DEC 8 1978

NORTH CENTRAL FOREST EXPERIMENT STATION

Research Note NC-236

1992 FOLWELL AVE. ST. PAUL, MN 55108 FOREST SERVICE-U.S.D.A.

1978

# AVAILABILITY OF FOREST AND ASSOCIATED LAND RESOURCES IN ILLINOIS

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ABSTRACT.—Describes the extent of forest land resources in Illinois and estimates their availability for timber and recreational uses using both conventional definitions of forest land and the broader concept of forest and associated land.

OXFORD: 619.0:905.2(773). KEY WORDS: Timber supplies, recreational use, Illinois, resource availability, private woodlands.

Although recent statistics on timber stocking, growth, and harvest are available throughout the United States, the volumes of timber actually available to supply the nation's needs are not precisely known. Various economic, social, technical, and institutional factors can have an important impact on availability of timber supplies. Availability is a particularly crucial issue in States like Illinois where most of the timber resource is in small, private tracts. Owners of such forest land have a wide range of management objectives that are often unrelated to the production and sale of wood products.

It is even more difficult to give the availability of all forest-related resources including wood, water, recreation, erosion control, wildlife, and aesthetics. Conventional definitions (USDA Forest Service 1973) of forest land[1] and commercial forest land[2], which include the provision that the land be at least 10 percent stocked with trees, seem unduly restrictive if all forest-related resources are to be considered.

The purpose of the present paper is to provide an initial realistic, if somewhat imprecise, view of availability of forest-related resources in Illinois using existing resource data and information already available from various woodland owner studies. Forest and associated lands include not only the conventionally-defined forest lands, but also all noncommercial farms, unimproved pasture, and brush lands. The acreage of forest and associated lands more closely approximates the total acreage available for production of forest and forest-related goods and services.

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[1]***Forest land*** *is defined as land at least 10 percent occupied by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width at least 120 feet wide to qualify as forest land. Unimproved roads and trails, streams, or other bodies of water or clearings in forest areas are classed as forest if less than 120 feet in width.*

[2]***Commercial timberland*** *is defined as forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Areas qualifying as commercial timberland have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands. Currently inaccessible and inoperable areas are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.*

# CONVENTIONALLY DEFINED FOREST LAND RESOURCES

The most current data (USDA Forest Service 1973) on the forest land area in Illinois were based on an updating of a survey (Essex and Gansner, 1965) completed in 1962. The basic purpose of the survey was to inventory timber. In 1970 Illinois contained 3,786 thousand acres of forest land, 3,677 thousand acres commercial and 109 thousand acres noncommercial. If one allows for the fact that commercial forest land on the Shawnee National Forest increased by 13 thousand acres (presumably transferred from the private sector) since the 1973 publication, the breakdown of ownership is as follows:

| Ownership | Commercial forest land acreage | Noncommercial forest land acreage |
|---|---|---|
| | --------(thousand acres)-------- | |
| Private-nonindustrial | 3,382 | 79 |
| National forest | 227 | 27 |
| Other Federal | 41 | -- |
| State | 11 | 3 |
| Forest industry | 16 | -- |
| Total | 3,677 | 109 |

With the exception of 3.5 thousand acres of national forest land which is reserved for experimental forests, research plots, developed recreation sites, and administrative sites, most of the Federal, State, and forest industry commercial forest land in Illinois (a total of 291.5 thousand acres) can realistically be considered as available for timber harvest consistent with multiple-use management priniciples.

An estimate of the availability of private, nonindustrial commercial forest land was made by reviewing various woodland owner studies that obtained information relating to availability. Neuzil[3] in a study of owners who had recently acquired woodlands in a 7-county area of Illinois found that 45 percent planned to make commercial timber sales; a recent computation from the Neuzil study showed these owners controlled about 50 percent of the sampled acreage. Beazley and Holland (1973) found that 40 percent of the woodland owners in a central county (Fulton) and 30 percent of those in a southern county (Jackson) planned to sell timber. Recent estimates from the original data showed that the Jackson County owners planning sales controlled about 40 percent of the woodland acreage and the Fulton County owners about 50 percent.

