured: 06/22/95 | 1996 Plot Treatment: Leave | Plot: 65
ELT: 19 | Shortleaf pine site index: 67 | White oak site index: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	568	72	67	--	--	--	--	--	--	-29.3	-0.2
≥ 4.5"	118	56	44	807	4102	10	8.5	10.2	18.2	-0.5	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	4	2

Aspect: 230 | Date Measured: 05/06/92 | Site Treatment: Even-aged | Site: 5
Slope: 22 | Date Remeasured: 06/22/95 | 1996 Plot Treatment: Leave | Plot: 66
ELT: 19 | White oak site index: 67 | Scarlet oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	564	113	99	--	--	--	--	--	--	-26.8	-1.0
≥ 4.5"	224	98	78	1540	6119	18	8.0	4.7	4.8	-0.5	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	24	0

Aspect: 280 | Date Measured: 05/06/92 | Site Treatment: Even-aged | Site: 5
Slope: 8 | Date Remeasured: 10/25/95 | 1996 Plot Treatment: Clearcut | Plot: 67
ELT: 17 | White oak site index: 76 | Scarlet oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	460	100	92	--	--	--	--	--	--	2.5	2.2
≥ 4.5"	180	87	74	1263	5683	12	6.7	2.3	2.7	0.0	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	4	0

Aspect: 225 | Date Measured: 05/07/92 | Site Treatment: Even-aged | Site: 5
Slope: 23 | Date Remeasured: 06/22/95 | 1996 Plot Treatment: Leave | Plot: 68
ELT: 19 | Scarlet oak site index: 69 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	555	102	93	--	--	--	--	--	--	-11.3	1.4
≥ 4.5"	200	88	73	1296	5713	8	4.0	1.4	1.6	0.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	2	0

Aspect: 235 | Date Measured: 05/07/92 | Site Treatment: Even-aged | Site: 5
Slope: 18 | Date Remeasured: 06/22/95 | 1996 Plot Treatment: Leave | Plot: 69
ELT: 5 | White oak site index: 66 | Black oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	285	96	83	--	--	--	--	--	--	62.8	5.0
≥ 4.5"	160	90	75	1279	6185	16	10.0	7.5	8.3	-1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	7.0	12	0

Aspect: 120 | Date Measured: 05/07/92 | Site Treatment: Even-aged | Site: 5
Slope: 5 | Date Remeasured: 06/25/95 | 1996 Plot Treatment: Leave | Plot: 70
ELT: 5 | White oak site index: 71 | Black oak site index: 84

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	415	96	83	--	--	--	--	--	--	-8.0	1.0
≥ 4.5"	150	85	69	1149	5509	16	10.7	5.8	6.8	-0.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	4	0

Aspect: 110 | Date Measured: 05/11/92 | Site Treatment: No cutting | Site: 6
Slope: 39 | Date Remeasured: 11/11/95 | 1996 Plot Treatment: Leave | Plot: 1
ELT: 17 | White oak site index: 66 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	367	102	88	--	--	--	--	--	--	-3.0	0.7
≥ 4.5"	152	93	75	1505	7411	10	6.6	9.1	9.7	-0.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.0	10	0

Aspect: 120 | Date Measured: 05/11/92 | Site Treatment: No cutting | Site: 6
Slope: 27 | Date Remeasured: 08/24/95 | 1996 Plot Treatment: Leave | Plot: 2
ELT: 17 | White oak site index: 72 | Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	426	86	77	--	--	--	--	--	--	6.3	1.3
≥ 4.5"	116	75	62	1095	5790	12	10.3	10.3	13.8	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	0	0

Aspect: 55 | Date Measured: 05/11/92 | Site Treatment: No cutting | Site: 6
Slope: 1 | Date Remeasured: 08/24/95 | 1996 Plot Treatment: Leave | Plot: 3
ELT: 11 | Shortleaf pine site index: 71 | White oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	322	112	94	--	--	--	--	--	--	-6.8	2.1
≥ 4.5"	142	107	85	1613	8909	14	9.9	6.0	5.6	-0.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	6	0

Aspect: 170 | Date Measured: 05/12/92 | Site Treatment: No cutting | Site: 6
Slope: 18 | Date Remeasured: 06/08/95 | 1996 Plot Treatment: Leave | Plot: 4
ELT: 17 | Black oak site index: 68 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	457	101	89	--	--	--	--	--	--	8.5	2.2
≥ 4.5"	132	89	73	1430	7263	8	6.1	9.9	11.1	1.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.0	26	0

Aspect: 260 | Date Measured: 05/12/92 | Site Treatment: No cutting | Site: 6
Slope: 25 | Date Remeasured: 08/25/94 | 1996 Plot Treatment: Leave | Plot: 5
ELT: 17 | Shortleaf pine site index: 80 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	376	102	88	--	--	--	--	--	--	-14.0	0.9
≥ 4.5"	176	94	77	1415	6639	0	0.0	0.0	0.0	-0.7	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
63	470	1.9	10	0

Aspect: 360 | Date Measured: 05/12/92 | Site Treatment: No cutting | Site: 6
Slope: 19 | Date Remeasured: 11/27/95 | 1996 Plot Treatment: Leave | Plot: 6
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	454	99	91	--	--	--	--	--	--	-5.5	1.0
≥ 4.5"	184	85	72	1270	5425	8	4.3	2.0	2.4	-0.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	4	0

Aspect: 135 | Date Measured: 05/12/92 | Site Treatment: No cutting | Site: 6
Slope: 21 | Date Remeasured: 11/27/95 | 1996 Plot Treatment: Leave | Plot: 7
ELT: 17 | Scarlet oak site index: 79 | Black oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	482	99	85	--	--	--	--	--	--	-2.3	1.9
≥ 4.5"	152	89	69	1246	6284	16	10.5	5.0	5.6	-1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	6	0

Aspect: 110 | Date Measured: 05/13/92 | Site Treatment: No cutting | Site: 6
Slope: 31 | Date Remeasured: 11/22/95 | 1996 Plot Treatment: Leave | Plot: 8
ELT: 18 | White oak site index: 62 | Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	458	91	80	--	--	--	--	--	--	-0.3	2.0
≥ 4.5"	178	81	66	1275	5634	18	10.1	6.9	8.5	-1.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.6	0	0

Aspect: 190 | Date Measured: 05/13/92 | Site Treatment: No cutting | Site: 6
Slope: 16 | Date Remeasured: 11/22/95 | 1996 Plot Treatment: Leave | Plot: 9
ELT: 17 | White oak site index: 71 | Black oak site index: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	437	75	68	--	--	--	--	--	--	-11.3	-1.4
≥ 4.5"	102	63	53	1091	5650	8	7.8	17.6	27.8	-2.5	-1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	6.6	6	0

Aspect: 340 | Date Measured: 05/13/92 | Site Treatment: No cutting | Site: 6
Slope: 40 | Date Remeasured: 08/30/94 | 1996 Plot Treatment: Leave | Plot: 10
ELT: 18 | White oak site index: 66 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	306	90	74	--	--	--	--	--	--	7.3	1.8
≥ 4.5"	86	83	65	1416	7964	12	14.0	9.7	11.6	0.7	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
572	4003	4.0	8	0

Aspect: 175 | Date Measured: 05/14/92 | Site Treatment: No cutting | Site: 6
Slope: 19 | Date Remeasured: 08/28/95 | 1996 Plot Treatment: Leave | Plot: 11
ELT: 17 | Shortleaf pine site index: 66 | White oak site index: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	650	112	99	--	--	--	--	--	--	-17.8	0.5
≥ 4.5"	200	95	77	1336	6187	20	10.0	6.3	6.6	-1.5	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.5	2	0

Aspect: 185 | Date Measured: 05/19/92 | Site Treatment: No cutting | Site: 6
Slope: 23 | Date Remeasured: 11/06/95 | 1996 Plot Treatment: Leave | Plot: 12
ELT: 17 | White oak site index: 65 | Black oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	414	104	96	--	--	--	--	--	--	2.8	1.7
≥ 4.5"	194	95	83	1342	6541	14	7.2	3.8	4.0	-1.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.9	2	0

Aspect: 330 | Date Measured: 05/19/92 | Site Treatment: No cutting | Site: 6
Slope: 25 | Date Remeasured: 08/28/95 | 1996 Plot Treatment: Leave | Plot: 13
ELT: 18 | White oak site index: 65 | Scarlet oak site index: 75

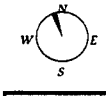
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	315	88	76	--	--	--	--	--	--	-5.5	1.2
≥ 4.5"	140	81	67	1260	6135	16	11.4	11.7	14.4	-0.5	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.0	6	0

Aspect: 260 | Date Measured: 05/19/92 | Site Treatment: No cutting | Site: 6
Slope: 26 | Date Remeasured: 08/28/95 | 1996 Plot Treatment: Leave | Plot: 14
ELT: 17 | White oak site index: 58 | Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	398	94	87	--	--	--	--	--	--	-5.3	-0.3
≥ 4.5"	168	82	72	1205	6005	18	10.7	11.8	14.4	-1.5	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	4	2



Aspect: 345 | Date Measured: 05/19/92 | Site Treatment: No cutting | Site: 6
Slope: 25 | Date Remeasured: 11/06/95 | 1996 Plot Treatment: Leave | Plot: 15
ELT: 18 | White oak site index: 60 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	425	97	86	--	--	--	--	--	--	7.8	0.4
≥ 4.5"	110	84	68	1552	8395	6	5.5	1.6	1.9	-1.0	0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	2	0

Aspect: 235 Date Measured: 05/14/92 Site Treatment: No cutting Site: 6
Slope: 37 Date Remeasured: 11/06/95 1996 Plot Treatment: Leave Plot: 16
ELT: 17 Shortleaf pine site index: 68 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	308	87	75	--	--	--	--	--	--	-0.3	1.9
≥ 4.5"	188	81	68	1177	4843	16	8.5	10.8	13.3	-1.5	1.6

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 190 Date Measured: 05/14/92 Site Treatment: No cutting Site: 6
Slope: 20 Date Remeasured: 11/06/95 1996 Plot Treatment: Leave Plot: 17
ELT: 17 Shortleaf pine site index: 72 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	429	108	89	--	--	--	--	--	--	-11.8	2.1
≥ 4.5"	234	100	78	1538	6346	6	2.6	3.7	3.7	-0.5	2.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.1

Cavities:

Natural cavities/ac	Excavated cavties/ac
8	2

Aspect: 200 Date Measured: 05/14/92 Site Treatment: No cutting Site: 6
Slope: 36 Date Remeasured: 06/28/95 1996 Plot Treatment: Leave Plot: 18
ELT: 19 Shortleaf pine site index: 78 White oak site index: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	359	75	68	--	--	--	--	--	--	-5.5	1.0
≥ 4.5"	134	66	54	1001	4474	14	10.4	6.6	10.1	-0.5	1.1

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
20	0

Aspect: 220 Date Measured: 05/20/92 Site Treatment: No cutting Site: 6
Slope: 7 Date Remeasured: 11/06/95 1996 Plot Treatment: Leave Plot: 19
ELT: 11 Shortleaf pine site index: 68 Black oak site index: 69

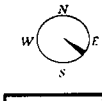
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	447	83	77	--	--	--	--	--	--	4.8	2.3
≥ 4.5"	162	70	58	943	3935	26	16.0	17.8	25.3	1.0	2.1

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.7

Cavities:

Natural cavities/ac	Excavated cavties/ac
14	0



Aspect: 130 Date Measured: 05/20/92 Site Treatment: No cutting Site: 6
Slope: 39 Date Remeasured: 11/27/95 1996 Plot Treatment: Leave Plot: 20
ELT: 17 White oak site index: 71 Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	355	91	77	--	--	--	--	--	--	5.0	1.3
≥ 4.5"	140	80	64	1117	5685	14	10.0	6.9	8.6	0.0	1.2

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 340 | Date Measured: 05/20/92 | Site Treatment: No cutting | Site: 6
Slope: 31 | Date Remeasured: 07/05/95 | 1996 Plot Treatment: Leave | Plot: 21
ELT: 18 | White oak site index: 68 | Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	364	87	79	--	--	--	--	--	--	-7.0	1.6
≥ 4.5"	174	80	70	1120	5163	12	6.9	9.4	11.7	0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
843	3650	1.0	4	0

Aspect: 55 | Date Measured: 05/21/92 | Site Treatment: No cutting | Site: 6
Slope: 28 | Date Remeasured: 08/24/94 | 1996 Plot Treatment: Leave | Plot: 22
ELT: 18 | Black oak site index: 77 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	419	118	103	--	--	--	--	--	--	2.7	1.9
≥ 4.5"	204	111	94	1664	8224	26	12.7	4.8	4.3	-0.7	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
82	497	2.0	6	0

Aspect: 5 | Date Measured: 05/21/92 | Site Treatment: No cutting | Site: 6
Slope: 25 | Date Remeasured: 11/08/95 | 1996 Plot Treatment: Leave | Plot: 23
ELT: 18 | White oak site index: 67 | Scarlet oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	447	116	99	--	--	--	--	--	--	1.8	-0.6
≥ 4.5"	142	104	83	1695	8936	4	2.8	4.3	4.1	0.5	-0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	14	0

Aspect: 280 | Date Measured: 05/21/92 | Site Treatment: No cutting | Site: 6
Slope: 7 | Date Remeasured: 08/24/95 | 1996 Plot Treatment: Leave | Plot: 24
ELT: 11 | Scarlet oak site index: 68 | Black oak site index: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	267	93	81	--	--	--	--	--	--	4.3	2.5
≥ 4.5"	122	87	72	1390	7555	18	14.8	18.4	21.1	0.5	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	0	0

Aspect: 15 | Date Measured: 05/26/92 | Site Treatment: No cutting | Site: 6
Slope: 26 | Date Remeasured: 07/05/95 | 1996 Plot Treatment: Leave | Plot: 25
ELT: 18 | White oak site index: 75 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	400	125	104	--	--	--	--	--	--	5.0	1.8
≥ 4.5"	150	116	93	2031	9917	8	5.3	2.4	2.1	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
681	4010	6.5	16	2

Aspect: 220 | Date Measured: 05/26/92 | Site Treatment: No cutting | Site: 6
Slope: 28 | Date Remeasured: 11/22/95 | 1996 Plot Treatment: Leave | Plot: 26
ELT: 17 | White oak site index: 62 | Scarlet oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	252	105	87	--	--	--	--	--	--	8.3	2.0
≥ 4.5"	152	100	81	1639	8871	28	18.4	12.1	12.0	-0.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	6.6	8	0

Aspect: 230 | Date Measured: 05/26/92 | Site Treatment: No cutting | Site: 6
Slope: 30 | Date Remeasured: 11/22/95 | 1996 Plot Treatment: Leave | Plot: 27
ELT: 17 | Scarlet oak site index: 70 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	320	94	81	--	--	--	--	--	--	2.8	0.3
≥ 4.5"	130	86	70	1414	7507	14	10.8	7.0	8.1	-1.0	0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	4	0

Aspect: 10 | Date Measured: 05/26/92 | Site Treatment: No cutting | Site: 6
Slope: 28 | Date Remeasured: 11/22/95 | 1996 Plot Treatment: Leave | Plot: 28
ELT: 18 | White oak site index: 67 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	352	103	91	--	--	--	--	--	--	-2.8	0.6
≥ 4.5"	162	94	79	1469	7505	18	11.1	5.9	6.2	-1.5	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	12	0

Aspect: 15 | Date Measured: 05/27/92 | Site Treatment: No cutting | Site: 6
Slope: 30 | Date Remeasured: 11/09/95 | 1996 Plot Treatment: Leave | Plot: 29
ELT: 18 | White oak site index: 68 | Scarlet oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	550	114	97	--	--	--	--	--	--	14.5	2.1
≥ 4.5"	130	103	82	1796	9215	16	12.3	7.0	6.8	-0.5	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	2	0

Aspect: 245 | Date Measured: 05/27/92 | Site Treatment: No cutting | Site: 6
Slope: 31 | Date Remeasured: 06/28/95 | 1996 Plot Treatment: Leave | Plot: 30
ELT: 17 | Scarlet oak site index: 64 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	604	115	98	--	--	--	--	--	--	-29.8	1.1
≥ 4.5"	254	99	77	1511	5778	24	9.4	7.4	7.5	-1.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.7	4	0

Aspect: 130 | Date Measured: 05/27/92 | Site Treatment: No cutting | Site: 6
Slope: 39 | Date Remeasured: 06/28/95 | 1996 Plot Treatment: Leave | Plot: 31
ELT: 19 | White oak site index: 65 | Scarlet oak site index: 66

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	685	89	84	--	--	--	--	--	--	-11.8	1.2
≥ 4.5"	210	72	62	1065	2395	20	9.5	5.5	7.6	-0.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	8	2

Aspect: 215 | Date Measured: 05/28/92 | Site Treatment: No cutting | Site: 6
Slope: 24 | Date Remeasured: 11/09/95 | 1996 Plot Treatment: Leave | Plot: 32
ELT: 17 | Shortleaf pine site index: 76 | White oak site index: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	447	110	89	--	--	--	--	--	--	1.8	1.8
≥ 4.5"	152	98	73	1707	9295	10	6.6	3.8	3.9	0.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	2	0

Aspect: 10 | Date Measured: 05/28/92 | Site Treatment: No cutting | Site: 6
Slope: 18 | Date Remeasured: 11/09/95 | 1996 Plot Treatment: Leave | Plot: 33
ELT: 18 | Shortleaf pine site index: 77 | Black oak site index: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	368	97	87	--	--	--	--	--	--	-9.0	1.3
≥ 4.5"	158	87	74	1378	6880	12	7.6	9.6	10.9	1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.8	0	0

Aspect: 290 | Date Measured: 05/28/92 | Site Treatment: No cutting | Site: 6
Slope: 2 | Date Remeasured: 08/22/94 | 1996 Plot Treatment: Leave | Plot: 34
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	472	103	89	--	--	--	--	--	--	8.0	2.0
≥ 4.5"	182	96	78	1372	7128	12	6.6	3.8	4.0	1.3	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
186	1177	1.8	12	0

Aspect: 215 | Date Measured: 05/29/91 | Site Treatment: No cutting | Site: 6
Slope: 15 | Date Remeasured: 08/24/95 | 1996 Plot Treatment: Leave | Plot: 35
ELT: 17 | White oak site index: 57 | Black oak site index: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	403	104	93	--	--	--	--	--	--	12.0	1.4
≥ 4.5"	198	94	80	1371	6526	14	7.1	7.0	7.5	-2.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	2	0

Aspect: 180 | Slope: 20 | ELT: 17 | Date Measured: 05/29/92 | Date Remeasured: 06/28/95 | White oak site index: 63 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 6 | Plot: 36

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	686	109	97	--	--	--	--	--	--	-62.8	-0.6
≥ 4.5"	126	94	76	1739	9056	14	11.1	5.7	6.1	-1.5	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	4	0

Aspect: 190 | Slope: 14 | ELT: 17 | Date Measured: 06/01/92 | Date Remeasured: 08/24/95 | Shortleaf pine site index: 81 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 85 | Site: 6 | Plot: 37

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	449	104	90	--	--	--	--	--	--	34.3	-0.7
≥ 4.5"	144	92	73	1634	8205	6	4.2	7.8	8.5	-0.7	-1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	4	0

Aspect: 40 | Slope: 24 | ELT: 18 | Date Measured: 06/01/92 | Date Remeasured: 11/02/95 | Shortleaf pine site index: 84 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 72 | Site: 6 | Plot: 38

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	339	108	91	--	--	--	--	--	--	20.0	3.1
≥ 4.5"	124	98	78	1610	9019	12	9.7	10.4	10.6	3.3	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	6	0

Aspect: 357 | Slope: 23 | ELT: 18 | Date Measured: 06/01/92 | Date Remeasured: 08/24/95 | Scarlet oak site index: 78 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 90 | Site: 6 | Plot: 39

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	427	110	94	--	--	--	--	--	--	-7.3	0.8
≥ 4.5"	152	98	78	1605	9320	10	6.6	4.6	4.7	-0.7	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	8	0

Aspect: 250 | Slope: 28 | ELT: 17 | Date Measured: 06/02/92 | Date Remeasured: 08/17/94 | Shortleaf pine site index: 69 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 69 | Site: 6 | Plot: 40

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	431	86	76	--	--	--	--	--	--	5.0	7.1
≥ 4.5"	146	75	62	1231	5536	12	8.2	15.9	21.2	5.0	7.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
560	2587	4.6	6	0

Aspect: 5 | Date Measured: 06/02/92 | Site Treatment: No cutting | Site: 6
Slope: 21 | Date Remeasured: 08/17/94 | 1996 Plot Treatment: Leave | Plot: 41
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	405	95	85	--	--	--	--	--	--	-24.0	2.4
≥ 4.5"	160	86	73	1277	6267	12	7.5	6.1	7.1	1.0	3.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
160	1118	1.7	0	0

Aspect: 247 | Date Measured: 06/02/92 | Site Treatment: No cutting | Site: 6
Slope: 24 | Date Remeasured: 11/02/95 | 1996 Plot Treatment: Leave | Plot: 42
ELT: 17 | Scarlet oak site index: 69 | Black oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	394	98	85	--	--	--	--	--	--	10.3	2.6
≥ 4.5"	164	90	74	1224	6370	12	7.3	13.2	14.6	-1.3	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	6.4	2	0

Aspect: 15 | Date Measured: 06/03/92 | Site Treatment: No cutting | Site: 6
Slope: 32 | Date Remeasured: 11/02/95 | 1996 Plot Treatment: Leave | Plot: 43
ELT: 18 | White oak site index: 67 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	440	103	87	--	--	--	--	--	--	-2.3	1.2
≥ 4.5"	160	91	72	1079	5947	8	5.0	1.7	1.9	-0.7	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	4	0

Aspect: 30 | Date Measured: 06/09/92 | Site Treatment: No cutting | Site: 6
Slope: 21 | Date Remeasured: 08/24/95 | 1996 Plot Treatment: Leave | Plot: 44
ELT: 18 | Scarlet oak site index: 75 | Black oak site index: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	473	104	94	--	--	--	--	--	--	-34.3	0.2
≥ 4.5"	188	91	76	1259	6549	30	16.0	7.9	8.7	-2.7	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	10	0

Aspect: 250 | Date Measured: 06/04/92 | Site Treatment: No cutting | Site: 6
Slope: 5 | Date Remeasured: 06/29/95 | 1996 Plot Treatment: Leave | Plot: 45
ELT: 11 | White oak site index: 69 | Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	385	106	96	--	--	--	--	--	--	-3.3	2.6
≥ 4.5"	190	100	87	1398	6812	6	3.2	2.0	2.0	0.0	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	4	0

Aspect: 40 | Slope: 24 | ELT: 18 | Date Measured: 06/04/92 | Date Remeasured: 08/24/95 | White oak site index: 60 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 79 | Site: 6 | Plot: 46

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	414	95	83	--	--	--	--	--	--	13.0	2.2
≥ 4.5"	124	84	69	1374	6957	18	14.5	16.1	19.0	-2.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.6	4	0

Aspect: 275 | Slope: 30 | ELT: 17 | Date Measured: 06/04/92 | Date Remeasured: 11/09/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 6 | Plot: 47

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	374	100	87	--	--	--	--	--	--	-0.3	-0.9
≥ 4.5"	144	90	74	1569	7897	8	5.6	9.2	10.2	-2.0	-1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	4	0

Aspect: 5 | Slope: 23 | ELT: 18 | Date Measured: 06/04/92 | Date Remeasured: 11/09/95 | White oak site index: 68 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 6 | Plot: 48

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	514	102	90	--	--	--	--	--	--	-15.0	2.2
≥ 4.5"	134	88	72	1434	7078	4	3.0	2.4	2.8	0.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.5	6	0

Aspect: 230 | Slope: 13 | ELT: 17 | Date Measured: 06/08/92 | Date Remeasured: 07/05/95 | White oak site index: 58 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 52 | Site: 6 | Plot: 49

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	471	85	85	--	--	--	--	--	--	-9.7	0.6
≥ 4.5"	226	74	70	907	2823	18	8.0	9.5	12.8	-1.3	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	2	0

Aspect: 290 | Slope: 32 | ELT: 17 | Date Measured: 06/08/92 | Date Remeasured: 08/24/95 | White oak site index: 56 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 6 | Plot: 50

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	440	104	89	--	--	--	--	--	--	8.7	0.9
≥ 4.5"	160	92	73	1430	7371	8	5.0	7.3	8.0	-1.3	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	6	0

Aspect: 260 | Date Measured: 06/08/92 | Site Treatment: No cutting | Site: 6
Slope: 30 | Date Remeasured: 08/16/94 | 1996 Plot Treatment: Leave | Plot: 51
ELT: 17 | Black oak site index: 64 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	497	101	91	--	--	--	--	--	--	53.5	44.9
≥ 4.5"	142	89	74	1441	7232	16	11.3	16.8	19.0	71.0	45.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
157	992	3.1

