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Photo Guide for Estimating Fuel Loading in the Southern Appalachian Mountains



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Abstract

This field guide provides 74 photographs that depict observed fuel loads within the Southern Appalachian Mountains. The guide contains instructions on how to select a reference photograph and utilize the fuel loading information to aid in prescribed fire planning.

Photo Guide

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All photos by USDA Forest Service Southern Research Station personnel.

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Consortium of
Appalachian Fire
Managers & Scientists



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Introduction

Prescribed fire is a forest management practice used extensively throughout the Southeastern United States to accomplish a variety of land management objectives, such as hazardous fuel reduction, slash and debris reduction for site preparation, wildlife habitat enhancement, vegetative control of less-desired species, and ecosystem restoration (Waldrop and Goodrick 2012). It is well documented that wildland fire has been part of the Appalachian region for centuries (Lafon and others 2017), but much of the scientific understanding needed to utilize fire for the accomplishment of long-term management in this region is still emerging. Many managers and scientists in the region have desired a reference tool to aid in the determination of Appalachian-specific fuel loads as a means to better predict and anticipate potential fire behavior.

Fuel photo guides for the Eastern United States have been developed specifically for estimating fuel loads as a result of clearcut harvesting (Sanders and Van Lear 1988, Southern Appalachians) or post-hurricane damage in southern pine forests (Wade and others 1993). Also, a photo guide was specifically created for loblolly and longleaf pine plantations in the upper Coastal Plain Region (Scholl and Waldrop 1999). Other photo guides have included managed and unmanaged stands. For northern hardwood and oak-hickory forest types, Wilcox and others (1982) developed a guide for each forest type, also grouped by site, class, and harvest history. A more recent guide developed for the Mid-Atlantic States gives users pre- and post-prescribed fire data arranged by differing levels of fuel types including leaf litter, ericaceous shrubs, and logging slash (Brose 2009). No fuel photo guide has been developed specifically for long-unburned stands in the Southern Appalachians. It is our goal with the production of this guide to take the first step in that direction.

Methods

We developed this guide using photographs, site descriptions, and forest fuel inventories obtained from 705 research plots located on portions of Federal lands including Great Smoky Mountains National Park (Tennessee), Sumter National Forest (Andrew Pickens Ranger District, South Carolina), Chattahoochee National Forest (Chattooga River Ranger District, Georgia), and Nantahala National Forest (Nantahala Ranger District, North Carolina) (Waldrop and others 2007). All plots were located in areas where prescribed fire might be utilized to achieve forest management objectives.

Field data collection—In the field, fuel inventories were conducted using Brown’s Planar Intersect Method (Brown 1974), as modified by Stottlemeyer (2004) (fig. 1). Using this technique, down and dead woody debris 0–1/4 inch, 1/4–1 inch, 1–3 inches, and >3 inches in diameter was tallied as a 1-, 10-, 100-, and 1,000-hour timelag size class, respectively, along three 50-foot transects established at a 45° angle. Timelag refers to how each individual fuel-size class responds to changes in relative humidity (Brown 1974). Using this method, 1-hour and 10-hour fuels were tallied within the first 6 feet of each transect, 100-hour fuels were tallied within the first 12 feet, and 1,000-hour fuels were tallied along the entire 50-foot transect. A quality rating (sound or rotten) was additionally recorded for 1,000-hour fuels.

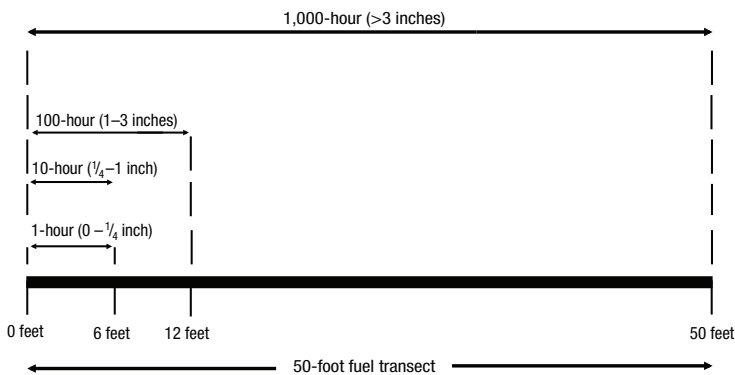


Figure 1—Sampling parameters along each 50-foot transect for the tally of woody fuel components (Stottlemeyer 2004).

Estimates of fuel loading in tons per acre (W) were derived for each fuel-size class based upon these equations (Brown 1974):

$$\text{For material } \leq 3 \text{ inches: } W = (11.64)(n \cdot d^2 \cdot s \cdot a \cdot c) / N \cdot L$$

$$\text{For material } > 3 \text{ inches: } W = (11.64)(\sum d^2 \cdot s \cdot a \cdot c) / N \cdot L$$

where

11.64 = conversion factor of volume to tons per acre

n = the number of woody fuels tallied per timelag size class

d = quadratic mean diameter of particles (inches)

s = specific gravity of fuels ($s = 0.70$ for 0–1-inch material, 0.58 for 1–3-inch material, 0.58 for >3-inch sound material, and 0.30 for >3-inch rotten material) (Anderson 1978)

a = non-horizontal angle correction factor

c = slope correction factor

N = number of transects at each plot ($N = 3$)

L = length (feet) of sampling plane ($L = 6$ for 1- and 10-hour fuels;

$L = 12$ for 100-hour fuels; and $L = 50$ for 1,000-hour fuels)

Litter depth, duff depth, and fuel bed height (defined as the distance from the top of the litter layer to the top of any coarse woody debris crossing the transect) were measured at three locations along each 50-foot transect (at 12–13 feet, 24–25 feet, and 40–41 feet) (fig. 2). Thus, plot averages for each variable were based upon nine individual measurements.

Ericaceous shrub cover was calculated by measuring the canopy dimensions of each shrub using 50-foot measuring tapes within a 0.025-acre fixed-area plot. Ground cover vegetation <1 foot tall was visually estimated in the same 0.025-acre fixed-area plots (fig. 3).

The range pole in the photographs was 6 feet tall and was placed at the 40-foot mark along the center sampling transect. The camera was placed approximately 5 feet above ground when the photographs were taken.

