

RESEARCH NOTE NC-41

NORTH CENTRAL FOREST EXPERIMENT STATION, FOREST SERVICE—U.S. DEPARTMENT OF AGRICULTURE

Folwell Avenue, St. Paul, Minnesota 55101

Forest Cover Types by Counties, Michigan, 1966

ABSTRACT.—Presents 1966 forest type areas by counties and shows trends in forest type areas since 1955, by survey units.

Statistics from the recently completed Third Forest Survey of Michigan show that over three-fourths of the 18.9 million acres of commercial forest land in Michigan support hardwood forest types. Four major hardwood types are found: maple-beech-yellow birch, aspen-paper birch, oak-hickory, and elm-ash-cottonwood.

Maple-beech-yellow birch, locally called northern hardwoods, is the largest forest type in Michigan and covers over one-fourth (5.2 million acres) of the commercial forest land (table 1). Although scattered over the entire state, the type is found most commonly in the western and northern parts of the Upper Peninsula. These species reproduce well when they are protected from fire. The recent Survey bears this out by showing large acreages of the type now moving into poletimber-size stands. These poletimber stands probably originated in the 1920's with the coming of organized forest fire protection.

Aspen-paper birch, the State's second largest type, accounts for almost 25 percent (4.7 million acres) of the total commercial forest. Found in most parts of the State, the type covers large blocks of land in the northeastern part of the Lower Peninsula and in the southern part of the Upper Peninsula. This forest type needs fire and clear-cutting to perpetuate itself. Increased cutting of aspen, lack of recent fires, and mortality of aspen may account for the 19-percent decrease in the type since the last survey about 10 years ago (fig. 1).

The oak-hickory type is composed primarily of several species of oak in the Upper Peninsula and of hickory as well as oak in the south. It constitutes 13 percent (2.4 million acres) of the State's commercial forest, and is found chiefly on sandy soils in southern Lower Michigan. This type increased 12 percent in the last decade, primarily due to natural conversion of idle cropland and pasture to the oak-hickory type in southern Michigan.

The elm-ash-cottonwood type is sometimes called the lowland hardwoods type. It constitutes 10 percent (1.9 million acres) of Michigan's commercial

forest. Found throughout most of the State, it is most common on the fertile soils and along the streams of southern Lower Michigan. This type, the smallest major type in 1955, increased rapidly (66 percent) in the last decade. The natural conversion from other forest types in the north and from idle farmland to forest in the south accounts for this change.

Stands in which softwoods are a major component constitute the remaining 24 percent (4.6 million acres) of commercial forest. The spruce-fir type, which occupies 15 percent (2.9 million acres), includes the white-cedar, balsam fir-white spruce, black spruce, and tamarack local types (listed in descending order by acreage). Balsam fir-white spruce occurs chiefly in the western Upper Peninsula, and the swamp conifer types in the eastern Upper Peninsula. The area of spruce-fir types in the State increased by 12 percent since the last Survey, probably due to natural conversion following the cutting of other forest types.

The white-red-jack pine type makes up almost 10 percent (1.8 million acres) of the State's commercial forest. The jack pine sub-type makes up over half of the major type. The major blocks of pine timber are on the sandy lands of the eastern Upper Peninsula and north-central Lower Peninsula; however, pine has been planted in all sections of the State. The pine type has decreased 9 percent during the last decade probably due to natural conversion to other forest types following harvesting of the pine.

The sampling error for the State's total commercial forest area of 18.9 million acres is ± 0.46 percent at one standard error (the 67-percent confidence limit). For 20,000 acres the error would be ± 14.0 percent. Very small acreages may be considerably in error since sampling error increases as the size of the area decreases.

These statistics are from the Third Forest Survey of Michigan, made between 1964 and 1966 by the North Central Forest Experiment Station and the Michigan Department of Conservation. Detailed information on present forest resources and trends will be published as results become available.

Table 1. — Commercial forest land by forest cover types, survey units, and county; Michigan, 1966

(In thousand acres)