Cavities: Natural cavities/ac	Excavated cavties/ac
6	2

Aspect: 275 | Date Measured: 06/08/92 | Site Treatment: No cutting | Site: 6
Slope: 15 | Date Remeasured: 06/29/95 | 1996 Plot Treatment: Leave | Plot: 52
ELT: 17 | Scarlet oak site index: 69 | Black oak site index: 72

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	384	101	90	--	--	--	--	--	--	-14.7	0.1
≥ 4.5"	144	91	76	1487	8258	20	13.9	9.2	10.1	-1.3	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.3

Cavities: Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 135 | Date Measured: 06/09/92 | Site Treatment: No cutting | Site: 6
Slope: 6 | Date Remeasured: 08/24/95 | 1996 Plot Treatment: Leave | Plot: 53
ELT: 11 | Black oak site index: 71 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	377	114	101	--	--	--	--	--	--	2.0	1.0
≥ 4.5"	172	104	87	1569	8082	20	11.6	12.0	11.6	-1.3	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.7

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 285 | Date Measured: 06/09/92 | Site Treatment: No cutting | Site: 6
Slope: 25 | Date Remeasured: 11/02/95 | 1996 Plot Treatment: Leave | Plot: 54
ELT: 17 | Scarlet oak site index: 60 | Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	365	87	77	--	--	--	--	--	--	-9.3	2.5
≥ 4.5"	170	80	66	1278	6055	8	4.7	5.8	7.2	0.7	2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.2

Cavities: Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 100 | Date Measured: 06/09/92 | Site Treatment: No cutting | Site: 6
Slope: 36 | Date Remeasured: 08/29/94 | 1996 Plot Treatment: Leave | Plot: 55
ELT: 18 | Scarlet oak site index: 77 | Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	481	105	88	--	--	--	--	--	--	-35.5	1.3
≥ 4.5"	106	90	69	1442	7673	8	7.5	3.0	3.3	2.0	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
1391	5358	6.1

Cavities: Natural cavities/ac	Excavated cavties/ac
10	0

Aspect: 100 | Slope: 25 | ELT: 18 | Date Measured: 06/11/92 | Date Remeasured: 07/05/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 6 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	429	95	86	--	--	--	--	--	--	6.3	1.9
≥ 4.5"	134	82	68	1398	7102	8	6.0	3.6	4.4	1.3	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	6	0

Aspect: 115 | Slope: 24 | ELT: 18 | Date Measured: 06/10/92 | Date Remeasured: 11/02/95 | Black oak site index: 78 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 6 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	487	90	82	--	--	--	--	--	--	-13.7	1.3
≥ 4.5"	152	80	67	1074	5389	6	3.9	2.2	2.7	1.3	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.8	2	0

Aspect: 240 | Slope: 25 | ELT: 17 | Date Measured: 06/10/92 | Date Remeasured: 11/02/95 | Scarlet oak site index: 67 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 69 | Site: 6 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	378	112	89	--	--	--	--	--	--	-5.7	0.3
≥ 4.5"	108	102	75	1817	9778	6	5.6	4.3	4.2	-0.7	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.3	6	0

Aspect: 190 | Slope: 29 | ELT: 17 | Date Measured: 06/08/92 | Date Remeasured: 06/29/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 6 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	514	77	72	--	--	--	--	--	--	-17.3	1.8
≥ 4.5"	164	60	50	681	2658	12	7.3	9.4	15.6	2.7	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
27	232	0.3	16	0

Aspect: 40 | Slope: 24 | ELT: 18 | Date Measured: 06/10/92 | Date Remeasured: 06/29/95 | Scarlet oak site index: 74 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 6 | Plot: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	480	109	95	--	--	--	--	--	--	-2.0	2.7
≥ 4.5"	130	97	78	1598	8128	12	9.2	5.4	5.5	1.3	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	6.2	4	0

Aspect: 190 | Slope: 30 | ELT: 17 | Date Measured: 06/11/92 | Date Remeasured: 11/02/95 | White oak site index: 58 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 65 | Site: 6 | Plot: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	297	78	69	--	--	--	--	--	--	20.7	3.4
≥ 4.5"	122	71	58	1114	5806	20	16.4	8.5	12.0	0.7	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.1	0	0

Aspect: 220 | Slope: 38 | ELT: 17 | Date Measured: 06/15/92 | Date Remeasured: 11/08/95 | Shortleaf pine site index: 72 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 61 | Site: 6 | Plot: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	542	136	108	--	--	--	--	--	--	-28.7	1.2
≥ 4.5"	292	124	92	1922	7540	18	6.2	6.4	5.2	-2.0	2.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	6	0

Aspect: 210 | Slope: 3 | ELT: 11 | Date Measured: 06/15/92 | Date Remeasured: 06/29/95 | Black oak site index: 72 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 6 | Plot: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	461	108	96	--	--	--	--	--	--	-13.7	2.1
≥ 4.5"	226	98	81	1354	5607	6	2.7	2.5	2.5	-2.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	14	0

Aspect: 250 | Slope: 27 | ELT: 17 | Date Measured: 06/16/92 | Date Remeasured: 11/07/95 | Scarlet oak site index: 72 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 6 | Plot: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	395	85	77	--	--	--	--	--	--	16.3	1.5
≥ 4.5"	140	76	64	1136	5897	0	0.0	0.0	0.0	1.3	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	10	2

Aspect: 200 | Slope: 40 | ELT: 17 | Date Measured: 06/17/92 | Date Remeasured: 11/07/95 | Scarlet oak site index: 63 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 67 | Site: 6 | Plot: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	495	104	93	--	--	--	--	--	--	-25.3	1.5
≥ 4.5"	200	92	76	1397	6066	4	2.0	3.6	3.9	1.3	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.0	12	0

Aspect: 85 | Date Measured: 06/16/92 | Site Treatment: No cutting | Site: 6
Slope: 38 | Date Remeasured: 11/07/95 | 1996 Plot Treatment: Leave | Plot: 66
ELT: 18 | White oak site index: 76 | Black oak site index: 78

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	371	100	81	--	--	--	--	--	--	10.7	2.9
≥ 4.5"	116	89	67	1475	6385	6	5.2	0.7	0.8	4.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	8	0

Aspect: 275 | Date Measured: 06/17/92 | Site Treatment: No cutting | Site: 6
Slope: 5 | Date Remeasured: 11/07/95 | 1996 Plot Treatment: Leave | Plot: 67
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	604	119	98	--	--	--	--	--	--	-7.3	2.4
≥ 4.5"	224	102	75	1586	7386	4	1.8	2.9	2.8	2.7	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.6	2	0

Aspect: 220 | Date Measured: 06/17/92 | Site Treatment: No cutting | Site: 6
Slope: 25 | Date Remeasured: 11/08/95 | 1996 Plot Treatment: Leave | Plot: 68
ELT: 17 | Shortleaf pine site index: 70 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	450	89	80	--	--	--	--	--	--	17.0	3.0
≥ 4.5"	150	78	64	1198	5645	8	5.3	11.3	14.4	2.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	4	2

Aspect: 195 | Date Measured: 06/22/92 | Site Treatment: No cutting | Site: 6
Slope: 20 | Date Remeasured: 08/28/95 | 1996 Plot Treatment: Leave | Plot: 69
ELT: 17 | White oak site index: 71 | Black oak site index: 72

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	527	103	92	--	--	--	--	--	--	6.3	0.6
≥ 4.5"	192	89	72	1200	5123	14	7.3	8.2	9.3	-2.0	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	10	0

Aspect: 310 | Date Measured: 06/22/92 | Site Treatment: No cutting | Site: 6
Slope: 28 | Date Remeasured: 11/07/95 | 1996 Plot Treatment: Leave | Plot: 70
ELT: 17 | White oak site index: 57 | Scarlet oak site index: 53

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	502	98	91	--	--	--	--	--	--	9.3	2.3
≥ 4.5"	242	83	72	1079	4084	10	4.1	1.3	1.5	-0.7	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.8	8	0

Aspect: 270 | Slope: 7 | ELT: 5
Date Measured: 06/22/92 | Date Remeasured: 06/28/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 6 | Plot: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	229	82	65	--	--	--	--	--	--	32.0	2.4
≥ 4.5"	114	77	59	979	6004	16	14.0	12.7	16.5	-1.3	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.6

Cavities: Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 360 | Slope: 23 | ELT: 18
Date Measured: 05/08/91 | Date Remeasured: 08/15/95 | -- site index: --
Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: --
Site: 7 | Plot: 1

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	500	114	101	--	--	--	--	--	--	-26.2	-0.8
≥ 4.5"	160	103	86	1606	8846	18	11.3	7.2	7.0	-3.2	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.0

Cavities: Natural cavities/ac	Excavated cavties/ac
6	2

Aspect: 240 | Slope: 2 | ELT: 11
Date Measured: 05/11/91 | Date Remeasured: 08/10/95 | Shortleaf pine site index: 71
Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 64
Site: 7 | Plot: 2

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	371	115	98	--	--	--	--	--	--	-8.4	1.2
≥ 4.5"	126	107	86	1739	9634	14	11.1	3.9	3.7	-0.4	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.5

Cavities: Natural cavities/ac	Excavated cavties/ac
4	6

Aspect: 230 | Slope: 13 | ELT: 17
Date Measured: 05/09/91 | Date Remeasured: 08/15/95 | -- site index: --
Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: --
Site: 7 | Plot: 3

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	473	80	76	--	--	--	--	--	--	-21.6	0.0
≥ 4.5"	148	68	59	1013	4915	14	9.5	4.1	6.0	-3.6	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities: Natural cavities/ac	Excavated cavties/ac
4	6

Aspect: 205 | Slope: 25 | ELT: 23
Date Measured: 05/09/91 | Date Remeasured: 05/18/95 | -- site index: --
Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: --
Site: 7 | Plot: 4

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	379	96	84	--	--	--	--	--	--	-9.5	0.4
≥ 4.5"	154	88	72	1370	7245	26	16.9	8.1	9.3	-4.5	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities: Natural cavities/ac	Excavated cavties/ac
0	2

Aspect: 320 | Slope: 27 | ELT: 18 | Date Measured: 05/14/91 | Date Remeasured: 08/15/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 5

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	351	94	82	--	--	--	--	--	--	1.8	0.0
≥ 4.5"	126	87	72	1362	7515	32	25.4	8.2	9.4	-3.2	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	2	0

Aspect: 150 | Slope: 27 | ELT: 23 | Date Measured: 05/15/91 | Date Remeasured: 05/18/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 6

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	380	92	82	--	--	--	--	--	--	-17.0	-0.8
≥ 4.5"	170	84	69	1184	5771	16	9.4	7.4	8.9	-4.5	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	10	0

Aspect: 140 | Slope: 24 | ELT: 17 | Date Measured: 05/17/91 | Date Remeasured: 05/18/95 | Scarlet oak site index: 70 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | Black oak site index: 66 | Site: 7 | Plot: 7

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	374	93	82	--	--	--	--	--	--	-15.0	-1.9
≥ 4.5"	114	83	68	1413	7788	8	7.0	4.3	5.1	-2.5	-1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
48	408	1.5	22	0

Aspect: 345 | Slope: 25 | ELT: 18 | Date Measured: 05/17/91 | Date Remeasured: 08/10/95 | Scarlet oak site index: 62 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | Black oak site index: 61 | Site: 7 | Plot: 8

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	441	81	74	--	--	--	--	--	--	-7.2	0.9
≥ 4.5"	126	69	57	1046	5540	6	4.8	2.6	3.7	-1.2	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	2	2

Aspect: 280 | Slope: 25 | ELT: 17 | Date Measured: 05/20/91 | Date Remeasured: 06/15/94 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 9

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	333	77	69	--	--	--	--	--	--	-11.5	1.2
≥ 4.5"	98	69	57	1138	6455	34	34.7	12.6	18.3	3.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
148	1070	0.4	0	0

Aspect: 5 | Slope: 14 | ELT: 18 | Date Measured: 05/20/91 | Date Remeasured: 06/16/94 | Scarlet oak site index: 66 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 68 | Site: 7 | Plot: 10

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees Density (trees/ac)	Dead trees Density % of live	Dead trees Basal area (ft^2/ac)	Dead trees Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	598	126	101	--	--	--	--	--	--	-7.0	2.8
≥ 4.5"	168	111	80	1907	10430	26	15.5	8.2	7.4	3.0	2.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
235	1693	1.0	4	0

Aspect: 315 | Slope: 17 | ELT: 18 | Date Measured: 05/20/91 | Date Remeasured: 01/05/96 | White oak site index: 57 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 59 | Site: 7 | Plot: 11

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees Density (trees/ac)	Dead trees Density % of live	Dead trees Basal area (ft^2/ac)	Dead trees Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	322	95	82	--	--	--	--	--	--	-0.6	-0.7
≥ 4.5"	152	89	75	1324	7120	30	19.7	12.2	13.7	-3.6	-0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.6	2	0

Aspect: 295 | Slope: 4 | ELT: 11 | Date Measured: 05/21/91 | Date Remeasured: 01/05/96 | Shortleaf pine site index: 73 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | Black oak site index: 73 | Site: 7 | Plot: 12

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees Density (trees/ac)	Dead trees Density % of live	Dead trees Basal area (ft^2/ac)	Dead trees Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	404	133	99	--	--	--	--	--	--	5.0	3.2
≥ 4.5"	184	125	87	2157	12298	6	3.3	4.4	3.5	0.0	2.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	0	0

Aspect: 75 | Slope: 17 | ELT: 18 | Date Measured: 05/21/91 | Date Remeasured: 06/09/94 | Scarlet oak site index: 76 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 73 | Site: 7 | Plot: 13

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees Density (trees/ac)	Dead trees Density % of live	Dead trees Basal area (ft^2/ac)	Dead trees Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	387	81	77	--	--	--	--	--	--	-4.5	2.1
≥ 4.5"	192	72	66	977	4127	14	7.3	4.0	5.5	0.5	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
207	1273	2.3	2	2

Aspect: 50 | Slope: 20 | ELT: 18 | Date Measured: 05/21/91 | Date Remeasured: 08/14/95 | White oak site index: 71 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 64 | Site: 7 | Plot: 14

Size Class	Live trees Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees Density (trees/ac)	Dead trees Density % of live	Dead trees Basal area (ft^2/ac)	Dead trees Basal area % of live	Annual growth Density (trees/ac)	Annual growth Basal area (ft^2/ac)
≥ 1.5"	402	99	86	--	--	--	--	--	--	-5.8	-0.5
≥ 4.5"	112	88	70	1410	7845	28	25.0	8.6	9.7	-0.8	-0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.6	2	0

Aspect: 85 | Date Measured: 05/21/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 7 | Date Remeasured: 12/27/95 | 1996 Plot Treatment: Uneven-aged | Plot: 15
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	601	98	89	--	--	--	--	--	--	-17.6	0.5
≥ 4.5"	146	79	64	1215	6059	8	5.5	6.1	7.8	-1.6	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
110	577	4.0	6	0

Aspect: 120 | Date Measured: 05/22/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 15 | Date Remeasured: 01/04/96 | 1996 Plot Treatment: Uneven-aged | Plot: 16
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	288	82	71	--	--	--	--	--	--	7.8	0.9
≥ 4.5"	98	74	60	1251	7014	20	20.4	8.6	11.6	0.8	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	4	0

Aspect: 140 | Date Measured: 05/22/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 3 | Date Remeasured: 05/18/95 | 1996 Plot Treatment: Old growth | Plot: 17
ELT: 7 | Shortleaf pine site index: 72 | Black oak site index: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	592	93	85	--	--	--	--	--	--	-31.0	-0.8
≥ 4.5"	142	78	65	1227	5874	4	2.8	2.5	3.2	-1.0	-0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	12	0

Aspect: 225 | Date Measured: 05/22/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 17 | Date Remeasured: 05/17/95 | 1996 Plot Treatment: Leave | Plot: 18
ELT: 21 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	84	7	8	--	--	--	--	--	--	-3.0	-0.2
≥ 4.5"	14	5	4	66	182	4	28.6	2.1	44.3	-0.5	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	0	0

Aspect: 150 | Date Measured: 05/22/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 20 | Date Remeasured: 01/04/96 | 1996 Plot Treatment: Old growth | Plot: 19
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	563	85	76	--	--	--	--	--	--	-15.8	1.2
≥ 4.5"	148	69	52	1088	5345	22	14.9	11.8	17.2	-0.8	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.1	2	0

Aspect: 150 | Slope: 25 | ELT: 17 | Date Measured: 05/23/91 | Date Remeasured: 06/14/94 | Scarlet oak site index: 77 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 7 | Plot: 20

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	424	87	82	--	--	--	--	--	--	-22.3	0.0
≥ 4.5"	184	76	67	1069	4704	6	3.3	3.6	4.7	-1.0	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
159	1136	1.6	14	2

Aspect: 340 | Slope: 2 | ELT: 15 | Date Measured: 05/23/91 | Date Remeasured: 05/17/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 7 | Plot: 21

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	190	76	64	--	--	--	--	--	--	6.8	-2.4
≥ 4.5"	90	73	58	1145	6693	56	62.2	35.5	48.6	-4.5	-2.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.3	2	20

Aspect: 100 | Slope: 17 | ELT: 18 | Date Measured: 05/23/91 | Date Remeasured: 08/08/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 22

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	187	103	83	--	--	--	--	--	--	4.8	-3.4
≥ 4.5"	102	101	79	1749	9556	32	31.4	17.4	17.3	-3.2	-3.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.8	4	4

Aspect: 110 | Slope: 13 | ELT: 18 | Date Measured: 05/28/91 | Date Remeasured: 05/28/94 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 23

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	304	81	72	--	--	--	--	--	--	10.0	-0.3
≥ 4.5"	94	75	61	1151	6677	26	27.7	26.5	35.5	3.3	-0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
1153	5840	2.6	10	0

Aspect: 85 | Slope: 7 | ELT: 15 | Date Measured: 05/28/91 | Date Remeasured: 05/17/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 24

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	242	76	64	--	--	--	--	--	--	-6.5	-1.4
≥ 4.5"	82	72	57	1253	7013	32	39.0	18.0	24.8	-1.5	-1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	4	0

Aspect: 290 Date Measured: 05/28/91 Site Treatment: Uneven-aged Site: 7
Slope: 25 Date Remeasured: 01/04/96 1996 Plot Treatment: Old growth Plot: 25
ELT: 17 Shortleaf pine site index: 64 Black oak site index: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	298	95	82	--	--	--	--	--	--	1.2	0.6
≥ 4.5"	138	90	75	1394	7677	22	15.9	10.3	11.4	-0.8	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	4	0

Aspect: 60 Date Measured: 05/29/91 Site Treatment: Uneven-aged Site: 7
Slope: 22 Date Remeasured: 01/04/96 1996 Plot Treatment: Old growth Plot: 26
ELT: 18 Scarlet oak site index: 60 Black oak site index: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	291	97	79	--	--	--	--	--	--	5.6	0.6
≥ 4.5"	86	91	72	1563	9121	16	18.6	11.9	13.1	-0.4	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.0	6	0

Aspect: 270 Date Measured: 05/29/91 Site Treatment: Uneven-aged Site: 7
Slope: 28 Date Remeasured: 08/14/95 1996 Plot Treatment: Old growth Plot: 27
ELT: 17 Shortleaf pine site index: 65 Black oak site index: 52

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	329	102	84	--	--	--	--	--	--	-8.6	-1.5
≥ 4.5"	114	97	75	1620	8819	22	19.3	9.1	9.4	-3.6	-1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	20	6

Aspect: 140 Date Measured: 05/29/91 Site Treatment: Uneven-aged Site: 7
Slope: 17 Date Remeasured: 01/08/96 1996 Plot Treatment: Old growth Plot: 28
ELT: 18 Black oak site index: 61 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	368	80	73	--	--	--	--	--	--	-50.4	-1.1
≥ 4.5"	88	68	56	999	5605	22	25.0	14.7	21.4	-0.4	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	6	0

Aspect: 70 Date Measured: 05/29/91 Site Treatment: Uneven-aged Site: 7
Slope: 24 Date Remeasured: 01/05/96 1996 Plot Treatment: Old growth Plot: 29
ELT: 18 Scarlet oak site index: 76 Black oak site index: 74

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	446	94	87	--	--	--	--	--	--	-6.6	0.9
≥ 4.5"	126	81	68	1286	7116	6	4.8	5.0	6.1	0.4	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	2	0

Aspect: 195 | Slope: 6 | ELT: 11 | Date Measured: 05/30/91 | Date Remeasured: 08/08/95 | White oak site index: 77 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 7 | Plot: 30

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	905	96	107	--	--	--	--	--	--	-44.6	0.6
≥ 4.5"	240	65	61	850	2790	0	0.0	0.0	0.0	2.4	2.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 130 | Slope: 27 | ELT: 17 | Date Measured: 05/30/91 | Date Remeasured: 08/14/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 31

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	475	96	88	--	--	--	--	--	--	-2.4	0.8
≥ 4.5"	130	83	69	1349	7504	12	9.2	6.7	8.1	-2.4	0.3

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	2

Aspect: 275 | Slope: 30 | ELT: 17 | Date Measured: 05/30/91 | Date Remeasured: 12/27/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 32

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	548	107	93	--	--	--	--	--	--	2.2	2.1
≥ 4.5"	138	91	69	1553	8678	10	7.2	5.6	6.1	1.2	1.8

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.2

Cavities:

Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 18 | Slope: 20 | ELT: 18 | Date Measured: 06/04/91 | Date Remeasured: 01/08/96 | Shortleaf pine site index: 79 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 86 | Site: 7 | Plot: 33

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	475	79	74	--	--	--	--	--	--	-1.8	2.0
≥ 4.5"	90	66	53	1121	6493	4	4.4	0.9	1.3	2.0	2.1

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 20 | Slope: 2 | ELT: 5 | Date Measured: 06/04/91 | Date Remeasured: 08/09/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 34

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	483	82	76	--	--	--	--	--	--	-6.3	0.9
≥ 4.5"	148	71	60	1069	5147	2	1.4	0.7	0.9	-2.5	0.9

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.1

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 110 | Slope: 16 | ELT: 17 | Date Measured: 06/04/91 | Date Remeasured: 08/08/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 35

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	363	89	83	--	--	--	--	--	--	-16.5	0.9
≥ 4.5"	198	82	74	1117	4927	28	14.1	7.9	9.6	-6.5	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	16	0

Aspect: 180 | Slope: 2 | ELT: 5 | Date Measured: 06/04/91 | Date Remeasured: 08/09/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 36

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	383	81	78	--	--	--	--	--	--	-8.3	0.1
≥ 4.5"	188	72	65	1014	4197	10	5.3	6.2	8.6	-2.0	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	10	0

Aspect: 120 | Slope: 38 | ELT: 18 | Date Measured: 06/04/91 | Date Remeasured: 08/09/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 37

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	319	85	75	--	--	--	--	--	--	-14.8	-0.8
≥ 4.5"	94	77	63	1238	7241	14	14.9	5.9	7.7	-3.5	-0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	0

Aspect: 205 | Slope: 23 | ELT: 17 | Date Measured: 06/05/91 | Date Remeasured: 01/08/96 | Scarlet oak site index: 65 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | Black oak site index: 67 | Site: 7 | Plot: 38

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	324	79	71	--	--	--	--	--	--	0.0	-0.1
≥ 4.5"	84	69	56	1173	6935	20	23.8	14.0	20.2	0.0	-0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	0	0

Aspect: 225 | Slope: 12 | ELT: 17 | Date Measured: 06/05/91 | Date Remeasured: 12/28/95 | Shortleaf pine site index: 80 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 72 | Site: 7 | Plot: 39

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	331	90	83	--	--	--	--	--	--	-9.5	1.8
≥ 4.5"	206	84	74	1161	4939	12	5.8	3.2	3.8	-2.0	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.1	0	0

Aspect: 65 | Date Measured: 06/05/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 19 | Date Remeasured: 08/08/95 | 1996 Plot Treatment: Leave | Plot: 40
ELT: 18 | White oak site index: 75 | Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	402	108	97	--	--	--	--	--	--	1.3	-0.2
≥ 4.5"	142	97	81	1495	8437	16	11.3	5.8	5.9	-2.5	-0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	8	0

Aspect: 275 | Date Measured: 06/06/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 6 | Date Remeasured: 12/28/95 | 1996 Plot Treatment: Uneven-aged | Plot: 41
ELT: 11 | Scarlet oak site index: 66 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	229	106	88	--	--	--	--	--	--	-1.8	0.9
≥ 4.5"	124	103	84	1639	9502	34	27.4	13.4	12.9	-3.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	16	8

Aspect: 2 | Date Measured: 06/06/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 17 | Date Remeasured: 06/20/94 | 1996 Plot Treatment: Uneven-aged | Plot: 42
ELT: 17 | Scarlet oak site index: 91 | Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	304	94	80	--	--	--	--	--	--	-11.7	2.8
≥ 4.5"	184	86	69	1316	6237	20	10.9	6.7	7.8	6.7	4.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
113	867	1.6	0	0

