

THE AREA ORGANIZATION OF NATIONAL FORESTS:  
A CASE STUDY OF THE MANISTEE NATIONAL  
FOREST, MICHIGAN

Thesis for the Degree of Ph. D.  
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This is to certify that the  
thesis entitled  
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A CASE STUDY OF  
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Robert Kenneth Holz

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THE AREA ORGANIZATION OF NATIONAL FORESTS:

A CASE STUDY OF

THE MANISTEE NATIONAL FOREST, MICHIGAN

by

ROBERT KENNETH HOLZ

An Abstract

Submitted to the School for Advanced Graduate Studies  
of Michigan State University in Partial  
Fulfillment of the Requirements

DOCTOR OF PHILOSOPHY

Department of Geography

1963

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*Lawrence M. Summers*

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## ABSTRACT

### THE AREA ORGANIZATION OF NATIONAL FORESTS:

#### A CASE STUDY OF

#### THE MANISTEE NATIONAL FOREST, MICHIGAN

by Robert Kenneth Holz

Man prizes the products of the forest, but finds that the space it occupies is needed also for agricultural purposes and for grazing land. The formation and maintenance of national forests is an attempt to solve the problem of this dual role by means of a program embodying the ideas of sustained yield and multiple use.

National forests are distributed unevenly throughout the United States. The grasslands of the Great Plains form a natural boundary which divides them into an eastern and a western group.. The larger, older national forests, located in the West, were carved out of the public domain. Newer national forests were created in the East by purchase of private land not suited for agricultural purposes.

National forests occupy over 181 million acres, approximately one-tenth of the national area. However, not all land within the boundaries of national forests is owned by the federal government. The combination of public

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and private land ownership means that a number of methods of area organization must be simultaneously imposed upon these forests.

One method is that created by the Forest Service, which administers all national forests. It is public, is carefully planned, and is consciously applied to every national forest. The second method is economic area organization. It has no overall, conscious direction, being private and individual.

The results of a study of these two types of area organization as applied to a single national forest, the Manistee National Forest of Michigan, are embodied in this thesis. Politically, the Manistee is one of fourteen national forests in Region Nine. The forest supervisor's headquarters is located at Cadillac, Michigan. The Manistee Forest has four ranger districts, the rangers maintain close contact with their district by means of an unofficial unit, the fire warden. Each fire warden is a nodal point within the homogeneous area of the ranger district, which focuses upon the district headquarters. Each of the four ranger districts is itself a nodal point focused upon the forest supervisor's headquarters, the control center for administrative decisions affecting all of the Manistee National Forest.

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The general pattern of economic area organization of the Manistee is one of consumption and production, with the former more important and better developed than the latter. While production is not as important in the Forest as consumption, it nevertheless plays a significant role in the economy. The primary item of production is services. These are associated with recreational activities, which attract people to the area, and it is these people, in turn, who become the market for which the services are provided. The next most important item of production is timber. However, because of the poor quality of trees within the Forest, the quantity of timber produced is insignificant. A major problem of the Forest Service is finding a market for this low-quality timber. This problem will gradually be resolved as the trees mature and Forest Service practices slowly improve the quality of the timber being grown. It is evident that economic area organization contributes by filling the voids which the Forest Service is incapable of filling.

In the Manistee National Forest, the two methods of area organization, one political and one economic, exist side by side. They seem to function without interference with each other. Each apparently meets the needs and satisfies the demands made upon it. In the final analysis,

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these two systems, intermeshed and functioning together, seem to offer the best answer to date to the age-old question of dual forest utilization.

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It would be impossible to acknowledge all of the individuals and organizations who have contributed to this study. But there are three persons who have been most helpful in lending advice and who are deserving of special thanks.

I am particularly indebted to Professor Lawrence Sommers, who first suggested the topic for this research, and who was kind enough to guide it through the closing stages.

I wish also to express my deep appreciation to Professor Allen K. Philbrick, who directed the initial phases, and whose suggestions, comments, and ideas formed the foundation on which this work is based.

I owe a special debt of gratitude to my wife, Joyce, who contributed immeasurably to the preparation of every stage of this work from its inception to the finally completed manuscript.