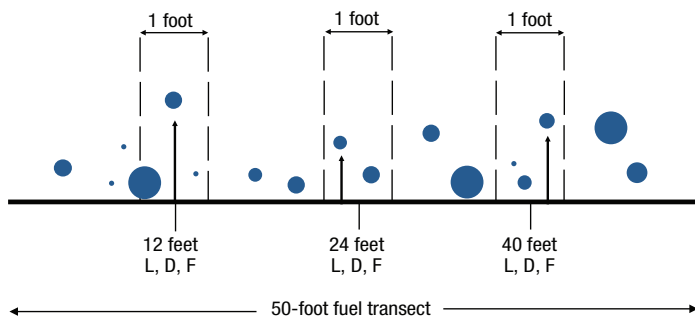


Figure 2—Sampling locations for litter (L) and duff (D) depth and fuel height (F) along the 50-foot transects (Stottlemeyer 2004). The spheres above represent woody debris of differing diameters intersecting the sampling transects.

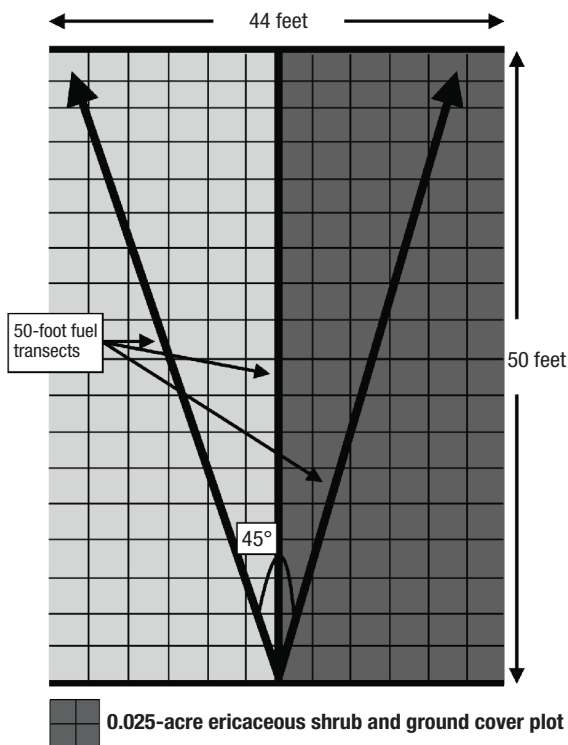


Figure 3—The orientation of fixed-area ericaceous shrub and ground cover sampling utilized at each plot (Stottlemeyer 2004).

Development of the guide—Unlike other guides, we chose to group sites by aspect and elevation instead of forest types or fuel models. Aspect and elevation, alone or in combination, are known to affect forest composition and fuel loading in the study area (McNab 1991, Simon and others 2005). Based upon 12 combinations of aspect and elevation relevant for land managers in the region, 74 photographs were selected for presentation in this guide. In general, the selected photographs were taken in the dormant season. All sites/photographs chosen for the guide are from stands that have had no active management for at least 10 years based on visual indicators and land management records. Fuel loads represented in these 74 photographs included no logging residues and assume coarse woody debris inputs from background levels of insects and diseases.

The aspect-elevation combinations presented here are:

Aspect 46–135° Elevation 1,000–1,999 feet
Elevation 2,000–3,499 feet
Elevation $\geq 3,500$ feet

Aspect 136–225° Elevation 1,000–1,999 feet
Elevation 2,000–3,499 feet
Elevation $\geq 3,500$ feet

Aspect 226–315° Elevation 1,000–1,999 feet
Elevation 2,000–3,499 feet
Elevation $\geq 3,500$ feet

Aspect 316–45° Elevation 1,000–1,999 feet
Elevation 2,000–3,499 feet
Elevation $\geq 3,500$ feet

Using the aspect-elevation combinations as a basis for differentiation, specific photographs were then selected to display a fairly wide range of coarse woody debris mass ≤ 3 inches in diameter. When the mass of these particles was similar between locations at a given aspect-elevation combination, ecozone, approximate stand density, and ericaceous (*Rhododendron maximum* or *Kalmia latifolia*) shrub cover were evaluated to highlight site variability.

How to Use This Photo Guide

This guide contains 74 photographs and accompanying data obtained at each depicted location. These photographs and data are differentiated by combinations of aspect and elevation. Sections of the guide are designated with these combinations in mind, as noted in the Table of Contents. They are arranged so that when the guide is opened and turned horizontally, the image will be on the top and the information table will be on the bottom (fig. 4).

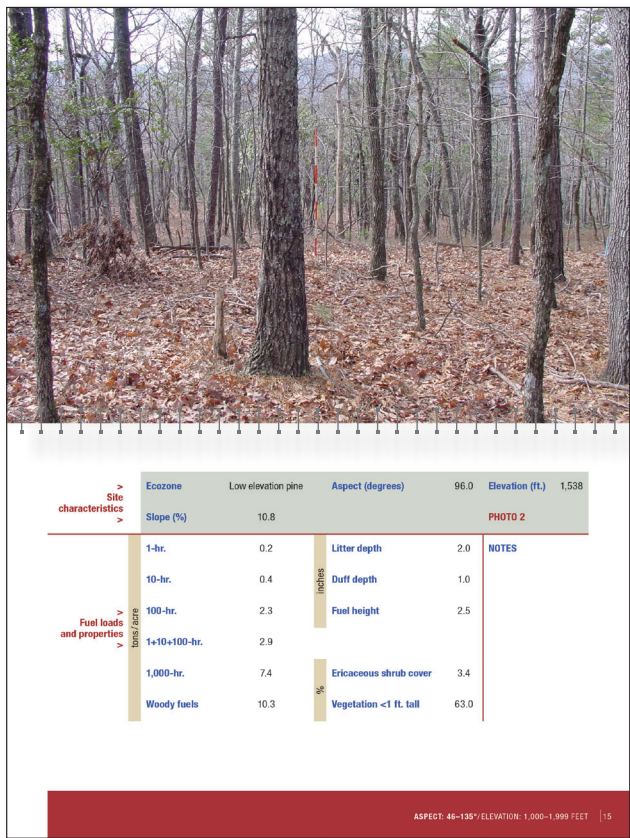


Figure 4—Photos and data are arranged by aspect and elevation combinations, followed by 1+10+100-hour fuel loads (from least to greatest).

To use the guide, select a management location of interest. Determine which aspect-elevation combination is represented at that location. Based upon what you observe at that location, determine which photograph(s) appear most similar to your location. In order to select one image when multiple photographs appear suitable, it may be necessary to narrow the selection based upon differences in ericaceous shrub cover, approximate basal area, slope percentage, or 1,000-hour fuels.

While this tool may prove valuable to estimate fuel loading in specific locations of interest within the Southern Appalachian region, the limitations of the guide must be considered. These photographs and fuels inventories are based upon specific observations in specific locations generally during the dormant season and will not necessarily be an exact representation of the overall landscape in every situation.