Aspect: 300 | Date Measured: 06/14/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 14 | Date Remeasured: 08/07/95 | 1996 Plot Treatment: Leave | Plot: 43
ELT: 17 | White oak site index: 67 | Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	266	94	80	--	--	--	--	--	--	-12.3	-0.3
≥ 4.5"	136	90	74	1388	7719	20	14.7	7.7	8.6	-3.5	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	0	2

Aspect: 90 | Date Measured: 06/06/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 28 | Date Remeasured: 08/09/95 | 1996 Plot Treatment: Leave | Plot: 44
ELT: 17 | White oak site index: 84 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	359	92	82	--	--	--	--	--	--	-2.8	0.9
≥ 4.5"	134	86	72	1333	7203	22	16.4	11.0	12.8	-1.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	6	0

Aspect: 275 | Date Measured: 06/06/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 20 | Date Remeasured: 08/07/95 | 1996 Plot Treatment: Leave | Plot: 45
ELT: 18 | White oak site index: 62 | Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	441	77	74	--	--	--	--	--	--	12.3	17.9
≥ 4.5"	136	64	55	983	4597	12	8.8	6.5	10.1	31.0	18.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 110 | Date Measured: 06/07/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 18 | Date Remeasured: 06/20/94 | 1996 Plot Treatment: Leave | Plot: 46
ELT: 18 | Scarlet oak site index: 87 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	313	93	81	--	--	--	--	--	--	-14.3	0.0
≥ 4.5"	138	86	71	1573	7816	8	5.8	3.4	3.9	-2.7	0.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
107	724	1.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
8	0

Aspect: 190 | Date Measured: 06/10/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 2 | Date Remeasured: 12/26/95 | 1996 Plot Treatment: Uneven-aged | Plot: 47
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	472	91	84	--	--	--	--	--	--	-30.0	-1.2
≥ 4.5"	152	77	63	1217	6400	0	0.0	0.0	0.0	-5.0	-0.3

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 170 | Date Measured: 06/10/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 20 | Date Remeasured: 12/26/95 | 1996 Plot Treatment: Leave | Plot: 48
ELT: 17 | Scarlet oak site index: 75 | Black oak site index: 72

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	421	89	87	--	--	--	--	--	--	-10.3	1.8
≥ 4.5"	206	79	72	974	4068	14	6.8	5.2	6.6	-4.0	2.0

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	4

Aspect: 355 | Date Measured: 06/10/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 21 | Date Remeasured: 08/15/95 | 1996 Plot Treatment: Uneven-aged | Plot: 49
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	430	98	88	--	--	--	--	--	--	-23.8	0.1
≥ 4.5"	110	87	71	1508	8767	20	18.2	9.5	10.9	-2.5	0.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 215 Date Measured: 06/11/91 Site Treatment: Uneven-aged Site: 7
Slope: 15 Date Remeasured: 08/15/95 1996 Plot Treatment: Uneven-aged Plot: 50
ELT: 17 Scarlet oak site index: 78 Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	511	95	89	--	--	--	--	--	--	-29.8	0.9
≥ 4.5"	146	81	68	1292	6550	6	4.1	2.4	3.0	-6.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.0	0	0

Aspect: 185 Date Measured: 06/11/91 Site Treatment: Uneven-aged Site: 7
Slope: 5 Date Remeasured: 12/26/95 1996 Plot Treatment: Uneven-aged Plot: 51
ELT: 11 Scarlet oak site index: 70 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	200	102	84	--	--	--	--	--	--	-3.8	0.8
≥ 4.5"	120	99	79	1685	9896	20	16.7	8.6	8.7	-2.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	0

Aspect: 25 Date Measured: 06/12/91 Site Treatment: Uneven-aged Site: 7
Slope: 4 Date Remeasured: 05/18/95 1996 Plot Treatment: Uneven-aged Plot: 52
ELT: 11 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	399	86	80	--	--	--	--	--	--	-19.3	1.5
≥ 4.5"	134	76	65	1106	5767	8	6.0	6.0	7.9	0.7	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	0	0

Aspect: 285 Date Measured: 06/12/91 Site Treatment: Uneven-aged Site: 7
Slope: 12 Date Remeasured: 01/05/96 1996 Plot Treatment: Leave Plot: 53
ELT: 17 Scarlet oak site index: 67 Black oak site index: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	363	92	83	--	--	--	--	--	--	4.8	0.9
≥ 4.5"	118	81	67	1328	7323	18	15.3	9.1	11.2	-1.5	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	6	0

Aspect: 270 Date Measured: 06/13/91 Site Treatment: Uneven-aged Site: 7
Slope: 21 Date Remeasured: 08/08/95 1996 Plot Treatment: Leave Plot: 54
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	647	85	85	--	--	--	--	--	--	-54.0	0.2
≥ 4.5"	202	64	55	992	3607	4	2.0	1.9	3.0	1.0	2.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	6	0

Aspect: 80 | Date Measured: 06/13/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 32 | Date Remeasured: 01/05/96 | 1996 Plot Treatment: Uneven-aged | Plot: 55
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	435	83	76	--	--	--	--	--	--	-18.8	-4.2
≥ 4.5"	120	70	57	1106	5538	6	5.0	2.0	2.9	-7.5	-3.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	4	0

Aspect: 220 | Date Measured: 06/14/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 22 | Date Remeasured: 05/16/95 | 1996 Plot Treatment: Leave | Plot: 56
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	519	79	73	--	--	--	--	--	--	-50.3	0.0
≥ 4.5"	74	61	46	1198	6302	10	13.5	5.0	8.2	1.3	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
94	639	0.4	4	0

Aspect: 85 | Date Measured: 06/17/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 24 | Date Remeasured: 12/21/95 | 1996 Plot Treatment: Leave | Plot: 57
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	199	92	77	--	--	--	--	--	--	8.0	1.4
≥ 4.5"	104	88	71	1437	8356	10	9.6	4.0	4.5	-2.0	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	0	0

Aspect: 180 | Date Measured: 06/17/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 6 | Date Remeasured: 05/16/95 | 1996 Plot Treatment: Uneven-aged | Plot: 58
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	317	93	85	--	--	--	--	--	--	-16.0	1.8
≥ 4.5"	182	86	75	1126	5040	22	12.1	4.0	4.7	-2.7	2.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	6	0

Aspect: 280 | Date Measured: 06/18/91 | Site Treatment: Uneven-aged | Site: 7
Slope: 20 | Date Remeasured: 12/21/95 | 1996 Plot Treatment: Leave | Plot: 59
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	261	94	84	--	--	--	--	--	--	-2.3	1.8
≥ 4.5"	196	92	81	1369	6357	32	16.3	7.6	8.3	-6.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	0	0

Aspect: 175 Date Measured: 06/18/91 Site Treatment: Uneven-aged Site: 7
Slope: 2 Date Remeasured: 05/16/95 1996 Plot Treatment: Leave Plot: 60
ELT: 5 Shortleaf pine site index: 51 Black oak site index: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	599	81	83	--	--	--	--	--	--	-33.0	0.5
≥ 4.5"	204	66	62	805	2870	4	2.0	1.9	2.9	-1.3	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	2	0

Aspect: 175 Date Measured: 06/19/91 Site Treatment: Uneven-aged Site: 7
Slope: 2 Date Remeasured: 05/16/95 1996 Plot Treatment: Leave Plot: 61
ELT: 5 Scarlet oak site index: 76 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	655	86	90	--	--	--	--	--	--	-3.7	1.6
≥ 4.5"	250	72	70	828	2182	8	3.2	1.3	1.7	-2.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	0	0

Aspect: 345 Date Measured: 06/19/91 Site Treatment: Uneven-aged Site: 7
Slope: 21 Date Remeasured: 12/28/95 1996 Plot Treatment: Leave Plot: 62
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	307	89	79	--	--	--	--	--	--	1.8	0.5
≥ 4.5"	112	81	67	1361	7585	36	32.1	15.4	19.1	-2.0	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	4	0

Aspect: 190 Date Measured: 06/19/91 Site Treatment: Uneven-aged Site: 7
Slope: 5 Date Remeasured: 12/26/95 1996 Plot Treatment: Uneven-aged Plot: 63
ELT: 11 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	272	84	75	--	--	--	--	--	--	-18.0	0.5
≥ 4.5"	152	77	66	1169	5923	30	19.7	5.7	7.3	-3.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	0	0

Aspect: 215 Date Measured: 06/20/91 Site Treatment: Uneven-aged Site: 7
Slope: 22 Date Remeasured: 12/26/95 1996 Plot Treatment: Leave Plot: 64
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	191	91	74	--	--	--	--	--	--	-1.0	-0.3
≥ 4.5"	116	88	69	1499	8517	38	32.8	11.1	12.7	-3.5	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	2	0

Aspect: 205 | Slope: 23 | ELT: 17 | Date Measured: 06/20/91 | Date Remeasured: 08/08/95 | Scarlet oak site index: 67 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	397	87	74	--	--	--	--	--	--	-7.8	1.5
≥ 4.5"	162	77	60	1287	6473	18	11.1	4.9	6.3	1.0	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	0	0

Aspect: 310 | Slope: 26 | ELT: 17 | Date Measured: 06/20/91 | Date Remeasured: 06/21/94 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Uneven-aged | -- site index: -- | Site: 7 | Plot: 66

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	490	96	80	--	--	--	--	--	--	-17.7	0.9
≥ 4.5"	130	83	61	1491	8062	6	4.6	3.4	4.1	0.7	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
104	830	1.6	10	0

Aspect: 185 | Slope: 16 | ELT: 17 | Date Measured: 06/24/91 | Date Remeasured: 12/28/95 | White oak site index: 62 | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 66 | Site: 7 | Plot: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	511	96	84	--	--	--	--	--	--	2.5	-1.5
≥ 4.5"	146	85	67	1435	7542	2	1.4	1.3	1.6	-2.5	-1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	16	2

Aspect: 185 | Slope: 6 | ELT: 11 | Date Measured: 06/24/91 | Date Remeasured: 08/09/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	143	90	73	--	--	--	--	--	--	11.5	0.3
≥ 4.5"	108	90	72	1343	7821	24	22.2	11.7	13.0	-3.5	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	2	0

Aspect: 265 | Slope: 28 | ELT: 17 | Date Measured: 06/25/91 | Date Remeasured: 12/27/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	224	95	76	--	--	--	--	--	--	18.5	1.0
≥ 4.5"	144	91	70	1496	8454	8	5.6	3.9	4.3	-1.5	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	2	0

Aspect: 235 | Slope: 18 | ELT: 17 | Date Measured: 06/25/91 | Date Remeasured: 12/27/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 7 | Plot: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	372	110	88	--	--	--	--	--	--	7.8	1.3
≥ 4.5"	212	102	77	1660	8065	12	5.7	2.5	2.4	-1.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.9	0	0

Aspect: 160 | Slope: 4 | ELT: 7 | Date Measured: 06/26/91 | Date Remeasured: 05/17/95 | -- site index: -- | Site Treatment: Uneven-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 7 | Plot: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	476	89	78	--	--	--	--	--	--	-8.3	1.1
≥ 4.5"	166	78	63	1124	4940	12	7.2	9.3	11.9	0.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	5.1	12	0

Aspect: 252 | Slope: 6 | ELT: 17 | Date Measured: 10/22/90 | Date Remeasured: 07/12/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 1

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	238	91	77	--	--	--	--	--	--	21.2	1.0
≥ 4.5"	98	88	70	1377	7668	26	26.5	14.9	17.0	-0.8	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
168	1251	0.9	0	0

Aspect: 245 | Slope: 15 | ELT: 17 | Date Measured: 10/23/90 | Date Remeasured: 07/12/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 2

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	355	79	71	--	--	--	--	--	--	-27.4	-2.2
≥ 4.5"	80	70	57	1093	6446	44	55.0	19.7	28.2	-2.4	-1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
365	2171	3.7	2	0

Aspect: 180 | Slope: 13 | ELT: 17 | Date Measured: 10/24/90 | Date Remeasured: 06/21/94 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 3

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	353	62	58	--	--	--	--	--	--	7.5	2.3
≥ 4.5"	78	52	43	830	4484	30	38.5	17.2	32.9	5.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
374	2273	5.8	4	0

Aspect: 320 | Slope: 19 | ELT: 18 | Date Measured: 10/30/90 | Date Remeasured: 07/17/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 4

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	242	85	72	--	--	--	--	--	--	8.0	2.2
≥ 4.5"	112	82	67	1294	7389	50	44.6	21.1	25.9	0.0	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	2	0

Aspect: 170 | Slope: 4 | ELT: 11 | Date Measured: 10/31/90 | Date Remeasured: 07/17/95 | Shortleaf pine site index: 72 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 62 | Site: 8 | Plot: 5

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	206	92	76	--	--	--	--	--	--	-0.4	-4.8
≥ 4.5"	106	89	71	1490	8512	14	13.2	11.0	12.4	-4.4	-4.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	10	0

Aspect: 180 | Slope: 16 | ELT: 17 | Date Measured: 10/31/90 | Date Remeasured: 07/11/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 6

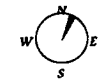
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	304	77	67	--	--	--	--	--	--	12.8	1.0
≥ 4.5"	94	71	57	1179	6427	18	19.1	15.9	22.6	-1.2	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	14	0

Aspect: 260 | Slope: 6 | ELT: 11 | Date Measured: 11/01/90 | Date Remeasured: 07/18/95 | White oak site index: 56 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 58 | Site: 8 | Plot: 7

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	217	83	69	--	--	--	--	--	--	2.8	1.3
≥ 4.5"	102	81	65	1342	7029	32	31.4	16.4	20.3	-1.2	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.5	2	0



Aspect: 25 | Slope: 21 | ELT: 18 | Date Measured: 11/02/90 | Date Remeasured: 12/19/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 8

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	294	95	81	--	--	--	--	--	--	0.2	1.2
≥ 4.5"	124	90	74	1409	7828	32	25.8	10.4	11.5	-0.8	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.8	2	0

Aspect: 290 | Date Measured: 11/05/90 | Site Treatment: No cutting | Site: 8
Slope: 21 | Date Remeasured: 12/19/95 | 1996 Plot Treatment: Leave | Plot: 9
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	284	83	69	--	--	--	--	--	--	5.4	1.5
≥ 4.5"	104	76	60	1222	6765	12	11.5	6.3	8.3	0.4	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	16	0

Aspect: 230 | Date Measured: 11/05/90 | Site Treatment: No cutting | Site: 8
Slope: 23 | Date Remeasured: 07/17/95 | 1996 Plot Treatment: Leave | Plot: 10
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	426	79	72	--	--	--	--	--	--	-12.0	1.0
≥ 4.5"	96	69	55	1182	6429	12	12.5	19.3	28.1	0.0	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	12	0

Aspect: 25 | Date Measured: 11/06/90 | Site Treatment: No cutting | Site: 8
Slope: 15 | Date Remeasured: 06/23/94 | 1996 Plot Treatment: Leave | Plot: 11
ELT: 18 | Shortleaf pine site index: 72 | Scarlet oak site index: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	380	103	89	--	--	--	--	--	--	3.3	1.2
≥ 4.5"	100	92	72	1674	9514	20	20.0	11.2	12.2	2.0	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
202	1120	0.9	6	0

Aspect: 310 | Date Measured: 11/06/90 | Site Treatment: No cutting | Site: 8
Slope: 18 | Date Remeasured: 08/07/95 | 1996 Plot Treatment: Leave | Plot: 12
ELT: 17 | Shortleaf pine site index: 71 | Black oak site index: 83

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	478	98	91	--	--	--	--	--	--	-14.8	-4.6
≥ 4.5"	138	84	70	1369	7245	10	7.2	4.6	5.5	-2.8	-4.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	6	0

Aspect: 0 | Date Measured: 11/07/90 | Site Treatment: No cutting | Site: 8
Slope: 7 | Date Remeasured: 12/18/95 | 1996 Plot Treatment: Leave | Plot: 13
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	Den sity % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	341	100	81	--	--	--	--	--	--	5.2	1.3
≥ 4.5"	106	93	71	1443	7953	26	24.5	12.5	13.4	-0.8	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	16	0

Aspect: 270 Date Measured: 11/07/90 Site Treatment: No cutting Site: 8
Slope: 19 Date Remeasured: 07/11/95 1996 Plot Treatment: Leave Plot: 14
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	298	86	75	--	--	--	--	--	--	-2.0	-1.0
≥ 4.5"	98	79	65	1311	7555	8	8.2	3.3	4.2	-2.0	-1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	16	0

Aspect: 60 Date Measured: 11/08/90 Site Treatment: No cutting Site: 8
Slope: 22 Date Remeasured: 07/11/95 1996 Plot Treatment: Leave Plot: 15
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	342	109	90	--	--	--	--	--	--	1.4	0.2
≥ 4.5"	122	102	81	1586	9282	22	18.0	13.1	12.8	-1.6	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	8	0

Aspect: 180 Date Measured: 11/19/90 Site Treatment: No cutting Site: 8
Slope: 25 Date Remeasured: 07/24/95 1996 Plot Treatment: Leave Plot: 16
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	364	80	71	--	--	--	--	--	--	-21.6	0.4
≥ 4.5"	124	73	61	1114	5711	20	16.1	7.7	10.5	-1.6	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.9	2	0

Aspect: 65 Date Measured: 11/20/90 Site Treatment: No cutting Site: 8
Slope: 20 Date Remeasured: 07/24/95 1996 Plot Treatment: Leave Plot: 17
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	562	109	98	--	--	--	--	--	--	-55.0	-2.1
≥ 4.5"	102	92	74	1610	9085	12	11.8	5.3	5.8	-2.0	-0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	2	0

Aspect: 351 Date Measured: 11/13/90 Site Treatment: No cutting Site: 8
Slope: 7 Date Remeasured: 07/11/95 1996 Plot Treatment: Leave Plot: 18
ELT: 11 Black oak site index: 75 -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	144	87	71	--	--	--	--	--	--	0.4	-0.2
≥ 4.5"	84	85	67	1519	8799	34	40.5	20.9	24.6	-1.6	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.6	6	0

Aspect: 261 | Slope: 13 | ELT: 17 | Date Measured: 11/14/90 | Date Remeasured: 07/11/95 | Scarlet oak site index: 69 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 69 | Site: 8 | Plot: 19

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	257	78	70	--	--	--	--	--	--	-7.4	1.9
≥ 4.5"	112	72	60	1102	5605	50	44.6	26.3	36.4	-0.4	2.2

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 340 | Slope: 20 | ELT: 18 | Date Measured: 11/15/90 | Date Remeasured: 06/23/94 | Black oak site index: 67 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 20

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	256	96	82	--	--	--	--	--	--	5.5	1.1
≥ 4.5"	116	91	74	1499	8499	24	20.7	11.7	12.8	0.5	0.8

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
392	2798	2.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
18	0

Aspect: 215 | Slope: 13 | ELT: 17 | Date Measured: 11/16/90 | Date Remeasured: 07/17/95 | White oak site index: 65 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 62 | Site: 8 | Plot: 21

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	156	83	69	--	--	--	--	--	--	4.4	0.4
≥ 4.5"	106	81	66	1374	7746	18	17.0	7.0	8.7	-1.6	0.2

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.9

Cavities:

Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 208 | Slope: 3 | ELT: 11 | Date Measured: 11/16/90 | Date Remeasured: 12/11/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 22

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	257	94	78	--	--	--	--	--	--	8.8	1.2
≥ 4.5"	82	89	70	1571	9027	38	46.3	18.0	20.3	-1.2	0.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.4

Cavities:

Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 330 | Slope: 27 | ELT: 18 | Date Measured: 11/19/90 | Date Remeasured: 07/17/95 | White oak site index: 52 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 78 | Site: 8 | Plot: 23

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	413	97	86	--	--	--	--	--	--	4.6	0.7
≥ 4.5"	118	89	74	1481	8437	24	20.3	13.0	14.6	-2.4	0.2

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
620	3235	0.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 315 | Slope: 2 | ELT: 21 | Date Measured: 11/20/90 | Date Remeasured: 07/13/95 | Scarlet oak site index: 63 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 66 | Site: 8 | Plot: 24

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	310	81	73	--	--	--	--	--	--	-18.0	0.1
≥ 4.5"	120	74	62	1039	4848	16	13.3	6.7	9.1	-2.0	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.8	14	0

Aspect: 160 | Slope: 5 | ELT: 11 | Date Measured: 11/20/90 | Date Remeasured: 12/18/95 | Shortleaf pine site index: 66 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 62 | Site: 8 | Plot: 25

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	302	95	85	--	--	--	--	--	--	0.2	1.5
≥ 4.5"	162	90	77	1236	6474	20	12.3	5.1	5.7	-2.8	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.3	0	0

Aspect: 75 | Slope: 18 | ELT: 18 | Date Measured: 11/21/90 | Date Remeasured: 07/24/95 | Black oak site index: 66 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 26

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	254	99	85	--	--	--	--	--	--	-1.2	0.0
≥ 4.5"	134	95	78	1483	8412	28	20.9	12.5	13.2	-3.2	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	4	0

Aspect: 210 | Slope: 40 | ELT: 21 | Date Measured: 11/26/90 | Date Remeasured: 07/25/95 | White oak site index: 52 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Scarlet oak site index: 58 | Site: 8 | Plot: 27

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	474	89	84	--	--	--	--	--	--	-23.6	0.5
≥ 4.5"	164	77	66	1092	3849	28	17.1	12.3	16.0	-1.6	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	24	0

Aspect: 50 | Slope: 12 | ELT: 5 | Date Measured: 11/26/90 | Date Remeasured: 07/25/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 28

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	523	80	74	--	--	--	--	--	--	-19.4	0.9
≥ 4.5"	128	66	55	964	4265	14	10.9	3.7	5.6	-0.4	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	0	0

Aspect: 205 Date Measured: 11/28/90 Site Treatment: No cutting Site: 8
Slope: 27 Date Remeasured: 07/11/95 1996 Plot Treatment: Leave Plot: 29
ELT: 23 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	361	38	40	--	--	--	--	--	--	-2.6	0.4
≥ 4.5"	106	27	25	289	616	6	5.7	0.7	2.6	0.4	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	2	0

Aspect: 40 Date Measured: 11/28/90 Site Treatment: No cutting Site: 8
Slope: 5 Date Remeasured: 07/19/95 1996 Plot Treatment: Leave Plot: 30
ELT: 5 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	522	76	72	--	--	--	--	--	--	-3.4	1.4
≥ 4.5"	142	63	54	863	3595	0	0.0	0.0	0.0	1.6	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	0	0

Aspect: 75 Date Measured: 12/07/90 Site Treatment: No cutting Site: 8
Slope: 11 Date Remeasured: 07/10/95 1996 Plot Treatment: Leave Plot: 31
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	433	78	73	--	--	--	--	--	--	-9.8	0.9
≥ 4.5"	148	68	60	899	4112	16	10.8	5.8	8.6	-0.8	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	6	0

Aspect: 65 Date Measured: 12/07/90 Site Treatment: No cutting Site: 8
Slope: 30 Date Remeasured: 12/20/95 1996 Plot Treatment: Leave Plot: 32
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	394	77	72	--	--	--	--	--	--	20.4	2.4
≥ 4.5"	134	68	59	948	4805	6	4.5	1.6	2.4	0.4	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	4.7	2	0

Aspect: 255 Date Measured: 12/06/90 Site Treatment: No cutting Site: 8
Slope: 13 Date Remeasured: 12/21/95 1996 Plot Treatment: Leave Plot: 33
ELT: 5 Scarlet oak site index: 66 Black oak site index: 77

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	427	96	85	--	--	--	--	--	--	11.8	1.2
≥ 4.5"	172	85	71	1256	6245	12	7.0	2.0	2.3	-3.2	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	8	0

Aspect: 200 Date Measured: 11/29/90 Site Treatment: No cutting Site: 8
Slope: 11 Date Remeasured: 07/13/95 1996 Plot Treatment: Leave Plot: 34
ELT: 17 Shortleaf pine site index: 64 Black oak site index: 66

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	365	88	79	--	--	--	--	--	--	-8.4	-0.5
≥ 4.5"	170	83	71	1128	5113	6	3.5	1.0	1.2	-4.4	-0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	4	0

Aspect: 270 Date Measured: 12/10/90 Site Treatment: No cutting Site: 8
Slope: 26 Date Remeasured: 07/10/95 1996 Plot Treatment: Leave Plot: 35
ELT: 18 Scarlet oak site index: 73 Black oak site index: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	358	113	94	--	--	--	--	--	--	-6.8	0.6
≥ 4.5"	208	106	85	1584	7799	20	9.6	5.2	4.9	-2.8	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.9	8	0