County	: Total commercial forest land area ^{1/}	Forest type ^{2/}					
		: White-red-jack pine ^{3/}	: Spruce-fir ^{4/}	: Oak-hickory ^{5/}	: Elm-ash-cottonwood ^{6/}	: Maple-beech-birch ^{7/}	: Aspen-birch ^{8/}
EASTERN UPPER MICHIGAN UNIT							
Alger	535.9	51.7	95.8	3.0	54.4	241.1	89.9
Chippewa	766.5	92.1	256.8	2.0	48.8	200.3	166.5
Delta	623.9	90.1	178.6	3.2	46.3	139.6	166.1
Luce	526.2	82.8	198.2	1.8	33.0	153.9	56.5
Mackinac	561.9	38.4	159.9	3.0	38.9	155.0	166.7
Menominee	513.3	23.7	191.4	4.8	50.1	134.8	108.5
Schoolcraft	641.4	93.9	178.7	2.0	67.2	179.8	119.8
Unit total	4,169.1	472.7	1,259.4	19.8	338.7	1,204.5	874.0
Percent	100.0	11.3	30.2	0.5	8.1	28.9	21.0
WESTERN UPPER MICHIGAN UNIT							
Baraga	535.1	27.7	105.9	5.7	34.1	275.3	86.4
Dickinson	447.7	29.7	126.4	6.1	21.7	104.6	159.2
Gogebic	644.1	12.1	116.8	5.7	34.0	356.0	119.5
Houghton	560.8	27.6	57.3	7.6	21.4	330.7	116.2
Iron	696.1	24.9	160.9	6.5	26.2	285.1	192.5
Keweenaw	212.7	5.7	40.6	5.7	11.8	117.3	31.6
Marquette	1,097.1	118.9	279.4	27.2	62.2	397.5	211.9
Ontonagon	727.3	21.6	83.6	8.1	36.0	358.5	219.5
Unit total	4,920.9	268.2	970.9	72.6	247.4	2,225.0	1,136.8
Percent	100.0	5.5	19.7	1.5	5.0	45.2	23.1
NORTHERN LOWER MICHIGAN UNIT							
Alcona	322.8	28.3	38.0	72.3	31.5	36.7	116.0
Alpena	210.4	8.2	49.7	17.3	28.8	28.6	77.8
Antrim	185.6	25.5	10.8	31.8	12.0	50.4	55.1
Arenac	105.4	6.7	8.6	12.2	20.2	11.5	46.2
Bay	47.7	3.8	4.0	2.7	8.9	7.9	20.4
Benzie	122.0	9.6	8.4	14.4	15.2	37.2	37.2
Charlevoix	161.7	5.3	14.5	16.7	11.4	63.7	50.1
Cheboygan	337.2	49.3	38.2	46.5	30.5	59.2	113.5
Clare	229.0	9.7	15.8	30.1	25.9	55.6	91.9
Crawford	303.6	84.6	18.2	92.4	16.3	33.7	58.4
Emmet	182.7	11.0	18.3	17.7	17.0	64.6	54.1
Gladwin	186.9	8.8	12.7	13.7	29.6	24.1	98.0
Grand Traverse	161.1	30.5	7.0	42.1	12.7	40.7	28.1
Iosco	242.2	60.0	20.1	38.6	24.9	22.0	76.6
Isabella	97.1	4.5	6.1	12.4	16.2	17.9	40.0
Kalkaska	270.7	72.4	29.6	43.1	18.3	53.9	53.4
Lake	296.9	49.6	4.1	145.7	14.7	21.8	61.0
Leelanau	113.2	12.1	6.9	10.2	6.6	42.6	34.8
Manistee	220.2	26.9	6.3	66.2	15.5	41.1	64.2
Mason	158.6	24.5	3.0	51.6	9.4	31.4	38.7
Mecosta	148.4	9.7	5.7	32.3	12.8	32.6	55.3
Midland	170.1	5.6	11.0	13.4	26.1	20.6	93.4
Missaukee	227.1	11.1	34.5	17.5	17.3	57.5	89.2
Montmorency	287.0	47.1	32.5	34.9	19.1	64.2	89.2
Newaygo	310.2	29.9	12.9	93.1	31.3	47.2	95.8
Oceana	150.2	16.1	3.4	40.3	12.2	37.5	40.7
Ogemaw	239.5	34.6	14.9	58.1	20.4	43.4	68.1
Osceola	174.7	11.2	8.2	20.1	17.8	47.7	69.7
Oscoda	301.3	97.5	24.5	59.0	20.5	24.2	75.6
Otsego	251.0	30.9	27.2	20.4	13.8	56.4	102.3
Presque Isle	289.2	23.6	51.1	33.6	37.2	46.1	97.6
Roscommon	269.9	37.3	40.6	67.7	23.8	29.1	71.4
Wexford	220.4	36.3	9.7	28.0	12.6	62.3	71.5
Unit total	6,994.0	922.2	596.5	1,296.1	630.5	1,313.4	2,235.3
Percent	100.0	13.2	8.5	18.5	9.0	18.8	32.0

Table 1 cont'd.