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Aspect: 46–135°

Elevation: 1,000–1,999 feet



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	129.9	Elevation (ft.)	1,552
	Slope (%)	12.9	PHOTO 1			
> Fuel loads and properties >	1-hr.	0.3	inches	Litter depth	1.6	NOTES
	10-hr.	0.6		Duff depth	1.4	
	100-hr.	1.2		Fuel height	2.3	
	1+10+100-hr.	2.1	%			
	1,000-hr.	1.0		Ericaceous shrub cover	0.9	
	Woody fuels	3.1		Vegetation <1 ft. tall	25.0	



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	96.0	Elevation (ft.)	1,538
	Slope (%)	10.8	PHOTO 2			
> Fuel loads and properties >	1-hr.	0.2	Litter depth	2.0	NOTES	
	10-hr.	0.4	Duff depth	1.0		
	100-hr.	1.2	Fuel height	2.5		
	1+10+100-hr.	1.8				
	1,000-hr.	2.5	Ericaceous shrub cover	3.4		
	Woody fuels	4.3	Vegetation <1 ft. tall	63.0		



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	79.6	Elevation (ft.)	1,582
	Slope (%)	5.1	PHOTO 3			
> Fuel loads and properties >	1-hr.	0.5	Litter depth	1.4	NOTES	
	10-hr.	1.9	Duff depth	1.9		
	100-hr.	0.6	Fuel height	2.3		
	1+10+100-hr.	3.0				
	1,000-hr.	5.3	Ericaceous shrub cover	25.1		
	Woody fuels	8.3	Vegetation <1 ft. tall	10.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	47.1	Elevation (ft.)	1,209
	Slope (%)	32.5	PHOTO 4			
> Fuel loads and properties >	1-hr.	0.7	Litter depth	1.2	NOTES	
	10-hr.	1.6	Duff depth	1.0		
	100-hr.	0.7	Fuel height	3.9		
	1+10+100-hr.	3.0				
	1,000-hr.	2.5	Ericaceous shrub cover	0.0		
	Woody fuels	5.5	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	55.0	Elevation (ft.)	1,457
	Slope (%)	21.9			PHOTO 5	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.8	NOTES
	10-hr.	1.1	inches	Duff depth	0.8	
	100-hr.	1.8		Fuel height	2.3	
	1+10+100-hr.	3.1				
	1,000-hr.	2.6		Ericaceous shrub cover	0.0	
	Woody fuels	5.7	%	Vegetation <1 ft. tall	0.0	



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	133.6	Elevation (ft.)	1,600
	Slope (%)	15.2	PHOTO 6			
> Fuel loads and properties >	1-hr.	0.1	inches	Litter depth	1.3	NOTES
	10-hr.	0.6		Duff depth	0.7	
	100-hr.	2.9		Fuel height	2.4	
	1+10+100-hr.	3.6	%			
	1,000-hr.	4.9		Ericaceous shrub cover	16.0	
	Woody fuels	8.5		Vegetation <1 ft. tall	8.0	



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	127.0	Elevation (ft.)	1,219
	Slope (%)	8.7	PHOTO 7			
> Fuel loads and properties >	1-hr.	0.2	Litter depth	1.4	NOTES	
	10-hr.	0.9	Duff depth	1.1		
	100-hr.	4.1	Fuel height	2.3		
	1+10+100-hr.	5.2				
	1,000-hr.	1.0	Ericaceous shrub cover	0.3		
	Woody fuels	6.2	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone		Montane oak-hickory cove	Aspect (degrees)		117.3	Elevation (ft.)	1,154
	Slope (%)		4.5	PHOTO 8				
> Fuel loads and properties >	tons/acre	1-hr.	0.4	inches	Litter depth	1.0	NOTES	
		10-hr.	1.5		Duff depth	1.7		
		100-hr.	2.9		Fuel height	4.5		
	%	1+10+100-hr.	4.8					
		1,000-hr.	13.4		Ericaceous shrub cover	9.4		
		Woody fuels	18.2		Vegetation <1 ft. tall	11.0		



Site characteristics		Ecozone	Dry oak evergreen heath	Aspect (degrees)	73.6	Elevation (ft.)	1,408
		Slope (%)	14.3	PHOTO 9			
Fuel loads and properties	tons/acre	1-hr.	0.2	inches	Litter depth	1.5	NOTES
		10-hr.	0.9		Duff depth	1.1	
		100-hr.	3.5		Fuel height	1.9	
		1+10+100-hr.	4.6				
		1,000-hr.	0.9	%	Ericaceous shrub cover	0.0	
		Woody fuels	5.5		Vegetation <1 ft. tall	95.0	



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	101.0	Elevation (ft.)	1,219
	Slope (%)	23.1			PHOTO 10	
> Fuel loads and properties >	1-hr.	0.6		Litter depth	1.0	NOTES
	10-hr.	0.7	inches	Duff depth	0.4	
	100-hr.	4.9		Fuel height	3.3	
	1+10+100-hr.	6.2				
	1,000-hr.	0.3		Ericaceous shrub cover	0.0	
	Woody fuels	6.5	%	Vegetation <1 ft. tall	4.5	
	tons/acre					

Aspect: 46–135°

Elevation: 2,000–3,499 feet



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	90.9	Elevation (ft.)	2,677
	Slope (%)	13.5	PHOTO 11			
> Fuel loads and properties >	1-hr.	0.3	Litter depth	1.2	NOTES	
	10-hr.	1.0	Duff depth	0.8		
	100-hr.	0.0	Fuel height	1.2		
	1+10+100-hr.	1.3				
	1,000-hr.	0.8	Ericaceous shrub cover	52.7		
	Woody fuels	2.1	Vegetation <1 ft. tall	1.0		



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	47.5	Elevation (ft.)	2,698
	Slope (%)	25.2			PHOTO 12	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.1	NOTES
	10-hr.	0.4	inches	Duff depth	1.5	
	100-hr.	0.6		Fuel height	1.6	
	1+10+100-hr.	1.2				
	1,000-hr.	10.7		Ericaceous shrub cover	57.6	
	Woody fuels	11.9	%	Vegetation <1 ft. tall	43.0	



> Site characteristics >	Ecozone	Pine-oak heath	Aspect (degrees)	85.5	Elevation (ft.)	2,027
	Slope (%)	28.6			PHOTO 13	
> Fuel loads and properties >	1-hr.	0.5	Litter depth	2.0	NOTES	
	10-hr.	0.6	Duff depth	1.9		
	100-hr.	0.6	Fuel height	3.4		
	1+10+100-hr.	1.7				
	1,000-hr.	7.4	Ericaceous shrub cover	0.0		
	Woody fuels	9.1	Vegetation <1 ft. tall	62.5		