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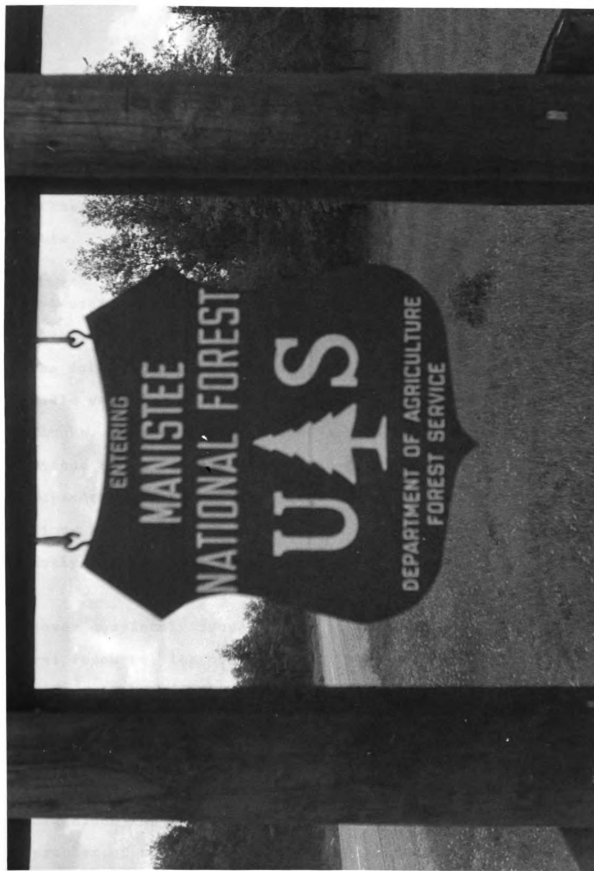


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## INTRODUCTION

Since the dawn of history man has been intimately connected with and dependent upon forests and their products. With few exceptions, the really great civilizations have had their origins within the great forest groups. Not until civilized man was well established in the forest environment did he begin to push out into the grasslands. The domestication of animals allowed him to become a nomadic wanderer searching for grass as pasture for his flocks. But even such nomads as the Mongols of the Asian steppe and the Sioux Indians of North America were still dependent for their very existence upon wood. Indeed, the Sioux made annual migrations to the forested slopes of the Rocky Mountains to replenish their supply.

Despite man's dependence upon forests, he has never completely found how to utilize properly this natural resource, its products, or the space it occupies. This study will be concerned with one of the most important types of public forest ownership, the national forests, and especially with the Manistee National Forest of Michigan. It will consider the way in which national forests are organized and managed by man in an attempt to solve the problem of the geography of national forests.

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## Purpose

Paul Sears in A World Geography of Forest Resources calls attention to the fact that "the forest early assumed an equivocal role in human culture. It was prized," he points out, "for the materials it yielded and for some of the functions it performed, but it was also regarded as a rival for the space needed for crops and flocks."<sup>1</sup>

Man's early conflict over the dual role assigned to that area now known as the Manistee National Forest and the results of this conflict are discussed later. It is only necessary here to state that this conflict left a gaping wound in the land resources of Michigan, which even today has not been completely healed. However, man occasionally profits from his past mistakes, and he has

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<sup>1</sup>Paul B. Sears, A World Geography of Forest Resources, American Geographical Society Special Publication No. 33, The Ronald Press Company, New York, 1956, p. 4. To this dichotomy of roles played by the forest, a third, that of esthetic appreciation, should perhaps be added. This is a factor which is becoming more apparent in our modern-day use of forests. Sears might include this as a function of forests, but the distinction is unimportant. It does not affect the organization of the forest, which is the basis of this study.

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developed methods of area organization which are attempts at easing the friction between the two conflicting roles of the forest.

Two separate and distinct types of organization have been recognized within the national forests. The first, a political method, is that developed by the Forest Service in managing the natural resources of the forest.<sup>2</sup> The other, an economic method, is that developed by the people who live and work or seek recreational opportunities within the forest. These two methods of organizations exist side by side. They function simultaneously over the same area and in apparent harmony.

This dual organization evolving in national forests is relatively new and the question immediately arises: Does this new type of forest organization successfully solve the age-old problem of the double role required of the forest by man? Answering this question is the major purpose of this study.

Before this question can be answered, the organization of the national forest must be clearly established.

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<sup>2</sup>The Forest Service is a branch of the United States Department of Agriculture, and the Chief of the Forest Service has direct line responsibility to the Secretary of Agriculture.

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Therefore it will be necessary to determine the present pattern of use and organization of the natural environment which are being developed in the national forests under the impact of present-day technology. This specific problem is part of a still broader one with which we have been struggling in the United States since the turn of the century, that of a revaluation of all natural resources.

#### Approach

This study of man's use of natural environment will be approached geographically, that is, it will examine phenomena and their interrelationships in space. It will be concerned primarily with the areal distribution and organization of the present use made of land and products of national forests.