(In thousand acres)

County	: Total commer- : cial forest : land area ^{1/}	Forest type ^{2/}					
		:White-red- :jack pine ^{3/}	: Spruce- : fir ^{4/}	: Oak- : hickory ^{5/}	: Elm-ash- : cottonwood ^{6/}	: Maple-beech- : birch ^{7/}	: Aspen- : birch ^{8/}
SOUTHERN LOWER MICHIGAN UNIT							
Allegan	150.1	7.5	1.9	55.8	35.9	30.3	18.7
Barry	93.6	3.2	1.7	40.1	23.0	14.5	11.1
Berrien	69.4	0.9	1.1	27.1	18.3	13.4	8.6
Branch	56.4	1.5	1.0	22.0	14.6	9.5	7.8
Calhoun	99.0	2.1	2.4	35.4	31.3	13.9	13.9
Cass	69.4	1.9	1.1	28.1	16.1	13.8	8.4
Clinton	45.0	0.6	0.2	15.2	11.4	11.8	5.8
Eaton	55.8	1.4	0.9	13.4	14.7	15.3	10.1
Genesee	56.0	1.1	0.9	20.5	16.5	8.5	8.5
Gratiot	49.4	0.6	0.7	11.4	11.4	8.5	16.8
Hillsdale	70.0	1.1	1.1	28.4	18.2	12.5	8.7
Huron	61.6	0.6	1.1	8.9	26.5	9.0	15.5
Ingham	58.3	0.7	0.8	18.3	16.4	14.4	7.7
Ionia	63.4	1.7	0.5	18.6	14.6	17.4	10.6
Jackson	95.7	4.5	2.3	42.1	22.4	13.2	11.2
Kalamazoo	78.5	3.3	1.9	31.9	18.1	12.3	11.0
Kent	128.7	7.8	1.9	42.7	30.2	27.3	18.8
Lapeer	80.0	1.9	1.2	26.9	22.7	13.9	13.4
Lenawee	63.9	1.7	0.8	32.7	14.1	9.7	4.9
Livingston	91.8	5.1	2.2	43.3	19.3	12.6	9.3
Macomb	45.0	1.3	0.6	21.2	10.4	7.7	3.8
Monroe	35.0	0.3	0.8	8.0	15.4	5.5	5.0
Montcalm	133.7	8.5	2.3	46.1	33.4	24.6	18.8
Muskegon	169.0	10.1	1.7	82.3	29.0	27.1	18.8
Oakland	137.2	4.2	3.7	55.6	35.9	19.4	18.4
Ottawa	88.4	12.6	1.3	39.7	14.4	13.2	7.2
Saginaw	98.7	2.0	1.3	24.1	30.2	16.5	24.6
St. Clair	78.5	1.8	1.3	24.3	19.1	16.8	15.2
St. Joseph	57.2	1.5	1.1	22.6	18.0	6.5	7.5
Sanilac	70.2	1.2	1.6	10.8	22.9	9.8	23.9
Shiawassee	42.5	0.8	0.1	13.5	10.2	12.7	5.2
Tuscola	105.5	2.5	1.4	26.0	27.1	17.3	31.2
Van Buren	99.6	3.4	2.0	29.7	30.8	19.3	14.4
Washtenaw	83.1	2.3	1.3	36.8	18.6	15.6	8.5
Wayne	36.6	0.9	0.5	13.0	8.3	7.8	6.1
Unit total	2,816.2	102.6	46.7	1,016.5	719.4	501.6	429.4
Percent	100.0	3.6	1.7	36.1	25.6	17.8	15.2
State total	18,900.2	1,765.7	2,873.5	2,405.0	1,936.0	5,244.5	4,675.5
Percent	100.0	9.4	15.2	12.7	10.2	27.8	24.7

1/ Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Forest tracts of less than 1 acre and isolated strips of timber less than 120 feet wide are excluded.

2/ A classification of forest land based upon the species forming a plurality of live-tree stocking.

3/ Forests in which eastern white pine, red pine, scotch pine, or jack pine, singly or in combination, comprises a plurality of the stocking.

4/ Forests in which spruce or true firs, singly or in combination, comprise a plurality of the stocking.

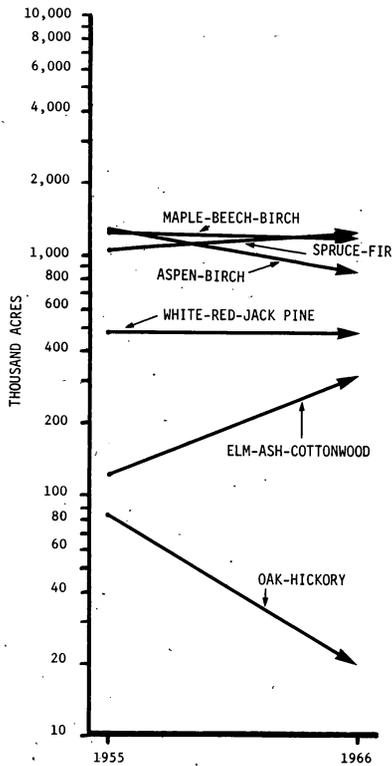
5/ Forests in which upland oaks or hickory, singly or in combination, comprises a plurality of the stocking.