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	114.4	Elevation (ft.)	2,675
	Slope (%)	11.2	PHOTO 14			
> Fuel loads and properties >	1-hr.	0.2	inches	Litter depth	1.7	NOTES
	10-hr.	0.9		Duff depth	1.3	
	100-hr.	1.2		Fuel height	5.3	
	1+10+100-hr.	2.3	%			
	1,000-hr.	1.1		Ericaceous shrub cover	15.2	
	Woody fuels	3.4		Vegetation <1 ft. tall	35.0	



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	109.9	Elevation (ft.)	2,692
	Slope (%)	16.4	PHOTO 15			
> Fuel loads and properties >	1-hr.	0.3	Litter depth	1.6	NOTES	
	10-hr.	0.6	Duff depth	1.6		
	100-hr.	2.3	Fuel height	7.5		
	1+10+100-hr.	3.2				
	1,000-hr.	15.9	Ericaceous shrub cover	0.0		
	Woody fuels	19.1	Vegetation <1 ft. tall	75.0		



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	50.0	Elevation (ft.)	2,463
	Slope (%)	13.1			PHOTO 16	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	2.0	NOTES
	10-hr.	0.9	inches	Duff depth	2.1	
	100-hr.	3.5		Fuel height	6.1	
	1+10+100-hr.	4.7				
	1,000-hr.	1.5		Ericaceous shrub cover	1.3	
	Woody fuels	6.2	%	Vegetation <1 ft. tall	27.0	



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	125.1	Elevation (ft.)	2,581
	Slope (%)	18.8			PHOTO 17	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	1.8	NOTES
	10-hr.	2.7	inches	Duff depth	0.7	
	100-hr.	7.0		Fuel height	2.6	
	1+10+100-hr.	10.1				
	1,000-hr.	8.1		Ericaceous shrub cover	0.0	
	Woody fuels	18.2	%	Vegetation <1 ft. tall	2.0	
	tons/acre					

Aspect: 46–135°

Elevation: $\geq 3,500$ feet



> Site characteristics >	Ecozone		High elevation red oak	Aspect (degrees)	80.4	Elevation (ft.)	5,009
	Slope (%)		27.9	PHOTO 18			
> Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	3.0	NOTES
		10-hr.	1.6		Duff depth	2.4	
		100-hr.	0.0		Fuel height	3.2	
	%	1+10+100-hr.	1.8				
		1,000-hr.	14.5		Ericaceous shrub cover	0.0	
		Woody fuels	16.3		Vegetation <1 ft. tall	1.0	



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	108.5	Elevation (ft.)	3,727
	Slope (%)	21.9			PHOTO 19	
> Fuel loads and properties >	1-hr.	0.5	Litter depth	1.3	NOTES	
	10-hr.	0.4	Duff depth	2.0		
	100-hr.	0.6	Fuel height	4.1		
	1+10+100-hr.	1.5				
	1,000-hr.	2.1	Ericaceous shrub cover	84.3		
	Woody fuels	3.6	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone		Northern hardwood cove	Aspect (degrees)		81.6	Elevation (ft.)	4,049
	Slope (%)		17.9	PHOTO 20				
> Fuel loads and properties >	tons/acre	1-hr.	0.1	inches	Litter depth	1.5	NOTES	
		10-hr.	0.9		Duff depth	2.3		
		100-hr.	2.3		Fuel height	4.3		
		1+10+100-hr.	3.3	%				
		1,000-hr.	12.7		Ericaceous shrub cover	0.0		
		Woody fuels	16.0		Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	64.2	Elevation (ft.)	3,580
	Slope (%)	6.8			PHOTO 21	
> Fuel loads and properties >	1-hr.	0.5		Litter depth	1.9	NOTES
	10-hr.	1.3	inches	Duff depth	3.7	
	100-hr.	1.8		Fuel height	8.3	
	1+10+100-hr.	3.6				
	1,000-hr.	0.0		Ericaceous shrub cover	43.2	
	Woody fuels	3.6	%	Vegetation <1 ft. tall	0.0	

Aspect: 136–225°

Elevation: 1,000–1,999 feet



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	147.7	Elevation (ft.)	1,086
	Slope (%)	9.8			PHOTO 22	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	2.1	1.9
	10-hr.	0.0	inches	Duff depth	1.5	
	100-hr.	0.6		Fuel height	9.8	
	1+10+100-hr.	0.8				
	1,000-hr.	1.1		Ericaceous shrub cover	0.0	
	Woody fuels	1.9	%	Vegetation <1 ft. tall	1.5	
	tons/acre					



Site characteristics	Ecozone		Dry oak evergreen heath	Aspect (degrees)		197.2	Elevation (ft.)	1,856
	Slope (%)		23.1	PHOTO 23				
Fuel loads and properties	tons/acre	1-hr.	0.4	inches	Litter depth	1.5	NOTES	
		10-hr.	0.9		Duff depth	2.0		
		100-hr.	1.2		Fuel height	5.7		
		1+10+100-hr.	2.5					
	%	1,000-hr.	21.3	Ericaceous shrub cover	9.2			
		Woody fuels	23.8	Vegetation <1 ft. tall	0.0			



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	140.0	Elevation (ft.)	1,577
	Slope (%)	6.6	PHOTO 24			
> Fuel loads and properties >	1-hr.	0.4	Litter depth	0.6	NOTES	
	10-hr.	1.5	Duff depth	0.3		
	100-hr.	0.6	Fuel height	1.0		
	1+10+100-hr.	2.5				
	1,000-hr.	1.6	Ericaceous shrub cover	0.0		
	Woody fuels	4.1	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone		Dry oak evergreen heath		Aspect (degrees)		196.6	Elevation (ft.)	1,416
	Slope (%)		18.8		PHOTO 25				
> Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	1.6	NOTES		
		10-hr.	0.6		Duff depth	2.1			
		100-hr.	2.3		Fuel height	3.4			
	%	1+10+100-hr.	3.1	%					
		1,000-hr.	7.6		Ericaceous shrub cover	74.6			
		Woody fuels	10.7		Vegetation <1 ft. tall	2.0			



