



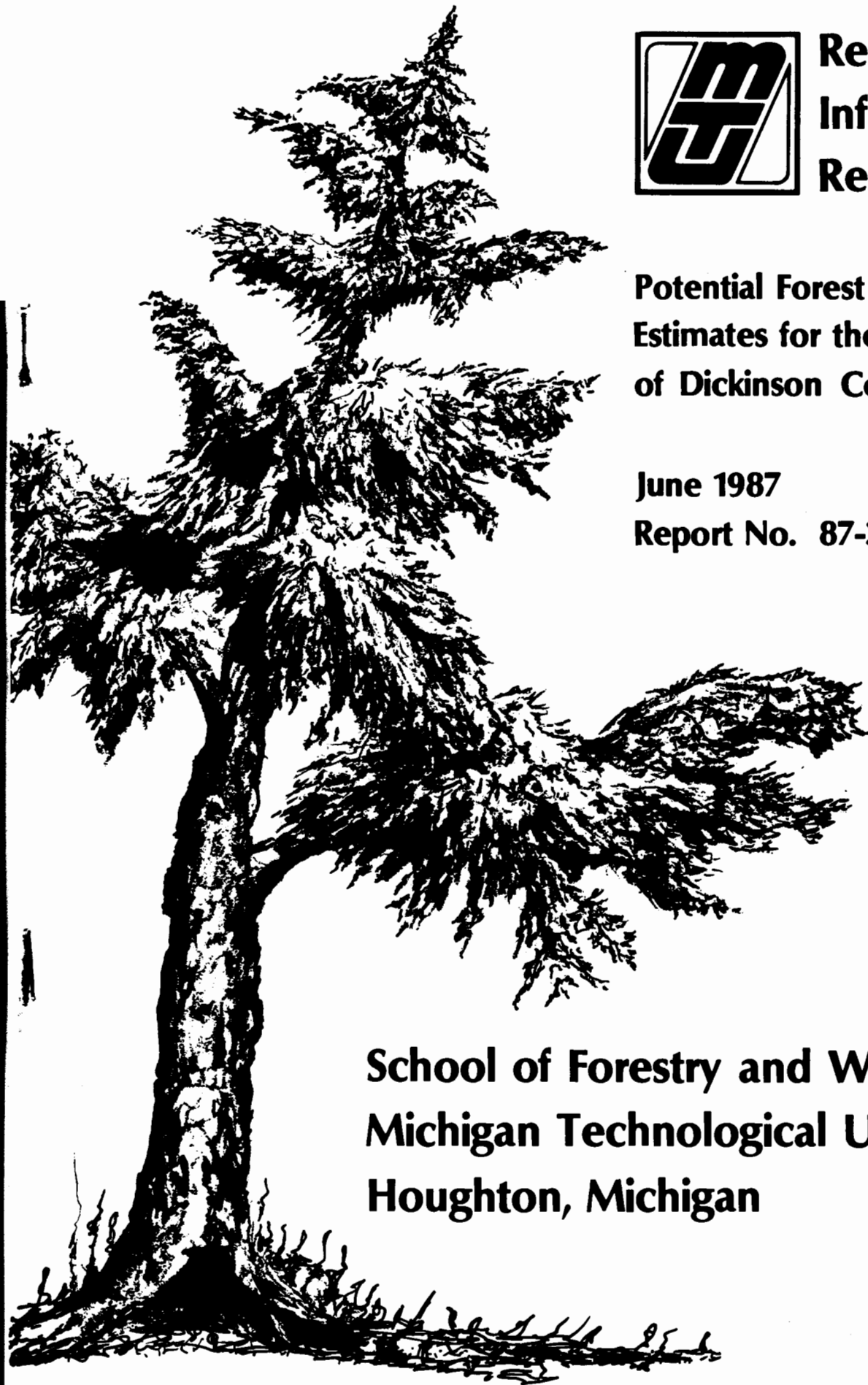
**Research
Information
Report**

**Potential Forest Productivity
Estimates for the Soil Survey
of Dickinson County, Michigan**

June 1987

Report No. 87-3

**School of Forestry and Wood Products
Michigan Technological University
Houghton, Michigan**



**POTENTIAL FOREST PRODUCTIVITY ESTIMATES
FOR THE SOIL SURVEY OF
DICKINSON COUNTY, MICHIGAN**

RESEARCH INFORMATION REPORT No. 87- 3

By:

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INTRODUCTION

Soil surveys are used for land planning and management activities. The survey describes the types of soils which occur in a county, and it shows the distribution of these soils on the landscape. The soil survey also contains predictions of soil behavior for selected uses; these behavior characteristics are interpreted to provide important information to farmers, foresters, agronomists, community officials, developers, conservationists in addition to other user groups. Soil interpretations constitute an information base for applying land management decisions and evaluating the impacts of land uses.

Research findings provide the basis for developing and applying soil use interpretations. These interpretations are based on the relationship of soil and site properties to the particular use. Accordingly, as new research results become available, opportunities exist to improve specific interpretations. The purpose of this publication is to present current forest productivity interpretations for the Soil Survey of Dickinson County, Michigan.

This publication is a supplement to the Soil Survey of Dickinson County, Michigan. It is to be used as a source for improved forest yield information only. Readers must use the Soil Survey for descriptions of the soils, map units, and other forestry interpretations. The Soil Survey is available from the Soil Conservation Service, Michigan Department of Agriculture, or the Cooperative Extension Service. Readers requiring more detailed information on forest soil uses are referred to : A Field Guide to Forest Soils, by S.G. Shetron (1985).

DISCUSSION

Measures of Yield

Soil surveys provide two interpretations to estimate potential forest productivity of a soil: site index and volume. Site index is the average height of dominant and co-dominant trees at age 50. It is expressed by species, and applies to fully stocked, even-aged, unmanaged stands. Volume refers to the mean annual increment and is expressed as merchantable cubic feet per acre. Volume is also expressed by species and applies to fully stocked, even-aged, unmanaged stands.

Site Index

The site index values used in this report are those which are presented in the Woodland Management and Productivity Table, of the Dickinson County Soil Survey. These values are based on direct field measurements, soil characterization studies, and soil series interpretation records.

Volume

Potential productivity interpretations for stand volume growth are based on yield tables. Yield tables are typically derived for local areas or small regions. Pflughoeft and others (1987) developed a yield table for nine species, specifically for northern Michigan. The yields presented in that table are based on observed site indices in the region and a recognized growth potential model. Accordingly, those yields more accurately reflect the potential growth rates in northern Michigan, than previously reported literature.

Volume growth estimates for Dickinson County soils have been determined using the site index value for the soil series and the Michigan based yield table (Pflughoeft et al., 1987). Yields for species not contained in the Michigan yield table were assigned values corresponding to those in the Survey report, which are based on the Soil Survey Technical Guide.

Potential Productivity Table

The potential forest productivity by soil type for Dickinson County, Michigan is presented in Table 1. This table is a guide to potential productivity; actual yields can be expected to vary as do actual stand conditions.

Table 1. is based on the Woodlands Management and Potential Productivity Table, from the Dickinson County Soil Survey. The following is a listing of the table headings and their meaning:

Map Unit: Map unit symbol; common map units differentiated by slope class were grouped when the site index was the same.

Series: Soil Series comprising the map unit.

Species: Species which had measured site index data; considered commercially important species for the soil series.

Site Index: Site index in feet, base age = 50 yrs.

Volume: Average merchantable cubic feet per acre per year growth.

LITERATURE CITED

Pflughoeft, J.R., D.D. Reed, E.A. Jones, C.C. Trettin. 1987. Potential Mean Annual Increment Values for Selected Commercial Tree Species in the Upper Great Lakes Region. Res. Info. Rept. 87-1. School of Forestry and Wood Products. Michigan Technological University, Houghton, MI. 5 pp.