Aspect: 130 Date Measured: 12/11/90 Site Treatment: No cutting Site: 8
Slope: 22 Date Remeasured: 07/13/95 1996 Plot Treatment: Leave Plot: 36
ELT: 23 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	700	77	72	--	--	--	--	--	--	-32.6	0.1
≥ 4.5"	120	59	48	810	3758	2	1.7	3.0	5.1	-1.6	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	0	0

Aspect: 260 Date Measured: 12/11/90 Site Treatment: No cutting Site: 8
Slope: 29 Date Remeasured: 07/13/95 1996 Plot Treatment: Leave Plot: 37
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	487	105	95	--	--	--	--	--	--	-3.4	0.6
≥ 4.5"	142	93	78	1345	7159	20	14.1	9.3	10.0	-0.4	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	6	0

Aspect: 225 Date Measured: 12/12/90 Site Treatment: No cutting Site: 8
Slope: 45 Date Remeasured: 07/24/95 1996 Plot Treatment: Leave Plot: 38
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	471	106	89	--	--	--	--	--	--	-22.0	0.7
≥ 4.5"	216	94	73	1415	6345	10	4.6	5.2	5.5	-2.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	8	0

Aspect: 70 | Date Measured: 12/12/90 | Site Treatment: No cutting | Site: 8
Slope: 26 | Date Remeasured: 06/23/94 | 1996 Plot Treatment: Leave | Plot: 39
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	426	99	91	--	--	--	--	--	--	-6.3	1.3
≥ 4.5"	176	89	77	1183	5961	6	3.4	1.4	1.6	0.0	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
71	651	0.5

Cavities: Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 320 | Date Measured: 12/13/90 | Site Treatment: No cutting | Site: 8
Slope: 37 | Date Remeasured: 12/20/95 | 1996 Plot Treatment: Leave | Plot: 40
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	431	104	91	--	--	--	--	--	--	-0.8	-0.4
≥ 4.5"	156	96	80	1417	7592	30	19.2	16.8	17.5	-2.8	-0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.8

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 200 | Date Measured: 12/14/90 | Site Treatment: No cutting | Site: 8
Slope: 39 | Date Remeasured: 07/11/95 | 1996 Plot Treatment: Leave | Plot: 41
ELT: 22 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	533	88	82	--	--	--	--	--	--	-28.6	0.3
≥ 4.5"	188	74	63	1088	3954	36	19.1	12.2	16.5	-1.6	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.4

Cavities: Natural cavities/ac	Excavated cavties/ac
14	0

Aspect: 330 | Date Measured: 12/14/90 | Site Treatment: No cutting | Site: 8
Slope: 18 | Date Remeasured: 07/12/95 | 1996 Plot Treatment: Leave | Plot: 42
ELT: 18 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	428	94	83	--	--	--	--	--	--	-2.2	0.6
≥ 4.5"	108	84	69	1250	7018	16	14.8	9.8	11.7	-1.2	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.9

Cavities: Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 295 | Date Measured: 12/19/90 | Site Treatment: No cutting | Site: 8
Slope: 25 | Date Remeasured: 07/13/95 | 1996 Plot Treatment: Leave | Plot: 43
ELT: 23 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	300	103	89	--	--	--	--	--	--	-12.2	0.1
≥ 4.5"	140	96	79	1472	8025	34	24.3	12.0	12.4	-3.2	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
109	935	0.6

Cavities: Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 20 | Slope: 13 | ELT: 22
Date Measured: 12/20/90 | Date Remeasured: 07/11/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 44

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	520	99	84	--	--	--	--	--	--	15.4	0.5
≥ 4.5"	120	87	68	1141	5808	24	20.0	10.1	11.6	-3.6	0.0

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.1

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 10 | Slope: 4 | ELT: 15
Date Measured: 12/20/90 | Date Remeasured: 12/20/95 | Shortleaf pine site index: 62
Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 71
Site: 8 | Plot: 45

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	329	108	92	--	--	--	--	--	--	-9.2	0.2
≥ 4.5"	144	101	82	1574	8610	12	8.3	10.7	10.6	-1.2	0.3

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 225 | Slope: 36 | ELT: 17
Date Measured: 01/02/91 | Date Remeasured: 07/12/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 46

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	405	83	77	--	--	--	--	--	--	-19.4	-2.1
≥ 4.5"	140	72	61	1048	5304	24	17.1	9.9	13.7	-4.4	-1.5

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.4

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 355 | Slope: 11 | ELT: 18
Date Measured: 01/03/91 | Date Remeasured: 12/21/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 47

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	541	96	87	--	--	--	--	--	--	-22.4	1.0
≥ 4.5"	146	84	70	1235	6464	18	12.3	12.2	14.6	-0.4	1.4

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
10	0

Aspect: 220 | Slope: 12 | ELT: 22
Date Measured: 01/04/91 | Date Remeasured: 07/12/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 48

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	626	108	99	--	--	--	--	--	--	23.8	1.5
≥ 4.5"	146	90	75	1249	6423	14	9.6	7.1	7.9	-1.2	0.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
24	0

Aspect: 295 Slope: 4 ELT: 5
Date Measured: 01/08/91 Date Remeasured: 12/21/95 Shortleaf pine site index: 68
Site Treatment: No cutting 1996 Plot Treatment: Leave Scarlet oak site index: 56
Site: 8 Plot: 49

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	536	101	94	--	--	--	--	--	--	-4.0	-1.4
≥ 4.5"	196	88	77	1285	5395	8	4.1	4.6	5.2	-6.0	-1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	8	0

Aspect: 330 Slope: 14 ELT: 7
Date Measured: 01/09/91 Date Remeasured: 07/18/95 Shortleaf pine site index: 76
Site Treatment: No cutting 1996 Plot Treatment: Leave -- site index: --
Site: 8 Plot: 50

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	346	85	71	--	--	--	--	--	--	6.8	2.2
≥ 4.5"	96	78	61	1361	7815	22	22.9	15.0	19.2	0.8	1.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	8	0

Aspect: 15 Slope: 9 ELT: 11
Date Measured: 01/14/91 Date Remeasured: 07/18/95 Shortleaf pine site index: 67
Site Treatment: No cutting 1996 Plot Treatment: Leave Black oak site index: 58
Site: 8 Plot: 51

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	288	92	78	--	--	--	--	--	--	-8.2	-0.1
≥ 4.5"	108	85	67	1327	7425	24	22.2	8.4	9.9	-1.2	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.6	12	0

Aspect: 255 Slope: 31 ELT: 17
Date Measured: 01/15/91 Date Remeasured: 06/22/94 Shortleaf pine site index: 65
Site Treatment: No cutting 1996 Plot Treatment: Leave Black oak site index: 70
Site: 8 Plot: 52

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	286	97	77	--	--	--	--	--	--	-1.5	0.5
≥ 4.5"	156	93	71	1512	7383	22	14.1	5.1	5.5	1.0	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
131	1049	0.8	6	0

Aspect: 355 Slope: 39 ELT: 18
Date Measured: 01/15/91 Date Remeasured: 12/19/95 Shortleaf pine site index: 71
Site Treatment: No cutting 1996 Plot Treatment: Leave Black oak site index: 68
Site: 8 Plot: 53

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	366	123	101	--	--	--	--	--	--	-12.4	-1.4
≥ 4.5"	126	116	90	2047	10218	18	14.3	14.0	12.1	-2.4	-1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	24	0

Aspect: 290 | Slope: 24 | ELT: 17
Date Measured: 01/15/91 | Date Remeasured: 07/10/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 54

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	260	94	78	--	--	--	--	--	--	8.4	1.2
≥ 4.5"	120	91	73	1544	8592	16	13.3	7.3	8.0	-1.6	0.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	6

Aspect: 127 | Slope: 23 | ELT: 18
Date Measured: 01/15/91 | Date Remeasured: 07/10/95 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 55

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	369	96	86	--	--	--	--	--	--	-3.8	0.8
≥ 4.5"	154	87	75	1287	6738	22	14.3	8.6	9.9	-2.8	0.6

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 120 | Slope: 22 | ELT: 17
Date Measured: 01/16/91 | Date Remeasured: 06/16/94 | -- site index: --
Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: --
Site: 8 | Plot: 56

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	295	86	79	--	--	--	--	--	--	1.5	1.4
≥ 4.5"	160	80	71	1193	6075	26	16.3	8.6	10.7	-1.0	1.4

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
149	1323	2.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
0	0

Aspect: 310 | Slope: 25 | ELT: 18
Date Measured: 01/16/91 | Date Remeasured: 12/11/95 | White oak site index: 60
Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 85
Site: 8 | Plot: 57

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	359	97	83	--	--	--	--	--	--	-1.4	1.0
≥ 4.5"	104	90	73	1562	9159	30	28.8	22.0	24.3	-0.4	0.8

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	5.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
4	0

Aspect: 330 | Slope: 6 | ELT: 15
Date Measured: 01/16/91 | Date Remeasured: 12/11/95 | Shortleaf pine site index: 71
Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 61
Site: 8 | Plot: 58

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	263	109	94	--	--	--	--	--	--	3.4	0.1
≥ 4.5"	168	106	90	1521	8483	44	26.2	19.7	18.7	-3.6	-0.4

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.6

Cavities:

Natural cavities/ac	Excavated cavties/ac
2	0

Aspect: 203 Date Measured: 01/16/91 Site Treatment: No cutting Site: 8
Slope: 26 Date Remeasured: 07/20/95 1996 Plot Treatment: Leave Plot: 59
ELT: 17 Scarlet oak site index: 65 Black oak site index: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	338	91	81	--	--	--	--	--	--	-7.4	0.4
≥ 4.5"	138	84	72	1236	6651	44	31.9	14.2	16.9	-2.4	0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	6	0

Aspect: 220 Date Measured: 01/17/91 Site Treatment: No cutting Site: 8
Slope: 11 Date Remeasured: 12/11/95 1996 Plot Treatment: Leave Plot: 60
ELT: 5 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	654	109	103	--	--	--	--	--	--	-12.4	1.3
≥ 4.5"	254	87	72	1266	4857	8	3.1	1.3	1.5	-0.4	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	0	0

Aspect: 50 Date Measured: 01/18/91 Site Treatment: No cutting Site: 8
Slope: 12 Date Remeasured: 07/25/95 1996 Plot Treatment: Leave Plot: 61
ELT: 5 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	656	95	89	--	--	--	--	--	--	-38.0	0.7
≥ 4.5"	186	78	67	1134	4772	6	3.2	0.8	1.1	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	2	0

Aspect: 20 Date Measured: 01/22/91 Site Treatment: No cutting Site: 8
Slope: 34 Date Remeasured: 06/22/94 1996 Plot Treatment: Leave Plot: 62
ELT: 18 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	413	112	93	--	--	--	--	--	--	-12.0	0.5
≥ 4.5"	138	102	81	1512	8773	2	1.4	0.4	0.4	-2.0	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
170	1049	0.7	24	0

Aspect: 60 Date Measured: 01/22/91 Site Treatment: No cutting Site: 8
Slope: 8 Date Remeasured: 12/20/95 1996 Plot Treatment: Leave Plot: 63
ELT: 15 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	354	78	70	--	--	--	--	--	--	-6.8	1.4
≥ 4.5"	124	70	59	1013	5186	10	8.1	3.7	5.2	1.2	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.3	26	0

Aspect: 45 | Slope: 31 | ELT: 18 | Date Measured: 01/30/91 | Date Remeasured: 12/20/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	398	70	63	--	--	--	--	--	--	4.0	1.1
≥ 4.5"	108	60	51	866	4454	4	3.7	1.3	2.1	0.0	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	14	0

Aspect: 225 | Slope: 38 | ELT: 23 | Date Measured: 01/30/91 | Date Remeasured: 07/11/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	373	87	78	--	--	--	--	--	--	-7.8	1.1
≥ 4.5"	118	78	64	1208	6591	32	27.1	14.4	18.5	-0.8	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	14	0

Aspect: 140 | Slope: 8 | ELT: 5 | Date Measured: 01/31/91 | Date Remeasured: 07/20/95 | Shortleaf pine site index: 74 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 80 | Site: 8 | Plot: 66

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	528	100	92	--	--	--	--	--	--	-16.2	-0.8
≥ 4.5"	238	89	77	1243	5338	22	9.2	3.2	3.5	-5.2	-0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	8	0

Aspect: 40 | Slope: 20 | ELT: 21 | Date Measured: 02/05/91 | Date Remeasured: 07/20/95 | Scarlet oak site index: 68 | Site Treatment: No cutting | 1996 Plot Treatment: Leave | Black oak site index: 66 | Site: 8 | Plot: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	387	95	85	--	--	--	--	--	--	1.2	1.8
≥ 4.5"	152	87	74	1282	6830	6	3.9	1.7	1.9	-0.8	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	4	0

Aspect: 20 | Slope: 22 | ELT: 18 | Date Measured: 02/04/91 | Date Remeasured: 07/10/95 | -- site index: -- | Site Treatment: No cutting | 1996 Plot Treatment: Leave | -- site index: -- | Site: 8 | Plot: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	424	99	89	--	--	--	--	--	--	-9.8	0.7
≥ 4.5"	114	88	73	1475	8405	32	28.1	15.4	17.4	-0.8	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavtics/ac
--	--	3.1	2	0

Aspect: 0 | Date Measured: 01/23/91 | Site Treatment: No cutting | Site: 8
Slope: 11 | Date Remeasured: 07/18/95 | 1996 Plot Treatment: Leave | Plot: 69
ELT: 11 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	323	101	87	--	--	--	--	--	--	-4.6	-0.5
≥ 4.5"	108	94	75	1498	8707	18	16.7	8.0	8.5	-1.6	-0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.0	16	0

Aspect: 320 | Date Measured: 02/04/91 | Site Treatment: No cutting | Site: 8
Slope: 22 | Date Remeasured: 07/19/95 | 1996 Plot Treatment: Leave | Plot: 70
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	238	78	66	--	--	--	--	--	--	4.0	1.2
≥ 4.5"	78	73	58	1235	7292	24	30.8	16.5	22.6	0.0	0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	12	0

Aspect: 220 | Date Measured: 02/08/91 | Site Treatment: Even-aged | Site: 9
Slope: 16 | Date Remeasured: 05/30/95 | 1996 Plot Treatment: Leave | Plot: 1
ELT: 7 | Scarlet oak site index: 59 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	540	56	62	--	--	--	--	--	--	-31.8	0.1
≥ 4.5"	190	41	41	435	420	2	1.1	0.2	0.5	2.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	6	0

Aspect: 300 | Date Measured: 02/11/91 | Site Treatment: Even-aged | Site: 9
Slope: 26 | Date Remeasured: 12/07/95 | 1996 Plot Treatment: Leave | Plot: 2
ELT: 17 | Scarlet oak site index: 79 | Black oak site index: 75

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	547	90	85	--	--	--	--	--	--	-32.6	-1.3
≥ 4.5"	102	70	57	1175	6333	2	2.0	3.1	4.4	-1.6	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.2	10	0

Aspect: 310 | Date Measured: 02/08/91 | Site Treatment: Even-aged | Site: 9
Slope: 8 | Date Remeasured: 08/01/95 | 1996 Plot Treatment: Intermediate cut | Plot: 3
ELT: 5 | Scarlet oak site index: 77 | Black oak site index: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	474	86	83	--	--	--	--	--	--	-8.8	-1.0
≥ 4.5"	154	74	64	1089	5069	0	0.0	0.0	0.0	-2.8	-0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	10	2

Aspect: 230 | Slope: 29 | ELT: 17 | Date Measured: 02/08/91 | Date Remeasured: 12/06/95 | Scarlet oak site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 72 | Site: 9 | Plot: 4

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	481	79	80	--	--	--	--	--	--	-26.6	0.3
≥ 4.5"	196	67	62	892	3383	6	3.1	6.1	9.1	0.4	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.9	14	0

Aspect: 360 | Slope: 24 | ELT: 18 | Date Measured: 02/08/91 | Date Remeasured: 01/04/95 | Scarlet oak site index: 83 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 5

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	527	70	67	--	--	--	--	--	--	-19.8	0.9
≥ 4.5"	92	53	43	819	4186	2	2.2	0.3	0.6	1.5	1.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
927	2465	2.2	18	0

Aspect: 220 | Slope: 21 | ELT: 17 | Date Measured: 02/08/91 | Date Remeasured: 12/28/94 | Scarlet oak site index: 68 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 9 | Plot: 6

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	570	95	89	--	--	--	--	--	--	-8.8	1.8
≥ 4.5"	170	79	65	1288	6186	4	2.4	3.1	4.0	0.0	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
113	414	0.2	20	2

Aspect: 200 | Slope: 3 | ELT: 7 | Date Measured: 02/08/91 | Date Remeasured: 05/29/95 | Scarlet oak site index: 66 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 7

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	635	88	91	--	--	--	--	--	--	-41.0	-0.2
≥ 4.5"	190	69	63	956	4101	6	3.2	2.7	3.8	-1.0	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	8	0

Aspect: 180 | Slope: 8 | ELT: 7 | Date Measured: 02/08/91 | Date Remeasured: 05/25/95 | Scarlet oak site index: 73 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 8

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	639	87	90	--	--	--	--	--	--	-38.8	0.6
≥ 4.5"	204	69	64	933	3643	4	2.0	1.7	2.4	-2.5	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	2	0

Aspect: 112 | Slope: 25 | ELT: 17 | Date Measured: 02/14/91 | Date Remeasured: 08/03/95 | White oak site index: 47 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 61 | Site: 9 | Plot: 9

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	398	98	83	--	--	--	--	--	--	-9.2	-0.1
≥ 4.5"	88	88	68	1550	8960	2	2.3	1.3	1.5	-1.2	-0.1

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	3.4

Cavities:

Natural cavities/ac	Excavated cavties/ac
16	2

Aspect: 350 | Slope: 4 | ELT: 17 | Date Measured: 02/14/91 | Date Remeasured: 12/07/95 | Scarlet oak site index: 81 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 10

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	356	92	81	--	--	--	--	--	--	-22.0	1.0
≥ 4.5"	126	84	69	1322	6856	0	0.0	0.0	0.0	0.0	1.6

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.5

Cavities:

Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 110 | Slope: 11 | ELT: 18 | Date Measured: 02/15/91 | Date Remeasured: 05/31/95 | Scarlet oak site index: 74 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | -- site index: -- | Site: 9 | Plot: 11

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	451	85	77	--	--	--	--	--	--	-10.8	1.5
≥ 4.5"	76	73	58	1215	7001	2	2.6	2.4	3.2	0.5	1.6

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
414	2259	2.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
16	0

Aspect: 290 | Slope: 21 | ELT: 17 | Date Measured: 02/19/91 | Date Remeasured: 12/07/95 | White oak site index: 71 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 9 | Plot: 12

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	638	77	80	--	--	--	--	--	--	-16.8	1.0
≥ 4.5"	118	55	47	863	4146	6	5.1	7.1	13.0	3.2	1.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	0

Aspect: 160 | Slope: 4 | ELT: 5 | Date Measured: 02/19/91 | Date Remeasured: 05/24/95 | Scarlet oak site index: 61 | Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | Black oak site index: 76 | Site: 9 | Plot: 13

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	717	80	80	--	--	--	--	--	--	-44.8	-0.9
≥ 4.5"	72	61	49	1045	5967	0	0.0	0.0	0.0	-1.0	0.0

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
14	0

Aspect: 280 | Date Measured: 02/20/91 | Site Treatment: Even-aged | Site: 9
Slope: 28 | Date Remeasured: 12/06/95 | 1996 Plot Treatment: Leave | Plot: 14
ELT: 17 | Scarlet oak site index: 69 | Black oak site index: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	379	95	82	--	--	--	--	--	--	-13.4	0.9
≥ 4.5"	94	87	70	1541	8629	12	12.8	4.7	5.5	-0.4	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.1	18	4

Aspect: 100 | Date Measured: 02/20/91 | Site Treatment: Even-aged | Site: 9
Slope: 30 | Date Remeasured: 12/05/95 | 1996 Plot Treatment: Leave | Plot: 15
ELT: 18 | White oak site index: 82 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	464	103	92	--	--	--	--	--	--	-11.4	0.1
≥ 4.5"	104	90	72	1424	7929	2	1.9	0.3	0.3	-0.4	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	20	0

Aspect: 150 | Date Measured: 02/21/91 | Site Treatment: Even-aged | Site: 9
Slope: 3 | Date Remeasured: 12/05/95 | 1996 Plot Treatment: Leave | Plot: 16
ELT: 11 | Shortleaf pine site index: 67 | Black oak site index: 63

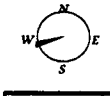
Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	214	113	94	--	--	--	--	--	--	-2.2	0.4
≥ 4.5"	134	109	89	1725	9616	16	11.9	9.7	8.9	-3.2	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	14	4

Aspect: 75 | Date Measured: 02/21/91 | Site Treatment: Even-aged | Site: 9
Slope: 28 | Date Remeasured: 07/31/95 | 1996 Plot Treatment: Clearcut | Plot: 17
ELT: 18 | Black oak site index: 78 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	418	80	75	--	--	--	--	--	--	-15.0	-1.0
≥ 4.5"	118	69	58	1032	4907	4	3.4	0.7	1.1	-2.0	-0.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	24	6



Aspect: 260 | Date Measured: 02/21/91 | Site Treatment: Even-aged | Site: 9
Slope: 33 | Date Remeasured: 05/24/95 | 1996 Plot Treatment: Leave | Plot: 18
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	315	76	67	--	--	--	--	--	--	-3.0	-0.2
≥ 4.5"	90	68	55	1060	5750	6	6.7	3.1	4.6	-3.0	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	14	4

Aspect: 160 | Slope: 10 | ELT: 11 | Date Measured: 02/22/91 | Date Remeasured: 12/06/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 19

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	540	105	95	--	--	--	--	--	--	-10.2	-0.2
≥ 4.5"	130	92	75	1346	7234	12	9.2	10.0	11.0	-1.2	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.1	14	8

Aspect: 100 | Slope: 29 | ELT: 18 | Date Measured: 02/25/91 | Date Remeasured: 12/06/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 20

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	217	101	84	--	--	--	--	--	--	2.2	0.7
≥ 4.5"	112	96	77	1420	7868	6	5.4	5.4	5.7	-0.8	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.7	30	0

Aspect: 170 | Slope: 8 | ELT: 11 | Date Measured: 02/25/91 | Date Remeasured: 07/31/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 21

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	506	96	91	--	--	--	--	--	--	-18.4	0.6
≥ 4.5"	136	81	69	1063	5481	12	8.8	12.1	14.9	1.6	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	20	0

Aspect: 250 | Slope: 31 | ELT: 17 | Date Measured: 02/26/91 | Date Remeasured: 07/21/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 22

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	475	87	84	--	--	--	--	--	--	-14.2	-0.6
≥ 4.5"	160	71	60	1085	5009	6	3.8	5.9	8.3	-1.2	-0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	6	0

Aspect: 280 | Slope: 27 | ELT: 17 | Date Measured: 02/26/91 | Date Remeasured: 08/03/95 | Shortleaf pine site index: 61 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | White oak site index: 51 | Site: 9 | Plot: 23

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	400	91	81	--	--	--	--	--	--	1.6	1.4
≥ 4.5"	100	80	64	1272	7294	6	6.0	6.7	8.4	-0.4	1.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	30	2

Aspect: 320 | Date Measured: 03/20/91 | Site Treatment: Even-aged | Site: 9
Slope: 8 | Date Remeasured: 05/25/95 | 1996 Plot Treatment: Leave | Plot: 24
ELT: 11 | Black oak site index: 59 | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	396	94	84	--	--	--	--	--	--	-14.8	-1.4
≥ 4.5"	96	84	67	1254	7115	8	8.3	7.3	8.7	-1.0	-1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.7	32	2

Aspect: 180 | Date Measured: 02/27/91 | Site Treatment: Even-aged | Site: 9
Slope: 40 | Date Remeasured: 08/02/95 | 1996 Plot Treatment: Leave | Plot: 25
ELT: 17 | -- site index: -- | -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	346	83	72	--	--	--	--	--	--	10.0	0.9
≥ 4.5"	106	74	59	1247	6886	8	7.5	5.2	7.1	0.0	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	16	4

Aspect: 270 | Date Measured: 02/27/91 | Site Treatment: Even-aged | Site: 9
Slope: 27 | Date Remeasured: 12/05/95 | 1996 Plot Treatment: Clearcut | Plot: 26
ELT: 17 | White oak site index: 72 | Black oak site index: 79

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	469	89	84	--	--	--	--	--	--	-15.0	1.1
≥ 4.5"	124	75	63	1230	6367	10	8.1	7.2	9.6	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	12	0

Aspect: 260 | Date Measured: 02/27/91 | Site Treatment: Even-aged | Site: 9
Slope: 36 | Date Remeasured: 05/31/95 | 1996 Plot Treatment: Leave | Plot: 27
ELT: 17 | Scarlet oak site index: 69 | Black oak site index: 80