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	196.7	Elevation (ft.)	1,541
	Slope (%)	8.6	PHOTO 26			
> Fuel loads and properties >	1-hr.	0.2	Litter depth	1.6	NOTES	
	10-hr.	1.2	Duff depth	1.8		
	100-hr.	2.3	Fuel height	3.8		
	1+10+100-hr.	3.7				
	1,000-hr.	0.0	Ericaceous shrub cover	14.7		
	Woody fuels	3.7	Vegetation <1 ft. tall	10.0		



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	185.9	Elevation (ft.)	1,171
	Slope (%)	24.0			PHOTO 27	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	0.7	NOTES
	10-hr.	1.4	inches	Duff depth	0.7	
	100-hr.	4.7		Fuel height	2.2	
	1+10+100-hr.	6.4				
	1,000-hr.	0.8		Ericaceous shrub cover	0.0	
	Woody fuels	7.2	%	Vegetation <1 ft. tall	7.0	
	tons/acre					

Aspect: 136–225°

Elevation: 2,000–3,499 feet



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	183.8	Elevation (ft.)	2,564
	Slope (%)	4.1	PHOTO 28			
> Fuel loads and properties >	1-hr.	0.2	Litter depth	1.2	NOTES	
	10-hr.	0.4	Duff depth	1.1		
	100-hr.	0.0	Fuel height	1.7		
	1+10+100-hr.	0.6				
	1,000-hr.	0.2	Ericaceous shrub cover	0.0		
	Woody fuels	0.8	Vegetation <1 ft. tall	20.0		



> Site characteristics >	Ecozone		Dry oak evergreen heath		Aspect (degrees)	220.4	Elevation (ft.)	2,662
	Slope (%)		14.4		PHOTO 29			
> Fuel loads and properties >	tons/acre	1-hr.	0.3	inches	Litter depth	2.1	NOTES	
		10-hr.	0.6		Duff depth	1.3		
		100-hr.	0.0		Fuel height	5.4		
		1+10+100-hr.	0.9	%				
		1,000-hr.	16.2		Ericaceous shrub cover	0.0		
		Woody fuels	17.1		Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	209.7	Elevation (ft.)	2,457
	Slope (%)	13.7			PHOTO 30	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	0.9	NOTES
	10-hr.	0.6	inches	Duff depth	1.4	
	100-hr.	1.2		Fuel height	2.3	
	1+10+100-hr.	2.0				
	1,000-hr.	0.5		Ericaceous shrub cover	29.0	
	Woody fuels	2.5	%	Vegetation <1 ft. tall	2.0	
	tons/acre					



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	225.1	Elevation (ft.)	3,490
	Slope (%)	1.9			PHOTO 31	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	2.1	NOTES
	10-hr.	0.9	inches	Duff depth	3.1	
	100-hr.	1.8		Fuel height	5.6	
	1+10+100-hr.	3.0				
	1,000-hr.	2.1		Ericaceous shrub cover	39.3	
	Woody fuels	5.1	%	Vegetation <1 ft. tall	3.0	
	tons/acre					

Aspect: 136–225°

Elevation: $\geq 3,500$ feet



> Site characteristics >	Ecozone		Montane oak-hickory slope	Aspect (degrees)	220.5	Elevation (ft.)	3,705
	Slope (%)		24.9	PHOTO 32			
> Fuel loads and properties >	tons/acre	1-hr.	0.4	inches	Litter depth	1.7	NOTES
		10-hr.	1.5		Duff depth	0.5	
		100-hr.	0.7		Fuel height	4.8	
	%	1+10+100-hr.	2.6				
		1,000-hr.	4.3		Ericaceous shrub cover	0.0	
		Woody fuels	6.9		Vegetation <1 ft. tall	27.0	



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	216.7	Elevation (ft.)	3,529
	Slope (%)	17.7			PHOTO 33	
> Fuel loads and properties >	1-hr.	0.1		Litter depth	1.3	NOTES
	10-hr.	0.1	inches	Duff depth	1.1	
	100-hr.	1.8		Fuel height	1.3	
	1+10+100-hr.	2.0				
	1,000-hr.	7.2		Ericaceous shrub cover	63.3	
	Woody fuels	9.2	%	Vegetation <1 ft. tall	1.0	
	tons/acre					



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	225.3	Elevation (ft.)	3,742
	Slope (%)	23.3			PHOTO 34	
> Fuel loads and properties >	1-hr.	0.4	Litter depth	1.9	NOTES	
	10-hr.	1.9	Duff depth	1.1		
	100-hr.	1.8	Fuel height	5.0		
	1+10+100-hr.	4.1				
	1,000-hr.	1.9	Ericaceous shrub cover	0.0		
	Woody fuels	6.0	Vegetation <1 ft. tall	19.0		



> Site characteristics >	Ecozone		Dry oak evergreen heath		Aspect (degrees)		196.6	Elevation (ft.)	4,194
	Slope (%)		27.9				PHOTO 35		
> Fuel loads and properties >	tons/acre	1-hr.	0.3	inches	Litter depth	2.4	NOTES		
		10-hr.	0.9		Duff depth	1.2			
		100-hr.	3.1		Fuel height	4.9			
		1+10+100-hr.	4.3	%					
		1,000-hr.	17.6		Ericaceous shrub cover	0.0			
		Woody fuels	21.9		Vegetation <1 ft. tall	3.0			

Aspect: 226–315°

Elevation: 1,000–1,999 feet



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	294.2	Elevation (ft.)	1,050
	Slope (%)	12.3	PHOTO 36			
> Fuel loads and properties >	1-hr.	0.2	inches	Litter depth	1.8	NOTES
	10-hr.	0.7		Duff depth	0.9	
	100-hr.	0.0		Fuel height	2.0	
	1+10+100-hr.	0.9	%			
	1,000-hr.	1.4		Ericaceous shrub cover	7.9	
	Woody fuels	2.3		Vegetation <1 ft. tall	0.0	



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	245.4	Elevation (ft.)	1,467
	Slope (%)	7.8			PHOTO 37	
> Fuel loads and properties >	1-hr.	0.5	Litter depth	1.4	NOTES	
	10-hr.	1.0	Duff depth	1.2		
	100-hr.	0.0	Fuel height	6.8		
	1+10+100-hr.	1.5				
	1,000-hr.	0.0	Ericaceous shrub cover	3.7		
	Woody fuels	1.5	Vegetation <1 ft. tall	72.0		



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	245.4	Elevation (ft.)	1,426
	Slope (%)	7.8			PHOTO 38	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.4	NOTES
	10-hr.	0.6	inches	Duff depth	0.5	
	100-hr.	2.9		Fuel height	1.9	
	1+10+100-hr.	3.7				
	1,000-hr.	1.1		Ericaceous shrub cover	28.8	
	Woody fuels	4.8	%	Vegetation <1 ft. tall	51.0	
	tons/acre					