6/ Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking.

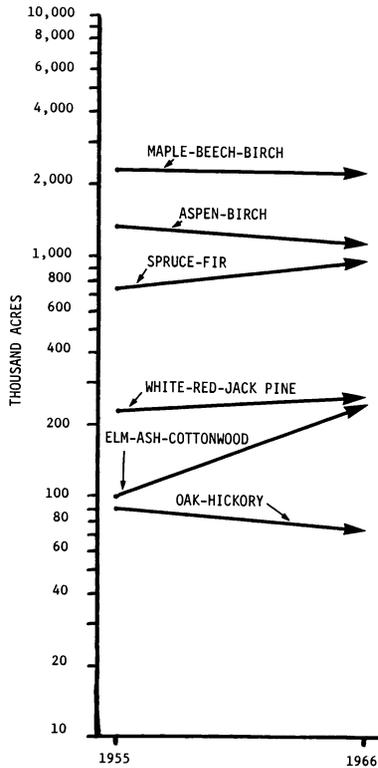
7/ Forests in which maple, beech, or yellow birch, singly or in combination, comprises a plurality of the stocking.

8/ Forests in which aspen, balsam poplar, paper birch, or gray birch, singly or in combination, comprises a plurality of the stocking.

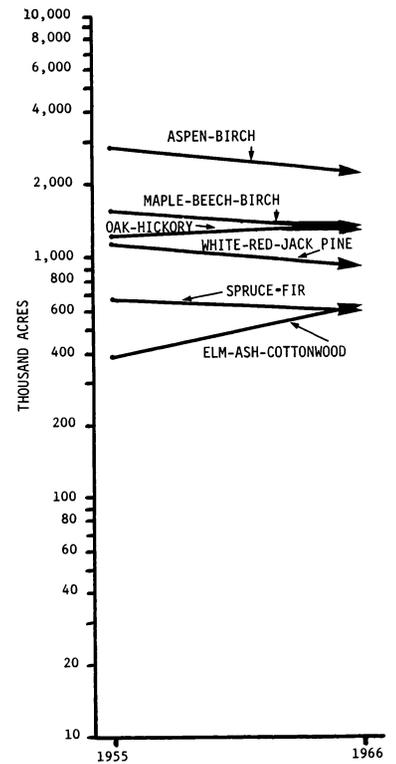
EASTERN UPPER MICHIGAN UNIT



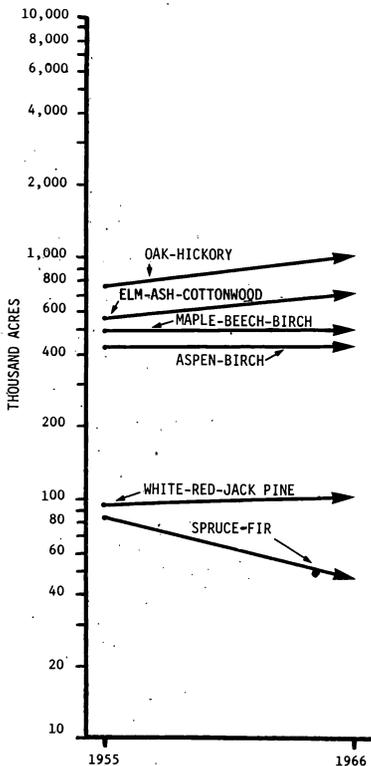
WESTERN UPPER MICHIGAN UNIT



NORTHERN LOWER MICHIGAN UNIT



SOUTHERN LOWER MICHIGAN UNIT



MICHIGAN

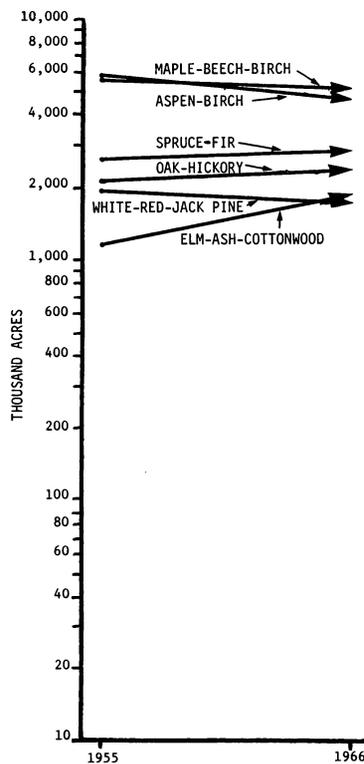


Figure 1.—Trends in forest cover type area between 1955 and 1966. Charts (semi-logarithmic) show data for the four Survey units and for the entire State. Acreages for 1955 have been adjusted to include nonstocked forest land.