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	304	87	74	--	--	--	--	--	--	-0.5	-3.9
≥ 4.5"	104	80	64	1325	7500	2	1.9	2.1	2.7	-3.0	-4.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
478	2207	1.1	16	4

Aspect: 40 | Date Measured: 02/28/91 | Site Treatment: Even-aged | Site: 9
Slope: 29 | Date Remeasured: 08/01/95 | 1996 Plot Treatment: Leave | Plot: 28
ELT: 18 | Scarlet oak site index: 76 | Black oak site index: 89

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	662	91	90	--	--	--	--	--	--	-39.8	-0.2
≥ 4.5"	142	68	57	1049	4875	0	0.0	0.0	0.0	-0.8	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	12	0

Aspect: 230 | Slope: 28 | ELT: 17 | Date Measured: 02/28/91 | Date Remeasured: 05/31/95 | Scarlet oak site index: 80 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 71 | Site: 9 | Plot: 29

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	459	100	91	--	--	--	--	--	--	-27.5	-1.5
≥ 4.5"	114	85	68	1402	7612	2	1.8	0.4	0.5	2.5	-0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
44	392	0.5	16	0

Aspect: 355 | Slope: 31 | ELT: 18 | Date Measured: 03/04/91 | Date Remeasured: 08/01/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | -- site index: -- | Site: 9 | Plot: 30

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	560	103	95	--	--	--	--	--	--	-12.4	1.4
≥ 4.5"	140	85	69	1392	7370	2	1.4	0.2	0.3	1.6	2.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	18	0

Aspect: 245 | Slope: 2 | ELT: 11 | Date Measured: 03/04/91 | Date Remeasured: 12/07/95 | Scarlet oak site index: 58 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 76 | Site: 9 | Plot: 31

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	473	105	96	--	--	--	--	--	--	1.6	2.0
≥ 4.5"	148	91	75	1274	6118	2	1.4	5.9	6.5	1.6	2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	34	0

Aspect: 350 | Slope: 33 | ELT: 18 | Date Measured: 03/05/91 | Date Remeasured: 08/01/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 9 | Plot: 32

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	371	92	78	--	--	--	--	--	--	8.0	0.8
≥ 4.5"	86	84	66	1467	8325	12	14.0	6.2	7.4	-2.0	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	20	0

Aspect: 240 | Slope: 22 | ELT: 17 | Date Measured: 03/05/91 | Date Remeasured: 08/01/95 | White oak site index: 58 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 60 | Site: 9 | Plot: 33

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	532	78	77	--	--	--	--	--	--	4.8	1.9
≥ 4.5"	112	63	53	961	4941	8	7.1	8.5	13.6	0.8	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.5	16	0

Aspect: 340 | Slope: 26 | ELT: 17 | Date Measured: 03/06/91 | Date Remeasured: 12/07/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 34

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	412	87	79	--	--	--	--	--	--	-16.2	-0.6
≥ 4.5"	112	76	63	1204	6672	2	1.8	0.2	0.3	-1.2	-0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	6	0

Aspect: 300 | Slope: 14 | ELT: 11 | Date Measured: 03/06/91 | Date Remeasured: 08/01/95 | Scarlet oak site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | -- site index: -- | Site: 9 | Plot: 35

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	719	108	104	--	--	--	--	--	--	-31.8	0.3
≥ 4.5"	144	84	69	1276	6539	4	2.8	1.5	1.8	-0.8	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	10	0

Aspect: 170 | Slope: 10 | ELT: 11 | Date Measured: 03/07/91 | Date Remeasured: 12/06/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 36

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	498	103	90	--	--	--	--	--	--	-3.4	0.3
≥ 4.5"	148	91	72	1453	7665	0	0.0	0.0	0.0	-0.4	0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	24	4

Aspect: 80 | Slope: 44 | ELT: 18 | Date Measured: 03/07/91 | Date Remeasured: 08/03/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 9 | Plot: 37

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	977	102	106	--	--	--	--	--	--	-90.6	-1.4
≥ 4.5"	132	70	59	1214	6124	4	3.0	3.2	4.5	0.4	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	30	0

Aspect: 100 | Slope: 17 | ELT: 18 | Date Measured: 03/11/91 | Date Remeasured: 01/04/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 38

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	628	85	82	--	--	--	--	--	--	-10.5	1.7
≥ 4.5"	118	66	55	1006	5112	2	1.7	1.7	2.6	-0.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
459	1298	1.2	6	0

Aspect: 200 | Slope: 16 | ELT: 17
Date Measured: 03/11/91 | Date Remeasured: 12/28/94 | -- site index: --
Site Treatment: Even-aged | 1996 Plot Treatment: Intermediate cut | -- site index: --
Site: 9 | Plot: 39

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	685	97	97	--	--	--	--	--	--	-27.8	0.6
≥ 4.5"	170	74	64	1116	5128	6	3.5	1.2	1.6	3.5	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
79	574	0.4

Cavities: Natural cavities/ac	Excavated cavties/ac
14	0

Aspect: 270 | Slope: 26 | ELT: 17
Date Measured: 03/13/91 | Date Remeasured: 12/07/95 | Scarlet oak site index: 65
Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 80
Site: 9 | Plot: 40

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	642	86	89	--	--	--	--	--	--	-20.8	1.2
≥ 4.5"	202	67	61	949	3541	2	1.0	2.2	3.3	-0.8	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	4.3

Cavities: Natural cavities/ac	Excavated cavties/ac
8	0

Aspect: 250 | Slope: 20 | ELT: 23
Date Measured: 03/14/91 | Date Remeasured: 07/31/95 | Shortleaf pine site index: 65
Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 58
Site: 9 | Plot: 41

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	967	74	85	--	--	--	--	--	--	-37.4	0.0
≥ 4.5"	122	43	37	578	2001	8	6.6	3.1	7.3	-0.4	1.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.1

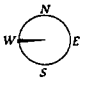
Cavities: Natural cavities/ac	Excavated cavties/ac
16	0

Aspect: 190 | Slope: 6 | ELT: 11
Date Measured: 03/14/91 | Date Remeasured: 12/07/95 | Scarlet oak site index: 75
Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: --
Site: 9 | Plot: 42

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	567	108	100	--	--	--	--	--	--	-14.4	0.6
≥ 4.5"	122	91	74	1392	7472	4	3.3	3.8	4.1	1.6	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	2.4

Cavities: Natural cavities/ac	Excavated cavties/ac
16	0



Aspect: 270 | Slope: 33 | ELT: 17
Date Measured: 03/15/91 | Date Remeasured: 12/07/95 | White oak site index: 66
Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 60
Site: 9 | Plot: 43

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	443	83	75	--	--	--	--	--	--	0.2	-0.1
≥ 4.5"	108	70	57	1094	6026	6	5.6	3.2	4.6	1.2	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.6

Cavities: Natural cavities/ac	Excavated cavties/ac
28	0

Aspect: 250 | Slope: 27 | ELT: 17 | Date Measured: 03/18/91 | Date Remeasured: 08/02/95 | White oak site index: 69 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 69 | Site: 9 | Plot: 44

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	922	78	83	--	--	--	--	--	--	-42.8	0.6
≥ 4.5"	92	49	40	735	3729	2	2.2	1.5	3.0	1.2	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.4	18	0

Aspect: 168 | Slope: 27 | ELT: 17 | Date Measured: 03/19/91 | Date Remeasured: 12/29/94 | Scarlet oak site index: 63 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 76 | Site: 9 | Plot: 45

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	647	74	78	--	--	--	--	--	--	-23.8	1.0
≥ 4.5"	162	56	50	790	3120	12	7.4	7.1	12.8	2.5	2.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
382	1820	1.9	12	0

Aspect: 90 | Slope: 1 | ELT: 5 | Date Measured: 03/19/91 | Date Remeasured: 05/22/95 | White oak site index: 61 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Scarlet oak site index: 63 | Site: 9 | Plot: 46

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	684	80	81	--	--	--	--	--	--	-16.8	0.0
≥ 4.5"	194	60	54	828	1617	16	8.2	3.8	6.3	-3.0	0.4

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.2	10	0

Aspect: 73 | Slope: 38 | ELT: 18 | Date Measured: 03/20/91 | Date Remeasured: 05/30/95 | Scarlet oak site index: 72 | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 9 | Plot: 47

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	609	101	93	--	--	--	--	--	--	-40.8	0.7
≥ 4.5"	124	80	65	1233	5988	2	1.6	1.3	1.6	0.5	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	6	0

Aspect: 120 | Slope: 2 | ELT: 11 | Date Measured: 03/21/91 | Date Remeasured: 12/05/95 | Scarlet oak site index: 57 | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | Black oak site index: 59 | Site: 9 | Plot: 48

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	377	103	87	--	--	--	--	--	--	4.6	-1.6
≥ 4.5"	102	95	75	1688	9736	10	9.8	6.2	6.5	-4.4	-2.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	3.4	10	0

Aspect: 48 | Slope: 21 | ELT: 18 | Date Measured: 03/21/91 | Date Remeasured: 08/02/95 | Scarlet oak site index: 70 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 49

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	687	89	84	--	--	--	--	--	--	-22.8	0.3
≥ 4.5"	122	71	56	1077	5695	6	4.9	3.3	4.7	-0.8	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.6	18	0

Aspect: 156 | Slope: 25 | ELT: 17 | Date Measured: 03/21/91 | Date Remeasured: 12/05/95 | Scarlet oak site index: 66 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 79 | Site: 9 | Plot: 50

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	678	105	97	--	--	--	--	--	--	-4.6	1.6
≥ 4.5"	128	87	69	1459	7816	0	0.0	0.0	0.0	0.4	1.8

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	18	0

Aspect: 40 | Slope: 25 | ELT: 18 | Date Measured: 03/25/91 | Date Remeasured: 07/31/95 | Scarlet oak site index: 88 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 96 | Site: 9 | Plot: 51

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	615	94	88	--	--	--	--	--	--	-16.8	0.2
≥ 4.5"	120	76	61	1211	5721	2	1.7	0.7	0.9	-0.8	0.1

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.0	10	0

Aspect: 22 | Slope: 23 | ELT: 18 | Date Measured: 03/25/91 | Date Remeasured: 08/02/95 | Scarlet oak site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 63 | Site: 9 | Plot: 52

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	560	101	93	--	--	--	--	--	--	-18.2	0.1
≥ 4.5"	130	85	69	1529	7532	8	6.2	2.2	2.5	-1.2	0.0

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.7	6	0

Aspect: 233 | Slope: 22 | ELT: 17 | Date Measured: 03/27/91 | Date Remeasured: 05/23/95 | White oak site index: 56 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 58 | Site: 9 | Plot: 53

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	980	80	91	--	--	--	--	--	--	-49.8	0.3
≥ 4.5"	160	50	45	597	2106	2	1.3	0.9	1.9	4.0	1.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.3	0	0

Aspect: 180 Date Measured: 04/03/91 Site Treatment: Even-aged Site: 9
Slope: 31 Date Remeasured: 08/02/95 1996 Plot Treatment: Leave Plot: 54
ELT: 17 Scarlet oak site index: 64 Black oak site index: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	453	85	77	--	--	--	--	--	--	-24.0	0.4
≥ 4.5"	118	73	59	1180	6324	10	8.5	5.1	7.1	0.0	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.4	2	0

Aspect: 90 Date Measured: 04/03/91 Site Treatment: Even-aged Site: 9
Slope: 43 Date Remeasured: 12/27/94 1996 Plot Treatment: Leave Plot: 55
ELT: 18 Scarlet oak site index: 78 Black oak site index: 81

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	632	91	86	--	--	--	--	--	--	-4.3	2.5
≥ 4.5"	112	74	60	1170	6112	6	5.4	8.0	10.9	2.0	2.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
415	2273	1.5	16	0

Aspect: 312 Date Measured: 04/04/91 Site Treatment: Even-aged Site: 9
Slope: 28 Date Remeasured: 12/05/95 1996 Plot Treatment: Old growth Plot: 56
ELT: 17 Scarlet oak site index: 64 Black oak site index: 76

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	327	85	76	--	--	--	--	--	--	-5.6	0.3
≥ 4.5"	132	80	67	1257	6646	4	3.0	1.2	1.6	-1.6	0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.1	24	0

Aspect: 180 Date Measured: 04/04/91 Site Treatment: Even-aged Site: 9
Slope: 20 Date Remeasured: 12/05/95 1996 Plot Treatment: Leave Plot: 57
ELT: 17 -- site index: -- -- site index: --

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	750	60	72	--	--	--	--	--	--	-10.6	-0.1
≥ 4.5"	120	36	35	483	873	24	20.0	12.8	35.5	0.4	0.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	30	2

Aspect: 1 Date Measured: 04/08/91 Site Treatment: Even-aged Site: 9
Slope: 41 Date Remeasured: 01/03/95 1996 Plot Treatment: Intermediate cut Plot: 58
ELT: 18 White oak site index: 63 Black oak site index: 88

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	749	80	81	--	--	--	--	--	--	-27.3	0.7
≥ 4.5"	114	57	48	915	4384	0	0.0	0.0	0.0	1.5	1.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
111	413	2.2	6	0

Aspect: 292 | Slope: 36 | ELT: 17 | Date Measured: 04/08/91 | Date Remeasured: 08/03/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 59

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	619	82	78	--	--	--	--	--	--	-19.8	0.0
≥ 4.5"	94	62	50	1032	4739	10	10.6	11.5	18.5	-0.8	0.3

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
489	2301	2.1

Cavities:

Natural cavities/ac	Excavated cavties/ac
28	2

Aspect: 0 | Slope: 33 | ELT: 18 | Date Measured: 04/19/91 | Date Remeasured: 07/26/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 60

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	567	83	78	--	--	--	--	--	--	-12.0	0.9
≥ 4.5"	92	67	54	1033	5597	8	8.7	5.3	7.9	0.0	0.9

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.0

Cavities:

Natural cavities/ac	Excavated cavties/ac
8	2

Aspect: 162 | Slope: 39 | ELT: 17 | Date Measured: 04/24/91 | Date Remeasured: 12/04/95 | Shortleaf pine site index: 76 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 9 | Plot: 61

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	450	74	69	--	--	--	--	--	--	9.4	1.4
≥ 4.5"	100	62	51	1030	5473	0	0.0	0.0	0.0	0.4	1.1

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.3

Cavities:

Natural cavities/ac	Excavated cavties/ac
24	0

Aspect: 340 | Slope: 39 | ELT: 18 | Date Measured: 04/24/91 | Date Remeasured: 12/04/95 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 70 | Site: 9 | Plot: 62

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	547	75	72	--	--	--	--	--	--	-12.4	-0.6
≥ 4.5"	92	59	49	966	5158	4	4.3	7.0	11.8	-0.4	-0.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.9

Cavities:

Natural cavities/ac	Excavated cavties/ac
12	2

Aspect: 360 | Slope: 3 | ELT: 11 | Date Measured: 05/01/91 | Date Remeasured: 12/05/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | -- site index: -- | Site: 9 | Plot: 63

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Den sity (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	483	97	89	--	--	--	--	--	--	-8.8	0.6
≥ 4.5"	138	85	71	1212	5855	10	7.2	4.2	4.9	-0.8	0.7

Down wood:

Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.8

Cavities:

Natural cavities/ac	Excavated cavties/ac
24	0

Aspect: 330 | Slope: 41 | ELT: 18 | Date Measured: 05/02/91 | Date Remeasured: 07/26/95 | -- site index: -- | Site Treatment: Even-aged | 1996 Plot Treatment: Old growth | -- site index: -- | Site: 9 | Plot: 64

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	352	81	70	--	--	--	--	--	--	-2.4	-0.2
≥ 4.5"	82	74	60	1185	6703	14	17.1	4.9	6.6	-2.4	-0.3

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	1.4	24	0

Aspect: 185 | Slope: 34 | ELT: 17 | Date Measured: 05/02/91 | Date Remeasured: 07/26/95 | Shortleaf pine site index: 61 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | Black oak site index: 65 | Site: 9 | Plot: 65

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	330	84	70	--	--	--	--	--	--	15.6	1.9
≥ 4.5"	100	77	59	1243	6585	18	18.0	17.1	22.2	-0.4	1.2

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.5	18	0

Aspect: 140 | Slope: 20 | ELT: 17 | Date Measured: 05/03/91 | Date Remeasured: 12/04/95 | Black oak site index: 67 | Site Treatment: Even-aged | 1996 Plot Treatment: Clearcut | -- site index: -- | Site: 9 | Plot: 66

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	575	85	82	--	--	--	--	--	--	-7.8	0.4
≥ 4.5"	130	70	59	1090	5472	0	0.0	0.0	0.0	1.2	0.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.0	6	0

Aspect: 225 | Slope: 28 | ELT: 17 | Date Measured: 05/03/91 | Date Remeasured: 05/23/95 | Scarlet oak site index: 64 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 65 | Site: 9 | Plot: 67

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	728	75	78	--	--	--	--	--	--	-39.8	-0.3
≥ 4.5"	138	53	45	794	3484	6	4.3	5.1	9.6	1.5	0.7

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	2.2	10	0

Aspect: 130 | Slope: 8 | ELT: 11 | Date Measured: 05/06/91 | Date Remeasured: 07/26/95 | White oak site index: 53 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 62 | Site: 9 | Plot: 68

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^3/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	% of live	Basal area (ft^2/ac)	% of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	320	106	90	--	--	--	--	--	--	5.0	-0.1
≥ 4.5"	130	100	81	1616	9119	14	10.8	8.3	8.3	-2.0	-0.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered	Cavities: Natural cavities/ac	Excavated cavties/ac
--	--	0.8	8	2

Aspect: 90 | Slope: 37 | ELT: 18 | Date Measured: 05/06/91 | Date Remeasured: 12/04/95 | White oak site index: 75 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 75 | Site: 9 | Plot: 69

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	715	62	70	--	--	--	--	--	--	-25.6	0.7
≥ 4.5"	140	38	36	499	1528	2	1.4	0.2	0.6	2.4	1.6

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.4

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

Aspect: 73 | Slope: 41 | ELT: 18 | Date Measured: 05/07/91 | Date Remeasured: 05/22/95 | Scarlet oak site index: 65 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 76 | Site: 9 | Plot: 70

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	736	84	87	--	--	--	--	--	--	-57.5	-0.3
≥ 4.5"	146	62	55	905	4233	0	0.0	0.0	0.0	0.0	1.5

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	0.4

Cavities: Natural cavities/ac	Excavated cavties/ac
32	0

Aspect: 170 | Slope: 8 | ELT: 11 | Date Measured: 05/07/91 | Date Remeasured: 05/22/95 | Shortleaf pine site index: 71 | Site Treatment: Even-aged | 1996 Plot Treatment: Leave | Black oak site index: 64 | Site: 9 | Plot: 71

Size Class	Live trees: Density (trees/ac)	Basal area (ft^2/ac)	Stocking %	Volume (ft^2/ac)	Volume (bd. ft/ac)	Dead trees: Density (trees/ac)	Density % of live	Basal area (ft^2/ac)	Basal area % of live	Annual growth: Density (trees/ac)	Basal area (ft^2/ac)
≥ 1.5"	674	98	93	--	--	--	--	--	--	-64.8	-1.0
≥ 4.5"	114	79	64	1296	6927	6	5.3	1.9	2.5	1.5	0.9

Down wood: Volume (ft^3/ac)	Surface area (ft^2/ac)	% of ground covered
--	--	1.3

Cavities: Natural cavities/ac	Excavated cavties/ac
6	0

APPENDIX D
MOFEP Ground Flora Species Frequency, Abundance, and Field Notes

Jennifer K. Grabner

Scientific names generally follow Steyermark (1963) nomenclature. Type is the plant type category: fe = fern, f = forb, g = grass, l - legume, s = sedge, sh = shrub, t = tree, v = herbaceous vine, wv = woody vine. Percent of plots is the number of 0.2-ha plots in which the species occurred divided by the total number of plots sampled per year. Relative cover is the mean relative coverage calculated at the plot level.

Scientific name	Family	Common name	Type	—Percent of plots— '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Acalypha gracilens	Euphorbiaceae	Slender mercury	f	--	--	--	0.3	--	--	<0.1	--
Acalypha spp.	Euphorbiaceae	Mercury	f	--	--	--	0.3	--	--	<0.1	--
Acalypha virginica	Euphorbiaceae	Virginia mercury	f	3.3	3.8	0.9	4.0	2.5	0.6	0.1	0.1
Acer negundo	Aceraceae	Box elder	t	--	--	0.2	0.2	0.2	1.2	0.5	1.2
Acer rubrum	Aceraceae	Red maple	t	31.1	60.3	54.7	53.9	54.5	3.6	4.0	4.4
Acer saccharum	Aceraceae	Silver maple	t	--	6.0	8.5	9.9	7.3	1.3	1.4	1.5
Achillea millefolium	Asteraceae	Yarrow	f	0.9	0.2	0.2	0.2	0.2	0.2	<0.1	<0.1
Actaea pachypoda	Ranunculaceae	White baneberry	f	--	--	0.5	0.3	0.2	0.5	<0.1	0.5
Actaea rubra	Ranunculaceae	Red baneberry	f	--	--	--	0.2	--	--	<0.1	--
Adiantum pedatum	Polypodiaceae	Maidenhair fern	fe	--	1.0	0.8	0.8	0.8	1.8	1.2	1.4
Aesculus glabra	Hippocastanaceae	Ohio buckeye	t	--	--	--	--	0.2	--	--	0.4
Agrimonia parviflora	Rosaceae	Swamp agrimony	f	0.5	4.0	3.3	1.1	0.5	0.9	0.5	0.7
Agrimonia pubescens	Rosaceae	Soft agrimony	f	8.0	9.7	14.9	17.4	15.1	0.8	0.9	0.8
Agrimonia rostellata	Rosaceae	Agrimony	f	--	--	--	--	3.1	--	--	0.8
Agrimonia spp.	Rosaceae	Agrimony	f	--	--	0.2	0.9	2.6	0.4	<0.1	0.1
Agrostis perennans	Poaceae	Upland bent grass	g	--	--	--	--	0.3	--	--	0.1
Allium spp.	Liliacea	Wild onion	f	--	--	0.2	0.3	0.2	<0.1	<0.1	0.8
Ambrosia artemisiifolia	Asteraceae	Common ragweed	f	2.4	0.6	0.8	1.4	0.8	0.2	0.1	0.3
Ambrosia trifida	Asteraceae	Horseweed	f	0.5	--	--	0.2	0.2	--	0.5	0.1
Amelanchier arborea	Rosaceae	Shadbush	t	6.6	10.5	20.5	17.6	19.6	1.4	1.8	1.4
Amianthium muscitoxicum	Liliaceae	Fly poison	f	--	--	0.6	0.8	0.8	0.4	0.8	0.2
Amphicarpa bracteata	Fabaceae	Hog peanut	l	79.7	83.9	85.3	85.6	85.7	6.8	5.9	6.9
Andropogon gerardi	Poaceae	Big bluestem	g	8.5	1.4	9.5	9.3	8.2	1.3	0.8	0.6
Andropogon scoparius	Poaceae	Little bluestem	g	2.4	4.0	16.6	17.9	17.8	0.9	0.9	0.9
Andropogon spp.	Poaceae	Bluestem	g	--	1.0	0.5	0.8	0.3	0.1	0.1	0.7
Andropogon virginicus	Poaceae	Broom sedge	g	29.3	20.6	1.4	4.4	1.7	0.9	0.7	0.3
Anemone spp.	Ranunculaceae	Anemone	f	0.5	--	--	--	--	--	--	--
Anemone virginiana	Ranunculaceae	Tall anemone	f	--	0.2	2.8	1.1	1.5	0.2	0.2	0.2
Anemonella thalictroides	Ranunculaceae	Rue anemone	f	3.8	18.5	23.1	19.1	22.8	0.3	0.2	0.2
Antennaria plantaginifolia	Asteraceae	Pussy's toes	f	27.4	23.2	23.3	24.2	23.3	0.8	0.7	0.7
Aplectrum hyemale	Orchidaceae	Putty root orchid	f	0.9	--	--	--	--	--	--	--
Apocynum cannabinum	Apocynaceae	Prairie dogbane	f	--	0.6	8.8	9.3	11.1	0.7	0.9	0.9
Apocynum medium	Apocynaceae	Intermediate dogbane	f	9.9	8.9	5.9	0.5	0.2	1.0	0.5	1.8
Apocynum spp.	Apocynaceae	Dogbane	f	--	3.4	--	0.8	0.2	--	0.6	0.1
Aquilegia canadensis	Ranunculaceae	Columbine	f	--	--	--	0.2	--	--	0.9	--
Arabis canadensis	Brassicaceae	Sickle pod	f	--	--	0.2	--	0.3	0.1	--	0.2
Arabis laevigata	Brassicaceae	Rock cress	f	--	--	--	0.3	0.2	--	0.2	<0.1
Arabis spp.	Brassicaceae	Rock cress	f	--	0.2	--	0.8	0.8	--	0.1	0.4
Aralia racemosa	Araliaceae	Spikenard	f	--	--	--	0.5	--	--	1.0	--
Arctium minus	Asteraceae	Common burdock	f	--	--	0.2	--	--	0.9	--	--
Arisaema atrorubens	Araceae	Jack-in-the-pulpit	f	--	--	0.2	0.5	0.5	0.7	0.4	0.4
Arisaema dracontium	Araceae	Green dragon	f	--	--	--	0.3	0.2	--	0.2	<0.1
Aristolochia serpentaria	Aristolochiaceae	Virginia snakeroot	f	42.0	52.0	59.7	65.1	67.4	0.3	0.3	0.2
Aruncus dioicus pubescens	Rosaceae	Goat's beard	f	--	--	0.3	--	0.8	1.3	--	0.7
Asarum canadense	Aristolochiaceae	Wild ginger	f	0.5	4.4	0.9	1.2	0.6	1.1	1.0	0.9
Asclepias hirtella	Asclepiadaceae	Tall green milkweed	f	--	--	0.5	0.2	0.2	1.0	0.2	<0.1
Asclepias purpurascens	Asclepiadaceae	Purple milkweed	f	--	--	--	0.2	0.6	--	0.2	0.3
Asclepias quadrifolia	Asclepiadaceae	Four-leaved milkweed	f	--	0.8	8.7	10.9	15.4	0.2	0.2	0.2
Asclepias spp.	Asclepiadaceae	Milkweed	f	--	0.6	0.3	0.6	0.3	1.1	0.2	<0.1
Asclepias tuberosa	Asclepiadaceae	Butterfly weed	f	--	0.2	0.3	0.5	0.3	0.4	0.1	0.2
Asclepias verticillata	Asclepiadaceae	Whorled milkweed	f	--	0.4	1.6	1.9	1.5	0.2	0.2	0.3
Asclepias viridiflora	Asclepiadaceae	Short green milkweed	f	--	--	0.5	1.2	0.5	<0.1	0.5	0.2
Ascyrum hypericoides	Hypericaceae	St. Andrew's cross	f	4.3	1.6	1.4	1.1	4.6	0.3	0.5	0.4
Asimina triloba	Annonaceae	Pawpaw	t	0.9	3.4	4.8	5.4	4.8	3.5	4.0	4.0
Asplenium platyneuron	Polypodiaceae	Ebony spleenwort	fe	10.9	10.5	12.6	12.4	12.7	0.3	0.2	0.2
Aster anomalus	Asteraceae	Blue aster	f	10.9	12.3	14.0	18.8	23.9	0.4	0.4	0.3
Aster azureus	Asteraceae	Azure aster	f	1.9	2.2	6.8	7.1	3.7	0.4	0.3	0.3
Aster cordifolius	Asteraceae	Heart-leaved aster	f	--	--	0.2	--	0.5	0.4	--	0.3
Aster laevis	Asteraceae	Smooth blue aster	f	--	0.2	2.6	3.4	4.0	0.4	0.7	0.5
Aster lateriflorus	Asteraceae	Side-flowering aster	f	--	--	0.5	--	0.6	0.3	--	0.5
Aster linariifolius	Asteraceae	Flax-leaved aster	f	0.9	4.8	3.1	2.8	2.0	0.2	0.3	0.1
Aster novae-angliae	Asteraceae	New England aster	f	--	0.2	0.9	0.2	0.3	0.6	1.3	0.9
Aster oblongifolius	Asteraceae	Aromatic aster	f	--	--	0.6	0.8	0.9	0.5	0.2	0.3
Aster patens	Asteraceae	Spreading aster	f	23.1	19.8	16.0	20.2	19.8	0.3	0.3	0.3
Aster sagittifolius	Asteraceae	Arrow-leaved aster	f	--	--	1.1	1.1	2.0	0.5	0.5	0.5
Aster sericeus	Asteraceae	Silky aster	f	0.9	0.8	0.3	1.1	0.2	0.2	0.5	0.4
Aster spp.	Asteraceae	Aster	f	3.3	6.0	4.5	1.9	2.2	0.5	0.1	0.3
Aster turbinellus	Asteraceae	Prairie aster	f	--	--	2.0	3.1	4.0	0.3	0.4	0.3
Astragalus mexicanus	Fabaceae	Ground plum	l	--	0.4	0.8	0.2	0.2	0.8	<0.1	1.4
Baptisia leucophaea	Fabaceae	Cream wild indigo	l	7.1	3.0	6.1	6.8	6.5	1.0	1.0	0.7