Aspect: 226–315°

Elevation: 2,000–3,499 feet



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	243.5	Elevation (ft.)	3,411
	Slope (%)	9.4	PHOTO 39			
> Fuel loads and properties >	1-hr.	0.2	Litter depth	1.4	NOTES	
	10-hr.	0.3	Duff depth	1.0		
	100-hr.	0.0	Fuel height	3.2		
	1+10+100-hr.	0.5				
	1,000-hr.	6.7	Ericaceous shrub cover	30.5		
	Woody fuels	7.2	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Rich cove	Aspect (degrees)	242.3	Elevation (ft.)	3,435
	Slope (%)	18.9			PHOTO 40	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.4	NOTES
	10-hr.	0.0	inches	Duff depth	1.7	
	100-hr.	1.2		Fuel height	5.4	
	1+10+100-hr.	1.4				
	1,000-hr.	25.9		Ericaceous shrub cover	44.6	
	Woody fuels	27.3	%	Vegetation <1 ft. tall	4.0	



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	280.7	Elevation (ft.)	3,395
	Slope (%)	13.8	PHOTO 41			
> Fuel loads and properties >	1-hr.	0.2	Litter depth	1.0	NOTES	
	10-hr.	1.6	Duff depth	0.7		
	100-hr.	0.6	Fuel height	4.2		
	1+10+100-hr.	2.4				
	1,000-hr.	8.1	Ericaceous shrub cover	2.0		
	Woody fuels	10.5	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone		Montane oak-hickory slope	Aspect (degrees)		242.9	Elevation (ft.)	2,200
	Slope (%)		32.7	PHOTO 42				
> Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	1.4	NOTES	
		10-hr.	0.3		Duff depth	1.5		
		100-hr.	1.2		Fuel height	4.7		
	%	1+10+100-hr.	1.7					
		1,000-hr.	25.7		Ericaceous shrub cover	44.5		
		Woody fuels	27.4		Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	253.5	Elevation (ft.)	2,142
	Slope (%)	13.2			PHOTO 43	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	0.9	NOTES
	10-hr.	0.7	inches	Duff depth	2.9	
	100-hr.	1.2		Fuel height	3.4	
	1+10+100-hr.	2.2				
	1,000-hr.	0.4		Ericaceous shrub cover	70.4	
	Woody fuels	2.6	%	Vegetation <1 ft. tall	1.0	
	tons/acre					



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	230.7	Elevation (ft.)	3,065
	Slope (%)	19.2	PHOTO 44			
> Fuel loads and properties >	1-hr.	0.3	inches	Litter depth	1.6	NOTES
	10-hr.	0.7		Duff depth	0.6	
	100-hr.	1.8		Fuel height	3.9	
	1+10+100-hr.	2.8	%			
	1,000-hr.	0.9		Ericaceous shrub cover	0.0	
	Woody fuels	3.7		Vegetation <1 ft. tall	77.0	



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	278.1	Elevation (ft.)	3,459
	Slope (%)	32.2	PHOTO 45			
> Fuel loads and properties >	1-hr.	0.3	Litter depth	3.3	NOTES	
	10-hr.	0.4	Duff depth	4.8		
	100-hr.	2.3	Fuel height	4.7		
	1+10+100-hr.	3.0				
	1,000-hr.	3.6	Ericaceous shrub cover	68.4		
	Woody fuels	6.6	Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	249.5	Elevation (ft.)	3,491
	Slope (%)	21.2			PHOTO 46	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.5	NOTES
	10-hr.	0.5	inches	Duff depth	1.7	
	100-hr.	3.0		Fuel height	2.2	
	1+10+100-hr.	3.7				
	1,000-hr.	4.3		Ericaceous shrub cover	0.0	
	Woody fuels	8.0	%	Vegetation <1 ft. tall	4.0	

Aspect: 226–315°

Elevation: $\geq 3,500$ feet



> Site characteristics >	Ecozone		Montane oak-hickory slope	Aspect (degrees)		272.5	Elevation (ft.)	4,152
	Slope (%)		23.5	PHOTO 47				
> Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	2.2	NOTES	
		10-hr.	0.4		Duff depth	0.6		
		100-hr.	0.0		Fuel height	3.1		
	%	1+10+100-hr.	0.6					
		1,000-hr.	1.2		Ericaceous shrub cover	0.0		
		Woody fuels	1.8		Vegetation <1 ft. tall	1.0		



Site characteristics	v	Ecozone	Montane oak-hickory slope	Aspect (degrees)	245.5	Elevation (ft.)	4,056	
		Slope (%)	41.6	PHOTO 48				
Fuel loads and properties	v	tons/acre	1-hr.	0.1	inches	Litter depth	2.4	NOTES
			10-hr.	0.3		Duff depth	2.5	
			100-hr.	0.7		Fuel height	3.4	
			1+10+100-hr.	1.1				
	v		1,000-hr.	0.0	%	Ericaceous shrub cover	107.7	
			Woody fuels	1.1		Vegetation <1 ft. tall	3.0	



Site characteristics	Ecozone	Dry oak evergreen heath	Aspect (degrees)	273.3	Elevation (ft.)	3,790	
	Slope (%)	19.7	PHOTO 49				
Fuel loads and properties	tons/acre	1-hr.	0.2	inches	Litter depth	2.1	NOTES
		10-hr.	0.3		Duff depth	0.6	
		100-hr.	2.5		Fuel height	5.2	
		1+10+100-hr.	3.0				
		1,000-hr.	2.9	%	Ericaceous shrub cover	0.0	
		Woody fuels	5.9		Vegetation <1 ft. tall	76.0	



> Site characteristics >	Ecozone	Rich cove	Aspect (degrees)	256.9	Elevation (ft.)	3,858
	Slope (%)	29.7			PHOTO 50	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	2.5	NOTES
	10-hr.	1.2	inches	Duff depth	1.5	
	100-hr.	1.2		Fuel height	4.8	
	1+10+100-hr.	2.7				
	1,000-hr.	3.3		Ericaceous shrub cover	0.0	
	Woody fuels	6.0	%	Vegetation <1 ft. tall	5.0	
	tons/acre					