Considering these data and the fact that some owners in the Beazley-Holland study who did not plan sales looked on their woodland as a reserve convertible to cash in case of a special need, roughly 50 percent or 1,691 thousand acres of the private, nonindustrial commercial forest land in Illinois is available for timber production. When this figure is added to the 291.5 thousand acres of Federal, State, and industry-owned land that is available, a total of 1,982.5 thousand acres, or about 54 percent of the States' commercial forest land is obtained. (Noncommercial forest land is assumed to be unavailable for timber production.)

The preceding studies looked at harvest objectives at a single point in time. A more long-run view may yield different results. A recent Delaware study (Turner *et al.*, 1977) concludes that at some time most forest crops will come under the control of an owner who will consider harvesting.

The forests of Illinois also provide opportunity for various forms of outdoor recreation. Callahan, *et al.* (1974) estimated that about 95 percent of the Shawnee National Forest was available for recreation. Applying this percentage to the current national forest acreage of 254 thousand acres gives an availability figure of 241 thousand acres. Assuming a similar percentage for other Federal, State, and industry forest land, 67 thousand acres may be added, giving a total of 308 thousand acres of public and industrial forest land available for recreation in Illinois.

Two Illinois studies provided a basis for estimating the availability of private, nonindustrial forest land for recreation. Neuzil found that 38 percent of the new woodland owners in a 7-county area of southern Illinois allowed some use of their land for outdoor recreation by the public. McKibben[4] reported that 42 percent of rural

[3] *Neuzil, Michael A. 1970. A study of the new landowner in Southern Illinois. 66 p. Unpublished M.S. thesis on file at Southern Illinois University, Department of Forestry, Carbondale, Illinois.*

[4] *McKibben, William G. 1968. A study of the outdoor recreation policies of the private landowners in the Shawnee Hills Planning Region, Illinois. 59 p. Unpublished M.S. thesis on file at Southern Illinois University, Department of Forestry, Carbondale, Illinois.*

landowners owning 160 acres or more in southern Illinois allowed some public recreational pursuits on their land.

The estimates by Neuzil and McKibben were reduced because of several factors. First, a portion of the landowners in both the above studies restricted use primarily to friends, relatives, and neighbors. Second, McKibben found that those landowners with larger farms were less inclined to allow public recreation. Finally, both Neuzil and McKibben studied landowners in counties with limited urban development. We scaled their estimates downward to 30 percent since it seemed likely that other owners close to large urban areas would be more reluctant to allow public recreational use. Applying this percentage figure yields a total of approximately 1,014.6 thousand acres. Table 1 summarizes the availability of "conventionally defined" forest land in Illinois.

Table 1.—*Conventionally defined*[1] *forest land acreage in Illinois by ownership category, availability for timber harvest, and recreational use*

(Thousands of Acres)

| Owner | Commercial | Noncommercial | Total | Available for timber harvest | Available for recreation |
|---|---|---|---|---|---|
| Private-nonindustrial | 3,382 | 79 | 3,461 | [2]1,691 | [3]1,038 |
| National Forest | 227 | 27 | 254 | [4] 224 | [5] 241 |
| Other Federal | 41 | | 41 | 41 | [5] 39 |
| State | 11 | 3 | 14 | 11 | [5] 13 |
| Forest industry | 16 | | 16 | 16 | 15 |
| Total | 3,677 | 109 | 3,786 | 1,983 | 1,346 |

[1]As defined by the Forest Service (1973).
[2]Fifty percent of private-nonindustrial commercial forest land.
[3]Thirty percent of total private-nonindustrial forest land.
[4]Commercial national forest land minus 3,500 acres reserved for nontimber uses.
[5]Ninety-five percent of total forest land in each ownership category.

## FOREST AND ASSOCIATED LAND RESOURCES

Beazley (1965) estimated that roughly 9 million acres, or 25 percent of the State land area, is "forest and associated land";[5] (including "conventionally-defined forest land", brush lands, unimproved pasture, and land on noncommercial farms—in short all nonurban, nontransportation or service, and noncommercial agriculture lands) and provide the "forest-related resources" mentioned earlier. This is more than twice the "conventionally-defined forest land" estimates of 10.5 percent of the State, and closely approximates the total of what assessors call "unimproved land". Beazley maintained that these lands have an essential unity in producing the forest-related resources mentioned earlier, and that they are sufficiently similar to be considered as a group for multiple-use, integrated land use planning and management. Further studies showed that these lands could be accurately determined from aerial photos, and that they show a much more extensive, unified, less fragmented, spatial arrangement for planning and management than do "conventionally-defined forest lands". Table 2 summarizes the ownership and availability of "forest and associated land" in Illinois using the same estimated availability percentages of 50 percent for timber and 30 percent for recreation that were used for conventionally-defined forest land.