Scientific name	Family	Common name	Type	----Percent of plots---- '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Berchemia scandens	Rhamnaceae	Supple jack	sh	0.5	1.0	1.4	1.6	1.4	4.1	3.5	3.9
Berlandiera texana	Asteraceae	Berlandiera	f	--	--	--	0.2	--	--	0.8	--
Betula nigra	Betulaceae	River birch	t	0.5	--	--	--	--	--	--	--
Bidens spp.	Asteraceae	Beggar ticks	f	--	--	0.2	0.3	0.2	<0.1	0.1	<0.1
Blephilia ciliata	Lamiaceae	Ohio horsemint	f	--	1.6	1.6	0.5	0.5	0.4	0.3	0.3
Blephilia hirsuta	Lamiaceae	Wood mint	f	--	1.0	0.9	0.3	0.5	0.7	0.3	0.2
Blephilia spp.	Lamiaceae	Horsemint	f	0.5	0.2	--	--	--	--	--	--
Boehmeria cylindrica	Urticaceae	False nettle	f	0.9	0.4	--	1.4	0.2	--	1.0	0.3
Boraginaceae family	Boraginaceae	Unknown	f	0.5	--	--	--	--	--	--	--
Botrychium dissectum	Ophioglossaceae	Cut-leaved grape fern	fe	0.9	--	--	--	0.6	--	--	0.3
Botrychium spp.	Ophioglossacea	Fern	fe	--	--	--	0.6	3.2	--	0.1	<0.1
Botrychium virginianum	Ophioglossaceae	Rattlesnake fern	fe	9.0	8.5	16.1	17.9	16.8	0.2	0.6	0.1
Bouteloua curtipendula	Poaceae	Side-oats grama	g	0.9	0.2	0.6	0.5	0.5	0.1	0.8	0.2
Bouteloua spp.	Poaceae	Side-oats grama	g	--	--	0.2	--	--	<0.1	--	--
Brachyelytrum erectum	Poaceae	Long-awned grass	g	6.6	17.5	14.6	23.9	26.4	1.2	1.2	0.9
Bromus purgans	Poaceae	Woodland brome	g	--	0.8	12.1	7.5	8.5	0.5	0.2	0.2
Bromus spp.	Poaceae	Brome grass	g	0.5	5.8	1.2	--	0.9	0.3	--	0.1
Bumelia lanuginosa	Sapotaceae	Gum bumelia	t	3.3	3.2	5.3	7.8	8.6	1.0	0.6	0.5
Cacalia atriplicifolia	Asteraceae	Pale Indian plantain	f	0.9	3.4	4.2	3.0	4.0	1.1	0.9	0.8
Cacalia spp.	Asteraceae	Indian plantain	f	--	--	--	--	0.2	--	--	<0.1
Callitriche terrestris	Callitrichaceae	Terrestrial starwort	f	--	--	--	--	0.3	--	--	0.1
Campanula americana	Campanulaceae	Tall bellflower	f	--	0.2	--	0.5	2.3	--	0.5	0.4
Campsis radicans	Bignoniaceae	Trumpet creeper	wv	0.9	1.2	2.0	1.9	1.7	1.3	0.8	0.9
Carex amphibola	Cyperaceae	Sedge	s	--	--	--	1.1	0.3	--	0.4	0.2
Carex artitecta	Cyperaceae	Sedge	s	--	--	--	5.1	--	--	0.3	--
Carex blanda	Cyperaceae	Wood sedge	s	--	--	0.2	5.3	9.3	0.3	0.2	0.3
Carex cephalophora	Cyperaceae	Woodbank sedge	s	--	--	0.6	7.9	2.8	0.3	0.2	0.1
Carex complanata	Cyperaceae	Sedge	s	--	--	3.3	10.1	9.9	0.3	0.2	0.3
Carex crawei	Cyperaceae	Crawe's sedge	s	--	--	0.3	0.5	0.6	0.9	<0.1	0.1
Carex digitalis	Cyperaceae	Sedge	s	--	--	--	0.2	0.6	--	<0.1	0.8
Carex glaucodea	Cyperaceae	Blue sedge	s	--	--	0.2	--	0.3	0.3	--	0.1
Carex hirtifolia	Cyperaceae	Hairy sedge	s	--	--	0.2	--	--	0.6	--	--
Carex laxiculmis	Cyperaceae	Sedge	s	--	--	--	--	0.2	--	--	0.3
Carex meadii	Cyperaceae	Mead's sedge	s	--	--	0.5	0.3	0.3	1.1	0.1	0.1
Carex muhlenbergii	Cyperaceae	Sand sedge	s	--	--	5.0	--	9.1	0.5	--	0.2
Carex nigromarginata	Cyperaceae	Sedge	s	--	--	--	49.5	58.2	--	0.4	0.4
Carex oligocarpa	Cyperaceae	Sedge	s	--	--	--	6.5	7.6	--	0.2	0.1
Carex retroflexa	Cyperaceae	Reflexed sedge	s	--	--	13.5	4.8	10.0	0.6	0.3	0.3
Carex spp.	Cyperaceae	Sedge	s	92.9	79.6	61.4	43.6	23.9	0.6	0.3	0.3
Carex umbellata	Cyperaceae	Umbel-like sedge	s	--	--	42.3	40.7	48.8	0.6	0.2	0.3
Carpinus caroliniana	Betulaceae	Blue beech	t	0.5	0.8	1.1	1.1	2.3	1.7	2.4	1.5
Carya cordiformis	Juglandaceae	Bitternut hickory	t	1.4	2.4	1.2	3.3	2.9	2.1	0.9	1.7
Carya glabra	Juglandaceae	Pignut hickory	t	30.2	50.2	42.8	61.0	61.3	2.9	3.4	3.2
Carya ovata	Juglandaceae	Shagbark hickory	t	--	--	3.0	0.3	--	3.1	0.6	--
Carya spp.	Juglandaceae	Hickory	t	6.1	0.2	13.3	39.0	52.3	0.4	0.8	0.7
Carya texana	Juglandaceae	Black hickory	t	58.5	63.5	77.7	59.9	49.4	4.1	3.7	3.8
Carya tomentosa	Juglandaceae	Mockernut hickory	t	42.9	32.9	51.8	43.6	51.9	3.5	3.5	3.8
Cassia fasciculata	Fabaceae	Partridge pea	l	8.5	3.2	2.3	0.5	1.5	0.3	<0.1	0.3
Cassia marilandica	Fabaceae	Maryland senna	l	--	--	0.3	0.5	0.5	0.7	0.2	0.2
Cassia nictitans	Fabaceae	Wild sensitive plant	l	--	0.2	3.3	2.0	1.2	0.1	0.3	0.2
Cassia spp.	Fabaceae	Partridge pea	l	--	--	--	1.1	1.1	--	0.1	0.2
Caulophyllum thalictroides	Berberidaceae	Blue cohosh	f	--	--	--	0.2	--	--	0.6	--
Ceanothus americanus	Rhamnaceae	New Jersey tea	sh	14.2	11.9	19.4	16.3	14.2	1.0	0.9	0.8
Celastrus scandens	Celastraceae	Climbing bittersweet	wv	--	--	0.3	0.2	1.1	0.6	0.3	0.7
Celtis laevigata	Ulmaceae	Sugarberry	t	--	0.4	--	0.5	1.5	--	0.9	0.8
Celtis occidentalis	Ulmaceae	Hackberry	t	1.9	8.7	19.5	22.7	21.5	1.3	1.6	1.3
Celtis spp.	Rosaceae	Hackberry	t	14.6	10.1	3.7	3.4	10.7	1.3	0.7	0.8
Celtis tenuifolia	Ulmaceae	Dwark hackberry	t	--	--	1.9	3.0	1.1	1.2	1.4	1.3
Cephalanthus occidentalis	Rubiaceae	Buttonbush	t	--	--	--	--	0.2	--	--	0.7
Cercis canadensis	Fabaceae	Redbud	t	8.5	17.5	21.4	23.0	21.1	2.3	1.9	1.9
Chaerophyllum procumbens	Apiaceae	Wild chervil	f	--	0.2	--	--	--	--	--	--
Chasmanthium latifolia	Poaceae	Sea oats	g	1.9	2.4	1.9	1.7	2.6	1.3	1.2	1.1
Cheilanthes feei	Polypodiaceae	Slender lip fern	fe	--	0.2	0.3	0.3	0.5	0.2	0.3	0.1
Chenopodium album	Chenopodiaceae	Lamb's quarters	f	--	--	--	--	0.2	--	--	0.1
Chrysanthemum leucanthemum	Asteraceae	Ox-eye daisy	f	--	0.2	0.2	--	--	0.4	--	--
Cicuta maculata	Apiaceae	Water hemlock\Cowbane	f	--	--	--	--	0.2	--	--	<0.1
Cimicifuga racemosa	Ranunculaceae	Black cohosh	f	8.0	18.1	16.6	18.6	18.5	4.7	3.7	3.7
Circaea quadrisulcata	Onagraceae	Enchanter's nightshade	f	--	--	--	0.2	0.5	--	0.5	0.2
Cirsium altissimum	Asteraceae	Tall thistle	f	--	--	2.5	3.9	2.9	0.5	0.4	0.5
Cirsium carolinianum	Asteraceae	Thistle	f	--	--	--	--	0.3	--	--	0.4

Scientific name	Family	Common name	Type	—Percent of plots— '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Cirsium discolor	Asteraceae	Field thistle	f	--	--	--	--	0.2	--	--	0.2
Cirsium spp.	Asteraceae	Thistle	f	--	--	0.2	0.5	1.7	<0.1	0.2	0.7
Clematis virginiana	Ranunculaceae	Virgin's Bbwer	v	0.5	--	0.2	--	0.2	0.1	--	0.1
Clitoria mariana	Fabaceae	Butterfly pea	l	33.0	24.2	19.7	26.9	25.5	1.0	0.9	0.7
Cocculus carolinianus	Menispermaceae	Carolina snailseed	v	1.9	1.6	0.8	1.6	1.7	0.6	0.5	0.4
Comandra richardsiana	Santalaceae	False toadflax	f	--	0.6	3.3	2.8	2.5	0.4	0.3	0.2
Convolvulus pellitus	Convolvulaceae	Bindweed	v	--	--	--	0.3	--	--	0.9	--
Convolvulus sepium	Convolvulaceae	Hedge bindweed	v	0.5	2.8	0.9	0.6	1.4	0.8	0.9	0.3
Convolvulus spp.	Convolvulaceae	Bindweed	v	--	0.6	0.8	--	0.2	0.3	--	<0.1
Corallorhiza odontorhiza	Orchidaceae	Late coral root	f	--	0.6	--	--	--	--	--	--
Coreopsis lanceolata	Asteraceae	Tickseed coreopsis	f	--	--	--	0.3	0.3	--	0.2	0.8
Coreopsis palmata	Asteraceae	Prairie coreopsis	f	11.3	3.2	7.1	7.8	7.3	0.4	0.3	0.4
Coreopsis pubescens	Asteraceae	Star tickseed	f	--	--	--	0.2	--	--	0.3	--
Coreopsis spp.	Asteraceae	Tickseed	f	--	0.2	--	--	0.5	--	--	0.1
Coreopsis tripteris	Asteraceae	Tall coreopsis	f	--	0.6	1.4	1.7	2.0	0.3	0.4	0.3
Cornus drummondi	Cornaceae	Rough-leaved dogwood	t	--	0.6	0.5	--	1.2	0.8	--	0.6
Cornus florida	Cornaceae	Flowering dogwood	t	70.8	86.7	95.5	94.3	98.0	10.9	10.6	9.2
Cornus spp.	Cornaceae	Dogwood	t	--	0.8	0.5	0.3	0.5	0.7	0.1	2.3
Corylus americana	Betulaceae	American hazelnut	t	4.7	6.4	9.6	8.9	11.0	2.5	2.8	2.1
Crataegus spp.	Rosaceae	Hawthorn	t	9.9	10.3	10.9	12.1	11.3	0.7	0.5	0.5
Crotalaria sagittalis	Fabaceae	Rattlebox	f	--	--	0.2	0.2	0.2	0.1	0.2	0.2
Croton capitatus	Euphorbiaceae	Hogwort	f	--	1.0	0.3	--	--	0.1	--	--
Croton glandulosus	Euphorbiaceae	Croton	f	0.5	0.2	--	--	--	--	--	--
Croton monanthogynus	Euphorbiaceae	Prairie tea	f	--	--	0.8	0.6	0.6	0.3	0.3	0.1
Croton spp.	Euphorbiaceae	Croton	f	--	0.2	--	--	0.3	--	--	<0.1
Cryptotaenia canadensis	Apiaceae	Honewort	f	1.9	0.2	0.5	1.2	1.9	0.7	0.5	0.5
Cucurbita pepo	Curcurbitaceae	Yellow-flowered gourd	v	1.9	--	--	--	--	--	--	--
Cunila origanoides	Lamiaceae	Dittany	f	36.8	32.3	29.8	32.6	32.1	1.9	1.4	1.5
Cuphea petiolata	Lythraceae	Waxweed	f	--	0.2	--	--	--	--	--	--
Cynoglossum officinale	Boraginaceae	Hound's tongue	f	--	0.2	2.5	0.5	--	0.5	0.6	--
Cynoglossum spp.	Boraginaceae	Hound's tongue	f	--	0.2	0.2	0.3	--	0.3	0.3	--
Cynoglossum virginianum	Boraginaceae	Wild comfrey	f	--	1.4	0.3	0.3	0.6	0.6	0.8	0.6
Cypripedium calceolus	Orchidaceae	Yellow lady's slipper	f	--	--	--	--	0.2	--	--	<0.1
Cystopteris fragilis	Polypodiaceae	Fragile fern	fe	--	--	0.3	0.3	0.5	<0.1	<0.1	<0.1
Danthonia spicata	Poaceae	Poverty oat grass	g	17.5	16.1	16.6	18.5	18.5	0.4	0.3	0.3
Daucus carota	Apiaceae	Queen Anne's lace	f	--	0.4	0.2	0.5	0.2	0.6	0.2	0.3
Delphinium carolinianum	Ranunculaceae	Carolina larkspur	f	--	0.2	0.2	--	--	0.1	--	--
Delphinium tricorne	Ranunculaceae	Dwarf larkspur	f	0.9	0.4	--	--	--	--	--	--
Desmodium ciliare	Fabaceae	Hairy tick trefoil	l	--	--	0.6	1.1	0.3	0.5	1.5	1.5
Desmodium cuspidatum	Fabaceae	Bracted tick trefoil	l	--	0.2	4.3	2.0	3.1	0.8	0.6	0.6
Desmodium dillenii	Fabaceae	Tall tick clover	l	--	--	0.9	--	--	1.1	--	--
Desmodium glutinosum	Fabaceae	Pointed tick trefoil	l	10.9	34.1	31.5	31.7	33.3	2.3	2.3	2.3
Desmodium laevigatum	Fabaceae	Smooth Tick Trefoil	l	25.5	12.9	13.6	17.9	20.4	1.2	1.2	1.0
Desmodium marilandicum	Fabaceae	Sm-lvd tick trfl	l	3.8	0.8	2.6	1.9	1.1	0.6	0.4	0.5
Desmodium nudiflorum	Fabaceae	Bare-stem trefoil	l	92.5	95.0	95.5	95.3	96.0	15.5	15.9	15.6
Desmodium nuttallii	Fabaceae	Nuttall's trefoil	l	25.9	12.7	26.5	30.4	40.0	1.3	1.6	1.4
Desmodium paniculatum	Fabaceae	Panicled trefoil	l	39.2	6.6	13.0	9.9	6.9	1.1	1.0	0.6
Desmodium pauciflorum	Fabaceae	Sm-flwr trefoil	l	11.3	24.8	10.4	20.2	5.1	0.8	1.1	1.0
Desmodium rigidum	Fabaceae	Stiff tick trefoil	l	0.9	--	0.2	0.5	--	1.8	0.3	--
Desmodium rotundifolium	Fabaceae	Round-lvd trefoil	l	19.3	15.5	16.4	17.9	17.0	1.1	1.1	1.1
Desmodium sessilifolium	Fabaceae	Tick trefoil	f	--	--	--	--	0.2	--	--	1.0
Desmodium spp.	Fabaceae	Tick trefoil	l	5.2	2.0	4.2	13.4	19.8	0.8	0.1	0.1
Dioscorea quaternata	Dioscoreaceae	Four-leaf yam	v	1.4	36.5	31.2	35.3	34.7	1.1	1.2	1.1
Dioscorea spp.	Dioscoreaceae	Wild yam	v	--	--	0.6	17.4	9.4	<0.1	0.2	0.2
Dioscorea villosa	Dioscoreaceae	Wild yam	v	27.8	27.2	33.8	20.3	29.9	0.8	0.5	0.6
Diospyros virginiana	Ebenaceae	Persimmon	t	9.4	5.0	18.1	17.7	23.5	2.6	2.1	1.8
Dodecatheon meadia	Primulaceae	Shooting star	f	--	--	0.3	--	--	0.2	--	--
Echinacea pallida	Asteraceae	Pale purple coneflower	f	--	0.2	1.2	2.3	2.0	0.7	0.6	0.5
Echinacea purpurea	Asteraceae	Purple coneflower	f	--	--	0.6	0.5	0.5	0.7	0.5	0.6
Echinacea spp.	Asteraceae	Purple coneflower	f	--	--	--	--	0.6	--	--	0.1
Elaeagnus umbellata	Elaeagnaceae	Autumn olive	t	0.5	0.2	0.3	0.5	0.8	0.5	1.6	2.4
Elephantopus carolinianus	Asteraceae	Elephant's foot	f	0.5	0.2	0.9	0.8	1.4	0.8	1.1	1.1
Elymus canadensis	Poaceae	Canada wild rye	g	--	0.2	--	0.3	0.6	--	0.2	<0.1
Elymus spp.	Poaceae	Wild Rye	g	--	--	--	1.4	2.3	--	0.2	0.1
Elymus virginicus	Poaceae	Virginia wild rye	g	5.2	3.6	2.6	2.8	2.5	0.2	0.2	0.2
Erechtites hieracifolia	Asteraceae	Fireweed	f	--	0.6	1.4	3.7	2.5	0.2	0.5	0.3
Erigeron annuus	Asteraceae	Daisy fleabane	f	--	--	--	0.2	0.2	--	<0.1	<0.1
Erigeron canadensis	Asteraceae	Daisy fleabane	f	--	--	--	--	0.2	--	--	0.5
Eryngium yuccifolium	Apiaceae	Rattlesnake master	f	1.4	0.6	1.6	0.8	0.9	0.4	0.6	0.3
Euonymus atropurpureus	Celastraceae	Wahoo	t	0.5	--	0.6	--	0.3	1.2	--	<0.1