Site characteristics > >	Ecozone		Northern hardwood cove	Aspect (degrees)		280.4	Elevation (ft.)	4,768
	Slope (%)		8.7	PHOTO 51				
Fuel loads and properties > >	tons/acre	1-hr.	0.3	inches	Litter depth	2.2	NOTES	
		10-hr.	0.7		Duff depth	1.6		
		100-hr.	1.8		Fuel height	15.9		
		1+10+100-hr.	2.8	%				
		1,000-hr.	12.3		Ericaceous shrub cover	0.0		
		Woody fuels	15.1		Vegetation <1 ft. tall	10.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	296.5	Elevation (ft.)	3,693
	Slope (%)	17.0			PHOTO 52	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.3	NOTES
	10-hr.	0.9	inches	Duff depth	0.9	
	100-hr.	2.4		Fuel height	1.1	
	1+10+100-hr.	3.5				
	1,000-hr.	6.6		Ericaceous shrub cover	41.8	
	Woody fuels	10.1	%	Vegetation <1 ft. tall	2.0	
	tons/acre					



> Site characteristics >	Ecozone		Mixed oak rhododendron	Aspect (degrees)		254.5	Elevation (ft.)	3,895
	Slope (%)		27.1	PHOTO 53				
> Fuel loads and properties >	tons/acre	1-hr.	0.5	inches	Litter depth	1.8	NOTES	
		10-hr.	1.0		Duff depth	0.4		
		100-hr.	4.2		Fuel height	2.6		
	%	1+10+100-hr.	5.7					
		1,000-hr.	5.9		Ericaceous shrub cover	55.5		
		Woody fuels	11.6		Vegetation <1 ft. tall	0.0		



Site characteristics >	Ecozone		Northern hardwood slope	Aspect (degrees)		255.4	Elevation (ft.)	4,590
	Slope (%)		26.4	PHOTO 54				
Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	2.2	NOTES	
		10-hr.	1.2		Duff depth	0.7		
		100-hr.	2.9		Fuel height	3.6		
		1+10+100-hr.	4.3	%				
		1,000-hr.	8.4		Ericaceous shrub cover	0.0		
		Woody fuels	12.7		Vegetation <1 ft. tall	7.0		



> Site characteristics >	Ecozone		High elevation red oak	Aspect (degrees)	288.8	Elevation (ft.)	4,997
	Slope (%)		17.1	PHOTO 55			
> Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	1.6	NOTES
		10-hr.	1.2		Duff depth	1.6	
		100-hr.	5.3		Fuel height	7.5	
		1+10+100-hr.	6.7	%			
		1,000-hr.	18.8		Ericaceous shrub cover	0.0	
		Woody fuels	25.5		Vegetation <1 ft. tall	10.0	



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	279.8	Elevation (ft.)	4,009
	Slope (%)	16.2			PHOTO 56	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	1.9	NOTES
	10-hr.	2.4	inches	Duff depth	1.0	
	100-hr.	11.9		Fuel height	4.3	
	1+10+100-hr.	14.6				
	1,000-hr.	13.7		Ericaceous shrub cover	0.0	
	Woody fuels	28.3	%	Vegetation <1 ft. tall	7.0	
	tons/acre					

Aspect: 316–45°

Elevation: 1,000–1,999 feet



> Site characteristics >	Ecozone	Pine-oak heath	Aspect (degrees)	317.0	Elevation (ft.)	1,859
	Slope (%)	19.9			PHOTO 57	
> Fuel loads and properties >	1-hr.	0.1		Litter depth	2.4	NOTES
	10-hr.	0.3	inches	Duff depth	1.1	
	100-hr.	2.4		Fuel height	2.5	
	1+10+100-hr.	2.8				
	1,000-hr.	0.4		Ericaceous shrub cover	0.0	
	Woody fuels	3.2	%	Vegetation <1 ft. tall	5.5	
	tons/acre					



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	8.7	Elevation (ft.)	1,296
	Slope (%)	31.0			PHOTO 58	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	2.0	NOTES
	10-hr.	1.9	inches	Duff depth	6.2	
	100-hr.	1.8		Fuel height	5.3	
	1+10+100-hr.	3.9				
	1,000-hr.	3.4		Ericaceous shrub cover	2.3	
	Woody fuels	7.3	%	Vegetation <1 ft. tall	14.0	



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	28.2	Elevation (ft.)	1,270
	Slope (%)	25.0			PHOTO 59	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	1.4	NOTES
	10-hr.	1.6	inches	Duff depth	1.3	
	100-hr.	2.9		Fuel height	4.1	
	1+10+100-hr.	4.7				
	1,000-hr.	4.4		Ericaceous shrub cover	0.0	
	Woody fuels	9.1	%	Vegetation <1 ft. tall	35.0	



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	38.0	Elevation (ft.)	1,267
	Slope (%)	19.7			PHOTO 60	
> Fuel loads and properties >	1-hr.	0.3		Litter depth	1.6	NOTES
	10-hr.	2.1	inches	Duff depth	2.8	
	100-hr.	2.9		Fuel height	6.8	
	1+10+100-hr.	5.3				
	1,000-hr.	7.6		Ericaceous shrub cover	37.9	
	Woody fuels	12.9	%	Vegetation <1 ft. tall	0.0	
	tons/acre					

Aspect: 316–45°

Elevation: 2,000–3,499 feet



> Site characteristics >	Ecozone	Dry mesic oak	Aspect (degrees)	22.4	Elevation (ft.)	2,769
	Slope (%)	21.3			PHOTO 61	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	2.1	NOTES
	10-hr.	0.7	inches	Duff depth	1.7	
	100-hr.	0.6		Fuel height	5.7	
	1+10+100-hr.	1.7				
	1,000-hr.	2.1		Ericaceous shrub cover	6.7	
	Woody fuels	3.8	%	Vegetation <1 ft. tall	100.0	
	tons/acre					



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	42.5	Elevation (ft.)	2,084
	Slope (%)	11.5			PHOTO 62	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	1.5	NOTES
	10-hr.	1.0	inches	Duff depth	2.3	
	100-hr.	0.6		Fuel height	6.5	
	1+10+100-hr.	2.0				
	1,000-hr.	1.0		Ericaceous shrub cover	42.0	
	Woody fuels	3.0	%	Vegetation <1 ft. tall	0.0	



> Site characteristics >	Ecozone	Rich cove	Aspect (degrees)	352.5	Elevation (ft.)	2,244
	Slope (%)	22.2			PHOTO 63	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	2.2	NOTES
	10-hr.	0.7	inches	Duff depth	1.8	
	100-hr.	1.2		Fuel height	3.8	
	1+10+100-hr.	2.1				
	1,000-hr.	1.4		Ericaceous shrub cover	0.0	
	Woody fuels	3.5	%	Vegetation <1 ft. tall	0.0	