## IMPROVING AVAILABILITY ESTIMATES

The availability figures presented here are based on owner attitudes at a single point in time resulting from a given set of economic, technological, and social circumstances. Obviously the circumstances and owner attitudes change and new owners with new attitudes arrive on the

[5]*Beazley arrived at his estimate as follows: (1) The ratio of land in commercial farms to all land in all farms was first determined. Call it "R". (2) The following areas were summed: woodland pastured and not pastured; other pasture, not cropland, or improved pasture; and wasteland (wasteland = "other land" less 2 percent of farm area for buildings and roads). Call this total "W". (3) An estimate of the acreage of actual commercial farm land in commercial farms was then determined by subtracting the proportional amount of "W". That is, commercial land = land in commercial farms - (R x W). An estimate of urban, service and transportation land (6 percent for the State; which varied by counties) was added to commercial farm land to provide an estimate of "urban, service, and (genuinely) agricultural land." (4) The figure for urban, service, and agricultural land area was subtracted from the total land area in each case to arrive at the figure for area in "forest and associated land".*

Table 2.—*Forest and associated land acreage in Illinois by ownership category and availability for timber harvest and recreational use*

(Thousands of Acres)

| Ownership category | Total forest and associated land | Available for timber harvest | Available for recreation |
|---|---|---|---|
| Private-nonindustrial | 8,675 | [1]1,691 | [2]2,612 |
| National Forest | 254 | [3] 224 | [4] 241 |
| Other Federal | 41 | 41 | [4] 39 |
| State | 14 | 11 | [4] 13 |
| Forest industry | 16 | 16 | [4] 15 |
| Total | 9,000 | 1,983 | 2,920 |

[1]Fifty percent of private-nonindustrial commercial forest lands.

[2]Thirty percent total private-nonindustrial forest and associated land.

[3]Commercial national forest land minus 3,500 acres reserved for nontimber uses.

[4]Ninety-five percent of forest and associated land in respective ownership category.

scene. Data indicating long term trends in owner attitudes are generally unavailable but recent studies indicate that change can occur quite rapidly and over longer time periods most owners will harvest timber when it become economically feasible to do so. For recreation, however, a trend to closing more and more private land to public use seems clear. In both cases frequent monitoring of availability to indicate changes and trends would be desirable.

## SUMMARY AND CONCLUSIONS

Resource statistics based on conventional definitions of forest land can be misleading, particularly in States like Illinois where most of the forest land is in small parcels owned by a diverse group of private, nonindustrial owners. We estimate that no more than 50 percent of the conventionally-defined, private, nonindustrial forest land is actually available for timber harvest and only about 30 percent for recreational uses. These figures could be higher over the long run for timber but availability for recreation is likely to decrease if past trends continue and new public incentive devices are not adopted.

There is more land available to the public for forest recreation on the greater acreage of "forest and associated land", but not necessarily more timber, at least in the short run.

Although more and more small private owners are not harvesting their timber for aesthetic or noneconomic reasons, the *primary* reason that owners of small private tracts are not selling their timber is because they think their tracts are too small or the trees too small and low in quality (Quinney, 1962) to be worth harvesting.

"Forest and associated lands" as defined earlier have a greater potential for producing a full range of forest-related resources than the smaller, more narrowly defined "forest lands" and provide a useful concept for resource planning. To encourage owners to make these lands available for timber, recreation, and other resources, a comprehensive statewide or regionwide management plan with incentives and cooperative agreements is needed.

Fear of liability for injuries and damage to property has prevented owners from making more "forest and associated land" available for public recreational use. Still, about 10 percent of owners not allowing public recreational use responded favorably to leasing programs, and 30 percent were interested in cooperative agreements with their neighbors to allow public use of their lands.

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☆U. S. GOVERNMENT PRINTING OFFICE: 1978—768-690/34