Scientific name	Family	Common name	Type	---Percent of plots--- '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Eupatorium perfoliatum	Asteraceae	Common boneset	f	0.5	--	0.2	0.2	--	0.2	<0.1	--
Eupatorium purpureum	Asteraceae	Purple joe pye weed	f	--	0.4	0.9	0.8	1.7	0.8	0.8	0.9
Eupatorium rugosum	Asteraceae	White snakeroot	f	--	0.4	5.4	4.0	4.0	0.7	1.7	1.1
Eupatorium spp.	Asteraceae	Thoroughwort	f	0.5	0.2	--	--	1.4	--	--	2.1
Euphorbia commutata	Euphorbiaceae	Wood spurge	f	--	--	--	0.5	0.3	--	0.1	<0.1
Euphorbia corollata	Euphorbiaceae	Flowering spurge	f	25.0	19.1	23.3	22.4	24.2	0.2	0.2	0.2
Euphorbia dentata	Euphorbiaceae	Toothed spurge	f	--	--	0.2	1.6	0.2	0.4	0.1	<0.1
Euphorbia heterophyla	Euphorbiaceae	Wild poinsettia	f	--	--	--	0.6	0.2	--	0.1	0.1
Euphorbia spp.	Euphorbiaceae	Spurge	f	--	--	0.3	0.2	--	<0.1	<0.1	--
Evolvulus nuttallianus	Convolvulaceae	Shaggy evolvulus	f	--	--	0.2	--	--	0.3	--	--
Festuca spp.	Poaceae	Fescue	g	--	--	--	--	1.4	--	--	0.2
Festuca octoflora	Poaceae	Six-weeks fescue	g	--	--	--	--	1.4	--	--	0.1
Fimbristylis caroliniana	Cyperaceae	Sedge	s	--	--	0.2	0.5	0.5	3.4	0.6	1.0
Fragaria virginiana	Rosaceae	Wild strawberry	f	4.7	1.4	0.5	0.3	1.2	0.5	<0.1	0.3
Fraxinus americana	Oleaceae	White ash	t	3.3	9.7	17.2	19.7	14.7	3.1	3.0	2.6
Fraxinus pennsylvanica	Oleaceae	Green ash	t	0.5	2.4	0.8	1.2	9.1	2.7	2.1	2.8
Fraxinus spp.	Oleaceae	Ash	t	6.1	--	1.9	0.9	1.7	1.7	1.3	0.4
Galactia volubilis	Fabaceae	Milk pea	l	19.3	2.0	7.8	8.9	15.3	0.4	0.5	0.3
Galium aparine	Rubiaceae	Annual bedstraw	f	--	0.2	0.2	--	0.3	2.1	--	0.2
Galium arkansanum	Rubiaceae	Arkansas bedstraw	f	12.7	15.3	11.2	12.6	12.0	0.5	0.3	0.5
Galium circaezans	Rubiaceae	Wild licorice	f	--	2.0	22.2	30.0	32.3	0.2	0.1	0.2
Galium concinnum	Rubiaceae	Shining bedstraw	f	7.6	14.9	15.5	16.8	17.1	1.2	0.6	0.8
Galium obtusum	Rubiaceae	Wild madder	f	13.7	21.0	4.3	5.4	3.2	0.1	0.1	0.1
Galium pilosum	Rubiaceae	Hairy bedstraw	f	22.6	22.0	18.5	12.6	13.7	0.2	0.1	0.1
Galium spp.	Rubiaceae	Bedstraw	f	--	1.0	0.5	4.7	6.5	0.2	0.1	<0.1
Galium tinctorium	Rubiaceae	Stiff bedstraw	f	--	--	0.8	2.3	1.1	1.0	0.3	0.1
Galium triflorum	Rubiaceae	Sweet-scented bedstraw	f	0.9	2.8	3.0	3.1	3.4	0.7	0.4	0.4
Gentiana puberula	Gentianaceae	Downy gentian	f	--	--	--	0.8	0.5	--	0.1	0.1
Geranium maculatum	Geraniaceae	Wild geranium	f	--	21.8	21.4	18.9	20.2	0.6	0.6	0.7
Gerardia flava	Scrophulariaceae	Smooth false foxglove	f	0.5	2.4	6.7	5.4	5.1	0.6	0.8	0.7
Gerardia grandiflora	Scrophulariaceae	Big-flowered gerardia	f	--	0.4	--	--	0.3	--	--	0.3
Gerardia pedicularia	Scrophulariaceae	Clammy false foxglove	f	0.5	--	0.6	0.9	1.4	2.2	1.6	0.5
Gerardia spp.	Scrophulariaceae	False foxglove	f	0.5	1.4	0.2	0.5	--	1.9	0.2	--
Geum canadense	Rosaceae	White avens	f	5.2	6.4	8.5	4.7	6.0	0.3	0.2	0.4
Geum spp.	Rosaceae	Avens	f	--	0.4	1.6	12.4	11.3	0.1	0.2	0.3
Geum vernum	Rosaceae	Spring avens	f	9.4	2.0	0.2	0.3	0.2	0.2	0.1	0.3
Gillenia stipulata	Rosaceae	Indian physic	f	--	1.0	2.2	2.8	2.3	0.6	0.5	0.5
Gleditsia triacanthos	Fabaceae	Honey locust	t	0.9	1.0	0.5	0.9	0.2	1.0	0.2	0.5
Gnaphalium obtusifolium	Asteraceae	Sweet everlasting	f	--	--	--	0.3	0.2	--	0.3	0.1
Hackelia virginiana	Boraginaceae	Beggar's lice	f	0.5	0.2	0.2	0.5	0.2	<0.1	<0.1	<0.1
Hamamelis virginiana	Hamamelidaceae	Witch hazel	sh	--	0.4	--	--	--	--	--	--
Hedeoma pulegioides	Lamiaceae	American pennyroyal	f	5.2	0.2	0.3	--	0.8	0.2	--	0.9
Hedera helix	Araliaceae	English ivy	v	0.5	--	--	--	--	--	--	--
Helianthus hirsutus	Asteraceae	Oblong sunflower	f	--	0.2	28.8	22.5	32.6	0.8	0.7	0.7
Helianthus spp .	Asteraceae	Sunflower	f	--	45.2	2.8	2.2	1.7	1.0	0.4	0.1
Helianthus strumosus	Asteraceae	Pale-leaved sunflower	f	--	--	19.4	30.8	23.3	1.0	1.1	1.0
Heliopsis helianthoides	Asteraceae	False sunflower	f	--	--	1.7	3.7	4.9	0.3	0.4	0.4
Heliotropium tenellum	Asteraceae	Heliotrope	f	--	--	--	0.2	--	--	<0.1	--
Hepatica nobilis acuta	Ranunculaceae	Sharp-lobed hepatica	f	1.4	9.1	7.4	8.5	8.5	0.8	1.0	0.8
Heuchera spp .	Saxifragaceae	Alum root	f	--	1.2	--	0.2	--	--	0.3	--
Hieracium gronovii	Asteraceae	Hairy hawkweed	f	10.9	12.1	9.5	10.6	10.2	0.3	0.2	0.2
Houstonia longifolia	Rubiaceae	Long-leaved bluets	f	2.8	1.6	1.4	2.8	2.2	0.1	0.2	0.1
Houstonia nigricans	Rubiaceae	Narrow-leaved bluets	f	1.4	1.8	3.3	3.0	3.1	1.1	1.1	0.7
Houstonia spp .	Rubiaceae	Bluets	f	--	--	--	0.2	0.2	--	0.1	<0.1
Hybanthus concolor	Violaceae	Green violet	f	--	5.0	1.6	0.9	1.1	0.8	0.5	2.0
Hydrangea arborescens	Saxifragaceae	Wild hydrangea	t	1.4	4.6	5.6	5.8	6.8	1.9	2.5	2.5
Hydrastis canadensis	Ranunculaceae	Golden seal	f	18.4	6.0	2.3	0.6	0.9	0.9	1.3	0.7
Hypericum punctatum	Hypericaceae	St. John's wort	f	--	--	0.2	0.3	0.3	0.5	0.6	0.2
Hypericum spathulatum	Hypericaceae	St. John's wort	sh	--	--	0.6	0.3	--	0.4	0.3	--
Hypericum sphaerocarpum	Hypericaceae	St. John's wort	f	--	--	0.3	1.2	--	0.4	0.3	--
Hypericum spp.	Hypericaceae	St. John's wort	f	--	--	0.2	0.9	0.5	0.1	0.3	0.1
Hystrix patula	Poaceae	Bottlebrush grass	g	--	--	1.6	0.2	0.2	0.3	0.1	0.3
Impatiens capensis	Balsaminaceae	Touch-me-nots	f	--	--	--	--	0.5	--	--	0.1
Ipomaea hederacea	Convolvulaceae	Blue morning glory	v	--	--	--	--	0.3	--	--	0.8
Ipomoea pandurata	Convolvulaceae	Wild sweet potato	v	10.4	6.9	6.8	6.8	6.8	0.6	0.6	0.6
Iris cristata	Iridaceae	Crested iris	f	--	--	0.3	--	0.2	1.1	--	1.0
Iris spp.	Iridaceae	Wild iris	f	--	--	--	--	0.2	--	--	0.4
Juglans nigra	Juglandaceae	Black walnut	t	1.4	1.0	1.7	1.4	1.7	0.6	0.3	0.4
Juglans spp.	Juglandaceae	Unknown	t	--	--	--	0.5	--	--	0.7	--
Juncus marginatus	Juncaceae	Rush	s	--	--	--	0.2	--	--	<0.1	--

Scientific name	Family	Common name	Type	----Percent of plots---- '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Juncus spp.	Juncaceae	Rush	s	--	--	--	0.3	--	--	0.3	--
Juniperus virginiana	Cupressaceae	Red cedar	t	2.8	5.4	4.5	4.2	5.1	0.7	0.9	0.8
Justicia americana	Acanthaceae	Water willow	f	1.4	--	--	--	--	--	--	--
Krigia biflora	Asteraceae	False dandelion	f	10.4	21.0	20.3	21.3	25.6	0.4	0.3	0.3
Kuhnia eupatorioides	Asteraceae	False boneset	f	--	0.2	1.1	1.9	1.5	0.5	0.4	0.7
Lactuca canadensis	Asteraceae	Wild lettuce	f	--	--	0.2	1.2	2.6	0.1	0.4	0.2
Lactuca floridana	Asteraceae	Blue lettuce	f	--	--	0.3	0.8	1.2	0.5	0.2	0.2
Lactuca spp.	Asteraceae	Wild lettuce	f	1.4	0.8	3.1	0.9	0.2	0.3	0.1	0.1
Laportea canadensis	Urticaceae	Wood nettle	f	--	1.0	0.2	--	--	0.8	--	--
Lechea villosa	Cistaceae	Pinweed	f	--	--	--	0.2	--	--	0.6	--
Leersia virginica	Poaceae	White grass	g	--	--	--	--	0.3	--	--	0.1
Lespedeza capitata	Fabaceae	Round-headed bush clover	l	--	--	0.2	0.2	--	0.3	0.6	--
Lespedeza cuneata	Fabaceae	Silky bush clover	l	6.6	6.9	1.9	0.5	1.5	0.4	0.5	0.3
Lespedeza hirta	Fabaceae	Hairy bush clover	l	14.2	10.9	9.9	6.5	10.5	0.7	1.2	0.9
Lespedeza intermedia	Fabaceae	Bush clover	l	33.5	16.7	30.9	40.2	37.4	0.6	0.7	0.7
Lespedeza nuttalii	Fabaceae	Bush-clover	l	--	--	0.3	--	--	0.6	--	--
Lespedeza procumbens	Fabaceae	Trlng bush clover	l	20.8	14.1	11.9	17.7	19.0	0.9	0.7	0.7
Lespedeza repens	Fabaceae	Crpng bush clover	l	46.7	20.4	20.2	25.0	26.4	1.1	1.1	0.9
Lespedeza spp.	Fabaceae	Lespedeza	l	12.3	0.2	3.0	15.2	14.0	0.1	0.1	0.1
Lespedeza stipulacea	Fabaceae	Korean lespedeza	l	1.9	16.3	1.9	0.6	0.9	1.2	0.2	0.8
Lespedeza striata	Fabaceae	Japanese lespedeza	l	0.5	4.2	0.5	0.5	0.2	0.4	0.5	0.1
Lespedeza violacea	Fabaceae	Bush clover	l	--	--	15.8	3.0	0.9	0.4	0.3	0.2
Lespedeza virginica	Fabaceae	Bush clover	l	15.1	14.5	8.4	8.9	9.6	0.6	0.5	0.5
Liatris aspera	Asteraceae	Rough blazing star	f	0.5	0.6	3.7	2.3	2.0	0.2	0.3	0.3
Liatris cylindracea	Asteraceae	Cyl. blazing star	f	--	--	0.5	0.8	1.1	0.8	0.5	0.5
Liatris pycnostachya	Asteraceae	Prairie blazing star	f	0.5	0.2	0.8	0.2	--	0.3	0.1	--
Liatris spp.	Asteraceae	Blazing star	f	0.5	--	0.8	0.3	0.6	0.1	<0.1	0.2
Ligusticum canadense	Apiaceae	Lovage	f	1.4	0.2	6.4	4.8	6.3	0.5	0.4	0.6
Lindera benzoin	Lauraceae	Spicebush	t	1.9	6.8	5.0	5.0	5.9	3.2	3.5	5.3
Linum medium	Linaceae	Flax	f	--	--	--	--	0.3	--	--	0.1
Linum striatum	Linaceae	Stiff yellow flax	f	--	--	0.2	--	--	0.3	--	--
Lithospermum canescens	Boraginaceae	Hoary puccoon	f	--	1.6	3.6	2.6	4.0	0.5	0.5	0.7
Lobelia inflata	Campanulaceae	Indian tobacco	f	--	--	1.6	--	0.8	0.2	--	0.7
Lobelia spicata	Campanulaceae	Pale spiked lobelia	f	0.5	0.2	1.7	3.7	3.2	0.3	0.1	0.2
Lobelia spp.	Campanulaceae	Lobelia	f	--	--	0.2	--	0.3	0.5	--	0.7
Lonicera spp.	Caprifoliaceae	Honeysuckle	wv	--	11.9	16.7	17.1	19.8	1.4	1.2	1.1
Lysimachia lanceolata	Primulaceae	Loosestrife	f	--	0.4	2.5	5.4	8.0	0.3	0.3	0.3
Malaxis unifolia	Orchidaceae	Grn adder's mouth	f	--	--	0.2	--	0.8	0.1	--	0.7
Matelea decipiens	Asclepiadaceae	Climbing milkweed	v	--	--	0.9	2.3	2.6	0.5	0.9	0.6
Matelea spp.	Asclepiadaceae	Climbing milkweed	v	1.4	1.4	2.0	--	--	0.9	--	--
Menispermum canadense	Menispermaceae	Moonseed	v	--	0.2	3.1	4.8	4.3	0.4	0.3	0.2
Monarda russeliana	Lamiaceae	Bradbury beebalm	f	28.8	26.4	28.4	27.6	30.1	0.8	0.8	0.8
Monarda spp.	Lamiaceae	Horsemint	f	--	--	--	0.2	--	--	0.1	--
Monotropa hypopithys	Pyrolaceae	Pinesap	f	0.5	--	0.2	--	0.8	0.1	--	<0.1
Monotropa uniflora	Pyrolaceae	Indian pipe	f	0.9	--	--	0.2	0.3	--	<0.1	0.1
Morus rubra	Moraceae	Red mulberry	t	--	2.0	4.7	3.3	4.8	1.1	0.9	0.4
Muhlenbergia sobolifera	Poaceae	Rock satin grass	g	6.1	6.2	8.5	7.0	6.9	0.7	0.6	0.9
Muhlenbergia spp.	Poaceae	Muhly grass	g	--	--	0.9	1.1	0.6	0.3	0.3	0.4
Muhlenbergia tenuiflora	Poaceae	Muhly grass	g	--	--	--	--	0.2	--	--	0.3
Nyssa sylvatica	Cornaceae	Black gum	t	44.8	68.7	78.3	78.4	81.8	3.5	4.0	3.7
Onosmodium spp.	Boraginaceae	False gromwell	f	--	--	--	0.9	--	--	0.2	--
Onosmodium subsetosum	Boraginaceae	Ozark false gromwell	f	--	--	0.2	--	--	<0.1	--	--
Ophioglossum engelmanii	Ophioglossaceae	Adder's tongue	fe	--	--	--	--	0.2	--	--	0.2
Osmorhiza claytoni	Apiaceae	Hairy sweet cicely	f	--	0.4	--	--	0.2	--	--	0.4
Ostrya virginiana	Betulaceae	Ironwood	t	--	3.0	0.5	1.4	0.9	0.7	2.6	1.6
Oxalis spp.	Oxalidaceae	Wood sorrel	f	--	1.6	0.5	0.8	0.3	<0.1	<0.1	<0.1
Oxalis stricta	Oxalidaceae	Wood sorrel	f	1.9	0.8	3.0	5.9	5.1	0.2	0.1	0.1
Oxalis violacea	Oxalidaceae	Violet wood sorrel	f	0.9	--	0.8	0.3	0.9	<0.1	0.1	0.2
Oxypolis rigidior	Apiaceae	Cowbane	f	--	0.2	0.2	--	0.2	0.5	--	0.4
Panicum anceps	Poaceae	Beaked panic grass	g	--	--	0.2	0.3	0.2	1.9	0.2	1.8
Panicum boscii	Poaceae	Bosc's panic grass	g	38.7	40.7	47.8	56.2	47.2	0.7	0.8	0.7
Panicum capillare	Poaceae	Old witch grass	g	0.5	--	--	0.2	0.2	--	0.4	0.4
Panicum clandestinum	Poaceae	Deer tongue grass	g	0.5	17.1	1.2	0.3	2.8	0.6	1.2	0.3
Panicum commutatum	Poaceae	Panic grass	g	30.7	34.5	35.2	34.8	39.8	0.4	0.4	0.3
Panicum depauperatum	Poaceae	Panic grass	g	20.8	4.8	0.5	--	0.3	0.5	--	0.1
Panicum dichotomum	Poaceae	Forked panic grass	g	40.6	29.0	30.4	33.7	28.9	0.3	0.3	0.3
Panicum lanuginosum	Poaceae	Wooly panic grass	g	11.8	2.8	8.7	9.8	7.3	0.3	0.3	0.4
Panicum laxiflorum	Poaceae	Lax-flwrd panic grass	g	0.9	--	0.2	0.2	0.2	0.5	0.8	<0.1
Panicum linearifolium	Poaceae	Slender-lvd panic grass	g	--	--	6.2	15.5	19.9	0.3	0.2	0.2
Panicum oligosanthes	Poaceae	Panic grass	g	--	--	--	--	0.5	--	--	0.3

Scientific name	Family	Common name	Type	—Percent of plots— '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Panicum sphaerocarpon	Poaceae	Rnd-fruited panic grass	g	--	0.2	0.8	0.5	5.7	0.2	1.9	0.4
Panicum spp.	Poaceae	Panic grass	g	11.3	2.8	7.3	16.9	22.4	0.1	0.1	0.1
Panicum virgatum	Poaceae	Switch grass	g	1.4	2.0	0.9	2.5	2.0	1.5	1.7	0.8
Parietaria pensylvanica	Urticaceae	Pellitory	f	--	--	--	0.5	--	--	0.1	--
Paronychia canadensis	Caryophyllaceae	Forked chickweed	f	--	--	0.2	0.3	--	1.5	0.2	--
Paronychia fastigiata	Caryophyllaceae	Chickweed	f	--	--	--	0.2	--	--	0.4	--
Parthenium hispidum	Asteraceae	Hairy feverfew	f	4.3	10.7	2.6	--	0.6	0.6	--	0.5
Parthenium integrifolium	Asteraceae	Wild quinine	f	21.2	30.0	26.8	27.5	26.5	0.8	0.9	0.8
Parthenocissus quinquefolia	Vitaceae	Virginia creeper	wv	66.5	77.6	75.4	77.8	82.1	7.1	7.1	7.4
Passiflora lutea	Passifloraceae	Passion flower	v	6.6	19.3	13.0	13.2	14.5	0.3	0.3	0.3
Pedicularis canadensis	Scrophulariaceae	Lousewort	f	0.9	0.6	0.3	0.3	0.5	1.2	<0.1	0.2
Pellaea atropurpurea	Polypodiaceae	Purple cliff brake	fe	0.5	0.2	1.1	2.2	1.2	0.2	0.3	0.5
Penstemon pallidus	Scrophulariaceae	Pale beard tongue	f	--	--	0.2	0.2	--	0.4	<0.1	--
Penstemon spp.	Scropulariaceae	Beard-tongue	f	--	--	--	--	0.3	--	--	0.3
Petalostemon spp.	Fabaceae	Prairie clover	f	--	--	--	0.2	0.2	--	<0.1	<0.1
Petalostemum candidum	Fabaceae	Wht prairie clover	f	--	--	0.2	0.5	0.5	<0.1	0.2	0.4
Petalostemum purpureum	Fabaceae	Purp prairie clover	f	0.9	0.2	1.2	0.8	1.4	0.4	0.3	0.2
Phaseolus polystachios	Fabaceae	Wild bean	l	0.9	13.7	4.8	7.9	2.8	1.2	3.8	1.4
Phlox divaricata	Polemoniaceae	Blue phlox	f	--	4.0	3.1	6.1	4.5	0.2	0.3	0.2
Phlox pilosa	Polemoniaceae	Prairie phlox	f	--	--	0.9	3.1	2.5	0.2	0.1	0.1
Phlox spp.	Polemoniaceae	Phlox	f	1.4	0.2	0.3	0.2	0.8	0.1	<0.1	<0.1
Phryma leptostachya	Phrymaceae	Lopseed	f	3.3	13.3	11.3	25.6	27.8	0.5	0.4	0.4
Physalis heterophylla	Solanaceae	Clam grnd cherry	f	--	1.4	1.6	0.3	0.2	0.3	0.1	<0.1
Physalis longifolia	Solanaceae	Nightshade	f	--	--	--	0.2	--	--	1.6	--
Physalis spp.	Solanaceae	Nightshade	f	--	--	0.2	1.6	0.9	<0.1	0.1	0.1
Physalis virginiana	Solanaceae	Lance-lvd grnd cherry	f	--	--	0.6	0.3	4.8	0.2	0.2	0.2
Physocarpus opulifolius	Rosaceae	Ninebark	f	--	0.2	--	--	--	--	--	--
Physostegia virginiana	Lamiaceae	Dragon-head mint	f	--	--	0.3	0.6	0.6	0.2	0.5	0.5
Phytolacca americana	Phytolaccaceae	Pokeweed	f	--	--	0.2	--	--	0.2	--	--
Pilea pumila	Urticaceae	Clearweed	f	--	0.2	0.5	0.3	2.6	0.5	0.5	1.1
Pinus echinata	Pinaceae	Short-leaf pine	t	11.3	16.5	18.3	20.0	27.6	0.6	0.5	0.4
Plantago cordata	Plantaginaceae	Heart-leaved plantain	f	0.5	0.8	--	--	--	--	--	--
Plantago major	Plantaginaceae	Common plantain	f	0.5	--	0.2	0.2	0.2	0.2	0.1	0.5
Plantago rugelii	Plantaginaceae	Plantain	f	--	--	--	--	0.3	--	--	0.2
Plantago spp.	Plantaginaceae	Plantain	f	--	0.6	0.5	--	0.2	0.5	--	<0.1
Plantago virginica	Plantaginaceae	Dwarf plantain	f	--	--	--	0.6	0.3	--	0.4	0.7
Poa spp.	Poaceae	Kentucky bluegrass	g	--	--	--	0.2	0.3	--	<0.1	<0.1
Poa sylvestris	Poaceae	Sylvan blue grass	g	--	--	--	--	0.2	--	--	<0.1
Podophyllum peltatum	Berberidaceae	May apple	f	--	0.8	0.9	2.0	1.9	0.5	0.8	0.9
Polygala senega	Polygolaceae	Seneca snakeroot	f	--	--	--	0.3	0.5	--	0.6	0.4
Polygonatum commutatum	Liliaceae	Solomon's seal	f	4.3	6.4	0.5	0.8	0.2	0.4	0.5	<0.1
Polygonum convolvulus	Polygonaceae	Black bindweed	v	--	--	0.2	--	0.2	<0.1	--	<0.1
Polygonum scandens	Polygonaceae	Climbing false buckwheat	v	--	0.2	0.6	1.9	1.9	0.1	0.1	0.5
Polygonum spp.	Polygonaceae	Smartweed	f	--	--	--	0.2	--	--	<0.1	--
Polygonum virginianum	Polygonaceae	Virginia knotweed	f	0.5	0.4	0.3	0.6	1.2	0.8	1.7	1.0
Polystichum acrostichoides	Polypodiaceae	Christmas fern	fe	3.3	6.9	6.5	6.7	7.3	0.8	1.1	0.9
Potentilla norvegica	Rosaceae	Rough cinquefoil	f	--	0.2	--	--	--	--	--	--
Potentilla recta	Rosaceae	Sulphur cinquefoil	f	--	0.4	0.9	0.2	0.9	0.3	0.5	0.2
Potentilla simplex	Rosaceae	Cinquefoil	f	33.0	28.8	33.3	36.0	37.0	0.6	0.5	0.6
Potentilla spp.	Rosaceae	Cinquefoil	f	--	10.5	--	--	--	--	--	--
Prenanthes alba	Asteraceae	White lettuce	f	0.9	0.8	0.2	6.8	2.8	0.2	0.3	0.4
Prenanthes altissima	Asteraceae	Tall white lettuce	f	0.9	0.2	4.7	2.2	2.9	0.3	0.3	0.2
Prenanthes aspera	Asteraceae	Wild lettuce	f	--	--	--	0.2	--	--	0.1	--
Prenanthes spp.	Asteraceae	Wild lettuce	f	--	0.2	0.5	0.6	2.6	0.2	0.2	0.2
Prunella vulgaris	Lamiaceae	Heal-all	f	--	--	0.6	0.3	1.4	0.2	0.2	0.2
Prunus americana	Rosaceae	Wild plum	t	0.5	--	0.6	2.8	8.0	1.4	0.7	1.0
Prunus serotina	Rosaceae	Wild black cherry	t	26.9	32.3	34.6	39.8	41.1	1.0	0.7	0.8
Prunus spp.	Rosaceae	Plum/Cherry	t	3.3	2.2	6.2	9.3	2.8	1.0	0.7	0.6
Psoralea psoralioides	Fabaceae	Sampson's snkroot	l	1.4	--	5.6	2.5	4.0	1.3	1.2	1.0
Psoralea tenuiflora	Fabaceae	Scurfy pea	l	--	--	0.2	0.2	0.3	0.8	<0.1	0.9
Ptelea trifoliata	Rutaceae	Hop tree	t	--	--	--	0.2	--	--	0.2	--
Pteridium aquilinum	Polypodiaceae	Bracken fern	fe	24.5	26.8	27.1	27.8	29.0	4.7	3.6	3.7
Pycnanthemum albescens	Lamiaceae	White mtn mint	f	0.5	1.4	0.2	0.3	1.2	0.5	0.3	0.4
Pycnanthemum pilosum	Lamiaceae	Hairy mtn mint	f	--	--	0.2	0.6	0.3	0.5	1.1	0.1
Pycnanthemum spp.	Lamiaceae	Mountain mint	f	--	0.2	--	--	--	--	--	--
Pycnanthemum tenuifolium	Lamiaceae	Slender mtn mint	f	5.7	2.4	1.4	0.3	1.5	0.4	0.2	0.2
Pyrrhopappus carolinianus	Asteraceae	False dandelion	f	0.9	0.2	0.2	--	--	<0.1	--	--
Pyrus malus	Rosaceae	Apple	t	--	--	--	--	0.2	--	--	<0.1
Quercus alba	Fagaceae	White oak	t	74.1	81.9	88.2	89.0	88.4	3.8	4.1	3.9
Quercus coccinea	Fagaceae	Scarlet oak	t	59.0	54.6	64.0	68.2	75.0	1.9	1.9	1.9