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	320.9	Elevation (ft.)	3,428
	Slope (%)	3.3			PHOTO 64	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	2.6	NOTES
	10-hr.	0.2	inches	Duff depth	1.9	
	100-hr.	3.0		Fuel height	6.2	
	1+10+100-hr.	3.6				
	1,000-hr.	17.3		Ericaceous shrub cover	43.1	
	Woody fuels	20.9	%	Vegetation <1 ft. tall	26.0	
	tons/acre					



> Site characteristics >	Ecozone	Low elevation pine	Aspect (degrees)	38.8	Elevation (ft.)	2,782
	Slope (%)	17.4	PHOTO 65			
> Fuel loads and properties >	1-hr.	0.3	Litter depth	1.5	NOTES	
	10-hr.	1.5	Duff depth	1.7		
	100-hr.	2.3	Fuel height	3.1		
	1+10+100-hr.	4.1				
	1,000-hr.	3.1	Ericaceous shrub cover	0.0		
	Woody fuels	7.2	Vegetation <1 ft. tall	83.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	318.8	Elevation (ft.)	3,442
	Slope (%)	4.7			PHOTO 66	
> Fuel loads and properties >	1-hr.	0.7		Litter depth	2.5	NOTES
	10-hr.	0.9	inches	Duff depth	2.4	
	100-hr.	4.7		Fuel height	5.7	
	1+10+100-hr.	6.3				
	1,000-hr.	3.1		Ericaceous shrub cover	32.6	
	Woody fuels	9.4	%	Vegetation <1 ft. tall	1.0	
	tons/acre					

Aspect: 316–45°

Elevation: $\geq 3,500$ feet



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	17.6	Elevation (ft.)	3,555
	Slope (%)	24.1			PHOTO 67	
> Fuel loads and properties >	1-hr.	0.2		Litter depth	2.7	NOTES
	10-hr.	0.6	inches	Duff depth	1.2	
	100-hr.	0.0		Fuel height	3.9	
	1+10+100-hr.	0.8				
	1,000-hr.	6.0		Ericaceous shrub cover	0.0	
	Woody fuels	6.8	%	Vegetation <1 ft. tall	0.0	



> Site characteristics >	Ecozone		Northern hardwood cove	Aspect (degrees)		28.9	Elevation (ft.)	4,031
	Slope (%)		21.1	PHOTO 68				
> Fuel loads and properties >	tons/acre	1-hr.	0.2	inches	Litter depth	2.7	NOTES	
		10-hr.	0.3		Duff depth	2.7		
		100-hr.	0.6		Fuel height	2.2		
		1+10+100-hr.	1.1	%				
		1,000-hr.	5.7		Ericaceous shrub cover	0.0		
		Woody fuels	6.8		Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	317.9	Elevation (ft.)	4,043
	Slope (%)	7.9			PHOTO 69	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	2.6	NOTES
	10-hr.	0.2	inches	Duff depth	2.3	
	100-hr.	1.4		Fuel height	4.2	
	1+10+100-hr.	2.0				
	1,000-hr.	1.6		Ericaceous shrub cover	29.3	
	Woody fuels	3.6	%	Vegetation <1 ft. tall	0.0	
	tons/acre					



> Site characteristics >	Ecozone		Montane oak-hickory slope	Aspect (degrees)		25.6	Elevation (ft.)	4,138
	Slope (%)		23.0	PHOTO 70				
> Fuel loads and properties >	tons/acre	1-hr.	0.6	inches	Litter depth	2.1	NOTES	
		10-hr.	1.3		Duff depth	1.6		
		100-hr.	1.2		Fuel height	4.2		
		1+10+100-hr.	3.1	%				
		1,000-hr.	9.0		Ericaceous shrub cover	0.0		
		Woody fuels	12.1		Vegetation <1 ft. tall	0.0		



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	355.7	Elevation (ft.)	3,638
	Slope (%)	14.1			PHOTO 71	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	1.8	NOTES
	10-hr.	2.1	inches	Duff depth	2.1	
	100-hr.	1.2		Fuel height	5.6	
	1+10+100-hr.	3.7				
	1,000-hr.	1.0		Ericaceous shrub cover	0.0	
	Woody fuels	4.7	%	Vegetation <1 ft. tall	3.0	
	tons/acre					



> Site characteristics >	Ecozone	Acidic cove	Aspect (degrees)	26.4	Elevation (ft.)	3,683
	Slope (%)	18.1			PHOTO 72	
> Fuel loads and properties >	1-hr.	0.5	Litter depth	1.9	NOTES	
	10-hr.	1.1	Duff depth	1.6		
	100-hr.	2.4	Fuel height	3.6		
	1+10+100-hr.	4.0				
	1,000-hr.	0.5	Ericaceous shrub cover	74.2		
	Woody fuels	4.5	Vegetation <1 ft. tall	7.0		



> Site characteristics >	Ecozone	Rich cove	Aspect (degrees)	37.7	Elevation (ft.)	3,867
	Slope (%)	31.2			PHOTO 73	
> Fuel loads and properties >	1-hr.	0.4		Litter depth	1.7	NOTES
	10-hr.	1.3	inches	Duff depth	1.5	
	100-hr.	3.5		Fuel height	3.5	
	1+10+100-hr.	5.2				
	1,000-hr.	17.3		Ericaceous shrub cover	0.0	
	Woody fuels	22.5	%	Vegetation <1 ft. tall	1.0	



> Site characteristics >	Ecozone		Northern hardwood slope		Aspect (degrees)	356.4	Elevation (ft.)	5,314
	Slope (%)		24.6		PHOTO 74			
> Fuel loads and properties >	tons/acre	1-hr.	0.3	inches	Litter depth	1.8	NOTES	
		10-hr.	1.2		Duff depth	2.5		
		100-hr.	3.5		Fuel height	13.5		
		1+10+100-hr.	5.0	%				
		1,000-hr.	7.8		Ericaceous shrub cover	0.0		
		Woody fuels	12.8		Vegetation <1 ft. tall	1.0		

**Coates, T. Adam; Waldrop, Thomas A.; Hutchinson, Todd F.;
Mohr, Helen H.** 2019 (Revised December 2019). Photo guide for
estimating fuel loading in the Southern Appalachian Mountains.
Gen. Tech. Rep. SRS-241. Asheville, NC: U.S. Department of
Agriculture Forest Service, Southern Research Station. 180 p.

This field guide provides 74 photographs that depict observed
fuel loads within the Southern Appalachian Mountains. The guide
contains instructions on how to select a reference photograph and
utilize the fuel loading information to aid in prescribed fire planning.





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