Shetron, S.G. 1985. Field Guide to Forest Soils. CROFS, School of Forestry and Wood Products, Michigan Technological University, Houghton, MI. 78 pp.

Table 1. Potential forest productivity estimates for Dickinson County, Michigan.

Map Unit(s)	Series	Species	Site Index	Volume		
10	Waucedah	Northern White Cedar	30	42*		
		Balsam Fir	40	71*		
		Black Ash	35	16*		
		Quaking Aspen	40	22*		
	Cathro	Balsam Fir	40	71*		
		Northern White Cedar	15	20*		
		Tamarack	35	23*		
		Black Spruce	15	23*		
13 B,D,F	Pemene	Northern Red Oak	65	87		
		Sugar Maple	60	101		
14 B,D	Fence	Sugar Maple	65	108		
15	Carbondale	Balsam Fir	40	71*		
		Black Spruce	15	23*		
	Cathro	Balsam Fir	40	71*		
		Northern White Cedar	15	20*		
		Tamarack	35	23*		
		Black Spruce	15	23*		
		17	Greenwood	Black Spruce	15	23*
			Dawson	Black Spruce	15	23*
20 B,D,F	Karlin	Sugar Maple	61	102		
23 B,D	Escanaba	Sugar Maple	60	101		
		Eastern White Pine	75	148		
		Sugar Maple	66	104		
24 B,D,F	Emmet	Northern Red Oak	74	90		
		Red Pine	59	142		
25 B,F	Pence	Red Pine	59	142		
26	Deford	Quaking Aspen	60	62		
32 A	Rousseau	Quaking Aspen	65	63		
		Paper Birch	65	90		
		Sugar Maple	55	93		
		Big Tooth Aspen	63	62		
35 B,D,F	Nadeau	Northern Red Oak	65	87		
		Quaking Aspen	65	63		
		Paper Birch	65	90		
		Sugar Maple	60	101		
36 B,D,F	Rousseau	Quaking Aspen	70	65		
		Red Maple	57	74		
46 B,D	Oconto	Sugar Maple	61	102		
47 A	Wainola	Quaking Aspen	45	32*		
		Red Pine	57	139		
49 B,D,F	Mancelona	Sugar Maple	61	102		
55	Kinross	Quaking Aspen	45	32*		
57 B,D,F	Vilas	Red Pine	57	139		
		Jack Pine	65	69		
		Eastern White Pine	57	127		
		Red Maple	55	73		
59 A	Channing	Red Maple	55	73		

Table 1 cont'd. Potential forest productivity estimates for Dickinson County, Michigan Soil Survey Report.

Map Unit(s)	Series	Species	Site Index	Volume
60 B,D,F	Zimmerman	Red Pine	64	148
		Jack Pine	77	116*
		Quaking Aspen	70	65
64 B,D,F	Rubicon	Quaking Aspen	60	62
		Red Pine	50	130
		Balsam Fir	48	90*
		Jack Pine	53	61
		Eastern White Pine	45	75*
66 D,F	Zimmerman	Red Pine	64	148
		Jack Pine	77	72
		Quaking Aspen	70	65
68 D,F	Pemene	Northern Red Oak	65	87
		Sugar Maple	60	101
69 D,F	Emmet	Sugar Maple	66	110
		Northern Red Oak	74	70
70 B	Solona	Sugar Maple	64	107
71	Ensley	Red Maple	62	78
		Balsam Fir	60	118*
75 B	Alstad	Red Maple	65	80
76 B,D	Emmet	Sugar Maple	66	110
		Northern Red Oak	74	90
		Pemene	65	87
		Sugar Maple	60	101
77 D,F	Pemene	Northern Red Oak	65	87
		Sugar Maple	60	101
		Hettinger	45	83*
79	Hettinger	Balsam Fir	45	83*
80 B,D	Longrie	Sugar Maple	61	102
82 B,D	Ugly Variant	Sugar Maple	66	110

* Yield from Woodland Management and Potential Productivity Table, Dickinson County Michigan Soil Survey Report.