Scientific name	Family	Common name	Type	----Percent of plots---- '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Quercus marilandica	Fagaceae	Blackjack oak	t	11.8	2.8	5.9	7.0	9.1	3.0	2.8	2.7
Quercus muehlenbergii	Fagaceae	Chinkapin oak	t	6.1	7.9	10.5	11.7	11.6	1.4	1.4	1.1
Quercus rubra	Fagaceae	Northern red oak	t	--	--	--	0.8	0.8	--	0.4	0.5
Quercus shumardii	Fagaceae	Shumard oak	t	0.9	--	--	--	0.3	--	--	0.7
Quercus spp.	Fagaceae	Oak	t	--	0.4	0.5	7.6	15.3	0.4	0.1	0.1
Quercus stellata	Fagaceae	Post oak	t	65.1	30.8	32.9	39.6	34.4	5.4	4.8	4.9
Quercus velutina	Fagaceae	Black oak	t	78.8	81.4	85.7	85.9	89.0	3.2	3.4	3.5
Ranunculus abortivus	Ranunculaceae	Sm-flwrd crowfoot	f	--	--	--	0.2	--	--	<0.1	--
Ranunculus hispidus	Ranunculaceae	Hispid buttercup	f	0.5	3.2	7.8	9.0	6.8	0.4	0.3	0.3
Ranunculus recurvatus	Ranunculaceae	Hooked buttercup	f	--	0.4	0.3	0.6	0.6	0.2	0.4	0.2
Ranunculus septentrionalis	Ranunculaceae	Swamp buttercup	f	--	--	0.8	--	2.3	0.2	--	0.2
Ranunculus spp.	Ranunculaceae	Buttercup	f	--	0.2	0.2	0.3	4.9	<0.1	0.4	0.2
Ratibida pinnata	Asteraceae	Grey coneflower	f	0.5	0.2	0.6	0.9	1.4	0.6	0.7	0.6
Rhamnus caroliniana	Rhamnaceae	Carolina buckthorn	t	38.2	32.9	41.7	51.4	57.7	2.1	1.7	1.4
Rhus aromatica	Anacardiaceae	Fragrant sumac	sh	13.2	35.5	33.8	34.0	34.4	3.8	3.7	3.4
Rhus copallina	Anacardiaceae	Winged sumac	t	8.5	2.2	5.6	5.1	5.3	1.6	1.7	1.3
Rhus glabra	Anacardiaceae	Smooth sumac	t	0.9	1.8	0.5	0.6	0.5	2.0	1.2	1.5
Rhus spp.	Anacardiaceae	Sumac	t	--	--	0.2	--	--	0.5	--	--
Ribes missouriense	Rosaceae	Gooseberry	sh	--	--	--	0.3	0.2	--	0.1	0.5
Robinia pseudo-acacia	Fabaceae	Black locust	t	--	0.2	0.2	0.5	0.6	0.2	1.1	0.3
Rosa carolina	Rosaceae	Pasture rose	sh	--	--	17.7	20.2	28.1	0.5	0.5	0.5
Rosa multiflora	Rosaceae	Multiflora rose	sh	0.9	0.8	2.5	2.0	1.7	0.5	0.6	0.7
Rosa setigera	Rosaceae	Prairie rose	sh	--	0.2	9.2	9.0	2.5	0.5	0.4	0.4
Rosa spp.	Rosaceae	Rose	sh	15.1	26.0	2.6	3.6	1.7	0.1	0.1	0.1
Rubus enslenii	Rosaceae	Southern dewberry	wv	--	--	21.7	11.0	28.9	1.0	0.9	1.2
Rubus flagellaris	Rosaceae	Common dewberry	wv	--	--	16.0	26.6	9.4	1.5	1.4	1.2
Rubus occidentalis	Rosaceae	Black raspberry	wv	--	--	1.7	2.2	1.9	1.3	1.6	2.3
Rubus pensilvanicus	Rosaceae	Yankee blackberry	wv	--	--	15.8	19.1	17.3	2.6	2.4	2.6
Rubus spp.	Rosaceae	Blackberry/Raspberry	wv	41.0	44.1	3.3	6.2	6.9	0.4	0.5	0.4
Rubus trivialis	Rosaceae	Southern dewberry	wv	--	--	0.3	--	--	0.1	--	--
Rudbeckia fulgida	Asteraceae	Coneflower	f	--	--	--	--	0.6	--	--	0.2
Rudbeckia hirta	Asteraceae	Black-eyed susan	f	4.7	1.0	0.8	0.3	2.2	0.5	0.9	0.4
Rudbeckia missouriensis	Asteraceae	Mo blk-eye susan	f	--	2.4	3.7	2.8	2.9	3.3	4.0	4.1
Rudbeckia spp.	Asteraceae	Black-eyed susan	f	0.5	0.8	0.3	0.9	0.5	0.4	0.2	0.1
Rudbeckia subtomentosa	Asteraceae	Sweet black-eyed susan	f	0.5	--	0.2	--	0.2	0.3	--	0.3
Rudbeckia triloba	Asteraceae	Brown-eyed susan	f	--	--	0.3	0.5	--	0.8	0.1	--
Ruellia humilis	Acanthaceae	Hairy wild petunia	f	--	1.2	1.4	2.2	2.6	0.6	0.5	0.5
Ruellia pedunculata	Acanthaceae	Wild petunia	f	--	8.7	14.6	18.0	17.9	0.3	0.3	0.3
Ruellia spp.	Acanthaceae	Wild petunia	f	--	0.6	0.2	1.2	2.3	0.1	0.2	0.2
Rumex acetosella	Polygonaceae	Sheep sorrel	f	--	--	--	--	0.2	--	--	<0.1
Sabatia angularis	Gentianaceae	Rose gentian	f	0.5	--	0.5	--	0.3	0.1	--	0.3
Salvia lyrata	Lamiaceae	Lyre-leaved sage	f	0.5	--	0.9	1.2	2.8	0.5	1.0	0.7
Sambucus canadensis	Caprifoliaceae	Elderberry	t	--	--	--	0.2	0.3	--	0.2	1.1
Sanguinaria canadensis	Papaveraceae	Bloodroot	f	--	--	0.8	0.2	1.5	0.5	<0.1	0.4
Sanicula canadensis	Apiaceae	Can. blk snakeroot	f	14.2	11.1	17.5	16.5	7.9	0.7	0.7	0.8
Sanicula gregaria	Apiaceae	Black snakeroot	f	--	1.8	0.3	1.4	2.3	0.3	0.3	1.0
Sanicula spp.	Apiaceae	Snakeroot	f	--	0.2	5.4	22.2	29.2	0.2	0.6	0.5
Sassafras albidum	Lauraceae	Sassafras	t	94.8	89.3	94.0	96.1	95.7	7.4	7.7	7.7
Satureja arkansana	Lamiaceae	Low calamint	f	--	0.2	1.4	0.9	1.2	1.2	0.7	1.2
Schrankia uncinata	Fabaceae	Sensitive briar	l	2.8	2.0	1.6	0.6	0.2	0.4	0.5	0.9
Scirpus spp.	Cyperaceae	Bulrush	s	--	--	--	--	0.2	--	--	0.2
Scleria spp.	Cyperaceae	Nut rush	s	--	--	2.3	7.9	9.4	0.6	0.7	0.3
Scleria triglomerata	Cyperaceae	Nut rush	s	--	--	--	5.0	4.8	--	0.6	0.9
Scutellaria bushii	Lamiaceae	Bush's skullcap	f	0.9	0.8	0.3	0.6	0.8	0.5	0.3	0.2
Scutellaria elliptica	Lamiaceae	Hairy skullcap	f	--	1.4	4.2	0.5	1.5	0.2	0.3	0.2
Scutellaria incana	Lamiaceae	Downy skullcap	f	--	3.8	7.6	5.0	4.5	0.5	0.3	0.3
Scutellaria nervosa	Lamiaceae	Veiny skullcap	f	2.8	0.6	--	--	--	--	--	--
Scutellaria ovata	Lamiaceae	Heart-Lld skullcap	f	--	3.4	3.1	1.1	2.5	0.3	0.2	0.5
Scutellaria parvula	Lamiaceae	Small skullcap	f	--	0.2	1.1	0.5	0.5	0.2	0.1	<0.1
Scutellaria spp.	Lamiaceae	Skullcap	f	2.8	5.0	1.2	0.9	0.6	0.1	0.2	<0.1
Senecio aureus	Asteraceae	Golden ragwort	f	0.9	0.6	--	--	0.3	--	--	0.1
Senecio obovatus	Asteraceae	Rnd-lvd ragwort	f	--	--	0.5	0.9	0.9	0.3	0.6	0.3
Senecio plattensis	Asteraceae	Prairie ragwort	f	0.5	--	0.2	--	--	0.2	--	--
Senecio spp.	Asteraceae	Ragwort	f	--	--	0.5	0.3	2.3	0.2	0.5	0.1
Setaria spp.	Poaceae	Foxtail	g	--	--	--	--	0.2	--	--	0.1
Setaria viridis	Poaceae	Green foxtail	g	--	0.2	--	--	0.2	--	--	0.5
Seymeria macrophylla	Scrophulariaceae	Mullein foxglove	f	--	0.2	--	--	--	--	--	--
Silene stellata	Caryophyllaceae	Starry campion	f	0.5	0.6	0.8	1.4	1.7	0.3	0.1	0.2
Silene virginica	Caryophyllaceae	Fire pink	f	--	--	0.2	1.1	1.1	0.2	0.3	0.2
Silphium asteriscus	Asteraceae	Starry rosinweed	f	--	1.0	3.7	8.7	10.7	0.5	0.4	0.3

Scientific name	Family	Common name	Type	---Percent of plots--- '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Silphium integrifolium	Asteraceae	Rosinweed	f	--	--	0.5	0.3	2.0	0.3	1.0	0.4
Silphium spp.	Asteraceae	Rosin-weed	f	--	--	--	--	0.9	--	--	0.3
Silphium terebinthinaceum	Asteraceae	Prairie dock	f	--	3.6	3.7	3.4	3.2	2.2	2.2	2.7
Sisyrinchium campestre	Iridaceae	Blue-eyed grass	f	--	--	--	0.2	0.2	--	<0.1	<0.1
Smilacina racemosa	Liliaceae	Feathery false solomon's	f	31.6	35.1	38.5	36.7	40.9	0.7	0.6	0.7
Smilax bona-nox	Liliaceae	Saw greenbriar	wv	8.0	20.2	21.2	23.1	22.2	2.2	2.2	2.1
Smilax ecirrhata	Liliaceae	Carrion flower	wv	--	--	--	--	0.2	--	--	0.2
Smilax glauca	Liliaceae	Cat greenbriar	wv	17.5	4.6	3.6	6.2	6.9	0.7	0.7	0.7
Smilax herbacea	Liliaceae	Carrion flower	wv	--	2.6	4.8	0.2	1.2	0.7	0.2	0.5
Smilax pulverulenta	Liliaceae	Carrion flower	wv	--	0.2	4.0	9.5	9.3	0.5	0.5	0.4
Smilax rotundifolia	Liliaceae	Horsebriar	wv	--	0.2	1.6	2.3	4.5	1.3	0.4	0.8
Smilax spp.	Liliaceae	Greenbriar	wv	1.4	0.4	1.7	6.5	4.9	0.1	0.3	0.1
Smilax tamnoides	Liliaceae	Bristly greenbriar	wv	1.9	9.1	8.7	3.3	4.0	1.2	1.0	0.9
Solanum americanum	Solanaceae	Black nightshade	f	0.5	0.2	--	0.2	--	--	<0.1	--
Solanum carolinense	Solanaceae	Horse nettle	f	1.9	0.2	0.5	0.6	0.6	0.5	0.4	0.4
Solanum spp.	Solanaceae	Nightshade	f	0.5	--	--	0.9	--	--	0.2	--
Solidago arguta	Asteraceae	Goldenrod	f	2.4	0.2	3.4	0.2	0.2	0.5	0.4	0.1
Solidago flexicaulis	Asteraceae	Goldenrod	f	1.9	9.5	14.3	7.6	14.4	0.7	0.5	0.5
Solidago hispida	Asteraceae	White goldenrod	f	5.2	9.9	24.0	22.5	19.4	0.6	0.6	0.5
Solidago juncea	Asteraceae	Early goldenrod	f	--	0.2	0.9	0.3	0.3	0.5	0.6	0.2
Solidago nemoralis	Asteraceae	Goldenrod	f	--	--	--	0.5	3.1	--	0.3	0.3
Solidago petiolaris	Asteraceae	Downy goldenrod	f	--	--	2.3	12.0	1.4	0.6	0.6	0.7
Solidago radula	Asteraceae	Rough goldenrod	f	9.0	--	4.0	4.7	1.5	0.5	0.3	0.3
Solidago spp.	Asteraceae	Goldenrod	f	25.5	53.4	34.4	11.8	9.6	0.7	0.4	0.4
Solidago ulmifolia	Asteraceae	Elm-lvd goldenrod	f	--	--	1.4	32.0	38.3	0.5	0.8	0.8
Sorghastrum nutans	Poaceae	Indian grass	g	--	0.2	0.6	1.9	1.4	0.8	0.5	0.8
Sorghum halepense	Poaceae	Johnson grass	g	--	--	0.3	0.2	0.2	0.2	0.1	0.5
Specularia perfoliata	Campanulaceae	Venus' lkng glass	f	--	--	--	--	0.2	--	--	<0.1
Sphenopholus obtusata	Poaceae	Wedge grass	g	--	--	--	--	0.2	--	--	0.1
Sporobolus asper	Poaceae	Rough dropseed	g	0.5	--	--	0.9	2.0	--	0.6	1.1
Sporobolus spp.	Poaceae	Dropseed	g	0.9	--	--	--	0.5	--	--	<0.1
Sporobolus vaginiflorus	Poaceae	Poverty grass	g	--	--	--	0.5	0.3	--	<0.1	0.3
Staphylea trifolia	Staphyleaceae	Bladdernut	t	--	0.4	0.3	0.3	0.5	2.1	4.1	2.4
Strophostyles leiosperma	Fabaceae	Small wild bean	l	--	0.6	1.2	--	--	0.4	--	--
Strophostyles umbellata	Fabaceae	Wild bean	l	--	--	--	1.2	0.5	--	0.4	0.3
Stylosanthes biflora	Fabaceae	Pencil flower	l	5.7	2.0	5.7	7.6	8.2	0.2	0.2	0.2
Symphoricarpos orbiculatus	Caprifoliaceae	Coralberry	sh	17.5	14.3	17.1	16.6	17.0	1.8	1.7	1.7
Taenidia integerrima	Apiaceae	Yellow pimpernel	f	--	0.8	1.4	1.6	2.0	0.5	0.4	0.4
Tephrosia virginiana	Fabaceae	Goat's rue	l	29.3	13.3	15.8	15.5	16.1	1.5	1.7	1.5
Thalictrum dioicum	Ranunculaceae	Early meadow rue	f	--	--	0.2	0.2	0.5	0.2	0.3	0.4
Thaspium barbinode	Apiaceae	Hairy meadow parsnip	f	--	6.6	3.7	6.8	2.2	0.7	0.7	0.5
Thaspium spp.	Apiaceae	Meadow parsnip	f	--	0.2	0.5	1.2	6.2	0.2	0.1	0.5
Thaspium trifoliatum	Apiaceae	Meadow parsnip	f	3.8	12.3	8.7	8.7	4.9	0.6	0.5	0.5
Thelypteris hexagonoptera	Polypodiaceae	Broad beech fern	fe	--	3.6	2.2	0.6	1.2	2.4	7.0	4.5
Toxicodendron radicans	Anacardiaceae	Poison ivy	wv	30.2	40.9	43.3	42.9	46.6	2.0	2.0	1.8
Tradescantia longipes	Commelinaceae	Wild crocus	f	--	--	--	0.6	0.5	--	<0.1	0.2
Tragia cordata	Euphorbiaceae	Twining tragia	v	--	--	0.2	0.6	0.5	0.2	0.2	0.1
Tridens flavus	Poaceae	False redtop	g	0.9	0.6	0.2	0.2	--	0.3	<0.1	--
Trifolium pratense	Fabaceae	Clover	l	--	--	--	--	0.2	--	--	0.2
Trillium spp.	Liliaceae	Wake-robin	f	--	--	--	0.3	0.6	--	0.1	0.2
Triosteum angustifolium	Caprifoliaceae	Horse gentian	f	1.9	--	--	0.2	0.3	--	<0.1	0.3
Triosteum aurantiacum	Caprifoliaceae	Horse gentian	f	--	0.4	--	0.2	0.2	--	0.4	<0.1
Triosteum spp.	Caprifoliaceae	Horse gentian	f	0.9	--	--	0.2	0.2	--	0.1	<0.1
Triphora trianthophora	Orchidaceae	Nodding pogonia	f	--	--	--	0.2	0.6	--	<0.1	0.1
Ulmus alata	Ulmaceae	Winged elm	t	3.8	9.7	14.4	9.2	14.2	1.4	1.1	0.9
Ulmus americana	Ulmaceae	American elm	t	0.9	14.7	4.8	7.0	7.6	1.3	1.5	1.4
Ulmus rubra	Ulmaceae	Slippery elm	t	7.1	22.4	20.8	20.0	21.9	2.4	2.7	2.3
Ulmus spp.	Ulmaceae	Elm	t	2.8	0.6	2.2	10.9	6.8	0.6	0.7	0.3
Uvularia grandiflora	Liliaceae	Bellwort	f	--	8.5	16.9	18.6	19.3	0.5	0.5	0.5
Vaccinium arboreum	Ericaceae	Farkleberry	sh	--	--	13.5	16.6	11.1	3.0	3.3	2.3
Vaccinium spp.	Ericaceae	Blueberry	sh	90.6	73.2	19.4	2.2	2.2	8.2	1.2	0.2
Vaccinium stamineum	Ericaceae	Deerberry	sh	--	--	49.0	53.3	56.2	5.5	4.8	4.6
Vaccinium vacillans	Ericaceae	Low blueberry	sh	--	--	55.4	65.5	66.7	6.1	5.8	6.5
Verbena canadensis	Verbenaceae	Rose vervain	f	--	--	--	0.3	0.3	--	<0.1	0.3
Verbena simplex	Verbenaceae	Vervain	f	--	0.2	0.2	--	0.3	2.4	--	<0.1
Verbena spp.	Verbenaceae	Verbena	f	0.5	--	--	--	--	--	--	--
Verbena urticifolia	Verbenaceae	White vervain	f	2.4	0.4	0.8	0.2	0.2	2.1	0.7	0.7
Verbesina helianthoides	Asteraceae	Wing-stem	f	6.6	6.9	11.2	13.7	12.8	1.4	1.4	1.2
Verbesina virginica	Asteraceae	Wing-stem	f	--	--	--	0.2	--	--	3.8	--
Vernonia altissima	Asteraceae	Tall ironweed	f	--	--	0.3	1.2	1.1	0.8	0.6	0.6

Scientific name	Family	Common name	Type	----Percent of plots---- '91	'92	'93	'94	'95	-Relative cover- '93	'94	'95
Vernonia baldwini	Asteraceae	Western ironweed	f	2.8	6.4	14.0	17.4	11.4	0.7	0.6	0.7
Vernonia crinita	Asteraceae	Great ironweed	f	0.9	1.4	2.6	3.1	2.2	0.5	0.5	0.5
Vernonia spp.	Asteraceae	Ironweed	f	--	0.8	0.6	1.2	--	0.3	0.3	--
Veronicastrum virginicum	Scrophulariaceae	Culver's root	f	0.5	0.2	0.3	0.5	0.6	0.2	0.2	0.1
Viburnum rufidulum	Caprifoliaceae	Rusty black haw	t	2.4	6.8	9.5	11.5	13.7	1.0	0.6	0.6
Viburnum spp.	Caprifoliaceae	Blackhaw	t	--	--	0.9	--	0.2	1.0	--	0.6
Vicia americana	Fabaceae	Vetch	f	--	--	--	--	0.2	--	--	0.2
Vicia caroliniana	Fabaceae	Wood vetch	l	6.1	2.2	2.5	3.3	4.0	0.2	0.2	0.1
Vicia spp.	Fabaceae	Vetch	l	--	--	--	0.5	0.3	--	0.2	<0.1
Viola pedata	Violaceae	Bird's foot violet	f	--	0.2	3.9	4.2	4.2	0.2	0.1	0.1
Viola sagittata	Violaceae	Arrow-lvd violet	f	--	1.0	0.9	0.9	1.9	0.2	0.2	0.1
Viola sororia	Violaceae	Hairy wood violet	f	--	0.4	21.7	24.4	29.6	0.4	0.5	0.6
Viola spp.	Violaceae	Violet	f	34.4	45.4	10.5	31.4	25.8	0.3	0.1	0.1
Viola striata	Violaceae	Cream violet	f	--	0.6	1.1	0.9	1.1	1.4	2.9	2.2
Viola triloba	Violaceae	3-Leaved violet	f	--	3.6	36.0	26.2	38.3	0.3	0.2	0.3
Viola viarum	Violaceae	Plains violet	f	--	0.2	5.7	13.8	3.1	0.2	0.2	0.1
Vitis aestivalis	Vitaceae	Summer grape	wv	88.2	95.2	54.0	89.1	92.6	2.9	3.7	3.4
Vitis spp.	Vitaceae	Grape	wv	10.9	6.6	71.8	69.3	62.5	2.7	0.2	0.1
Vitis vulpina	Vitaceae	Frost grape	wv	1.9	0.2	5.6	18.2	29.5	0.6	0.8	1.0
Woodsia obtusa	Polypodiaceae	Cliff fern	fe	--	--	0.2	--	0.2	0.2	--	<0.1
Zizia aptera	Apiaceae	Meadow parsnip	f	1.4	--	0.2	--	--	0.3	--	--
Zizia aurea	Apiaceae	Golden alexanders	f	--	0.6	--	--	0.2	--	--	1.3
Zizia spp.	Apiaceae	Golden alexanders	f	--	0.2	0.3	--	0.3	0.2	--	0.2
None	None	None	no	27.4	23.4	9.9	9.2	6.9	--	--	--
Unknown	Unknown	Unknown forb	f	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Unknown	Unknown grass	g	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Fabaceae	Unknown legume	l	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Unknown	Unknown woody	t	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Unknown	Data not available	un	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Asteraceae	Composite	f	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Polypodiaceae	Fern	fe	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Lamiaceae	Mint	f	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Unknown	Unknown	un	17.5	6.2	--	1.6	0.2	--	0.8	<0.1
Unknown	Unknown	Unknown	v	17.5	6.2	--	1.6	0.2	--	0.8	<0.1

Shifley, Stephen R.; Brookshire, Brian L., eds.
2000. **Missouri Ozark Forest Ecosystem Project: site history, soils, landforms, woody and herbaceous vegetation, down wood, and inventory methods for the landscape experiment.** Gen. Tech. Rep. NC-208. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 314 p.

Describes vegetation and physical site conditions at the initiation (1991-1995) of the Missouri Ozark Forest Ecosystem Project (MOFEP) in the southeastern Missouri Ozarks. Provides detailed information on sampling protocols and summarizes initial conditions of the landscape experiment prior to harvest treatments. Summaries are by plot, by ~800-acre experimental unit, and by ecological landtype. The detailed information serves as a baseline for the century-long MOFEP experiment and for compairson with forest conditions in other regions.

KEY WORDS: Ecosystem management, species composition, forest size structure, coarse woody debris, sampling, forest soils, oak-hickory forest, shortleaf pine, fire history.