A national forest has clearly defined boundaries, and therefore may be classified as a region. This, then, will be a systematic study of a region made up of a national forest and the contiguous counties, with attention also to physical and cultural patterns.<sup>3</sup>

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<sup>3</sup>The division of geography into the four fields of physical, cultural, systematic, and regional was first brought to the author's attention as the double-dualism

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Geography is sometimes described as a pyramid with three sides made up of organization, culture, and physical environment. Man, the base of the pyramid, is the active agent who integrates the sides, so that each side of the pyramid must be examined to interpret the pattern of use and organization of any phenomena, such as a national forest.<sup>4</sup>

By adapting this viewpoint in geographic methodology, the physical base, such as soil, drainage, and the natural vegetation of a region (for example, a national forest) can be examined in a systematic manner in order to understand how it has been organized by man's efforts into its present pattern of use.<sup>5</sup>

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of geography by Allen K. Philbrick (contents of a lecture on the divisions in the field of geography, Seminar on Geographic Methodology, Geography 516, Michigan State University, East Lansing, Fall, 1959). According to Philbrick, geography is a composite of all four of the fields mentioned above, and it is impossible to separate one from another. For a more complete discussion of this subject see Richard Hartshorne, Perspective on the Nature of Geography, published for the Association of American Geographers by Rand McNally and Company, Chicago, Illinois, 1959, Chapters VII and IX.

<sup>4</sup>Allen K. Philbrick in a lecture on Areal Functional Organization, course on Geographic Methodology, Geography 516, Michigan State University, East Lansing, Fall, 1959.

<sup>5</sup>Ibid.

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### Reasons for Studying National Forests

Why should national forests be studied by a geographer? In answering this question more reasons could be cited than are necessary in the development of this study, but a few of the more important ones will be considered.

A geographer is interested in the spatial distribution, organization, and use of the forest.<sup>6</sup> The major difference between the disciplines of forestry and geography is that foresters are interested in forests for the trees and lumber they produce, while geographers are interested in the space, distribution, and location of phenomena in the forest. This basic difference in methodology becomes a reason for geographic study of national forests.

If geographers are interested in the distribution of phenomena in space, then the very size, magnitude, and importance of national forests are reasons for

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<sup>6</sup>Hartshorne, op. cit.

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studying them. These forests occupy a significant amount of land within our country. The continental United States contains some 1.93 billion acres of which about one-fourth, or 648 million acres, is in forest.<sup>7</sup>

In March, 1961, there were 154 national forests, containing approximately 181 million acres, comprising about ten percent of the continental United States, or twenty-eight percent of the forested land.<sup>8</sup> The exact number and total acreage of national forests are subject to fluctuations as new forests are established or older ones consolidated for economy of administration.

Geographers have long been interested in "natural regions" of the world. This interest has logically extended to forest regions, which occupy one-quarter of the earth's surface. While geographers have shown interest in forests as a broad group, they have specifically neglected the national forests of this country. It seems inconceivable

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<sup>7</sup>John A. Zivnuska, Natural Resources, McGraw-Hill Book Company, Inc., New York, 1959, p. 263.

<sup>8</sup>U.S. Department of Agriculture, Forest Service, Agr. Info. Bull. No. 83, Highlights in the History of Forest Conservation, June, 1961, p. 25.

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that such a large block of land, put to such a specialized use, could be ignored in scholarly studies. Yet very few studies of forests have been undertaken by other than technical workers, who are primarily interested in the management of the timber crop. Little has been written on the impact that the setting aside of land designated as national forest has had upon the pattern of organization and use within the area of the forest boundaries and upon the area immediately contiguous. Geographers, in particular, have tended to neglect the study of national forests. During the period since 1950 the Annals of the Association of American Geographers published six articles or abstracts of papers presented at the annual meetings of the Association, which dealt with forests or closely related subjects, but none of which concerned national forests. Other geographical publications show a similar paucity of articles on forests in general and national forests in particular. As far back as 1930 only one article on national forests, and that of very limited scope, was discovered in scholarly publications of American geographic literature.<sup>9</sup>

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<sup>9</sup>Harriet Carter, "Our National Forests--A Social Problem," The Journal of Geography, Vol. 39, No. 4, Apr. 1940, pp. 151-156.

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National forests encompass many complex and varied problems. An examination of the type contemplated can be best carried out from a geographic approach. Only a broad study cutting across several disciplines can tie together the many factors involved in establishing the pattern of use of a forest. The areal viewpoint of geography allows a scholar to pick and choose relevant information in order to understand spatial patterns.

At the same time, national forests evoke certain esthetic qualities which are difficult to put into words. The term "forest" probably invokes different visions to each person, but to this writer the word creates memories of sunlight falling on the lichen-covered trunks of stately oaks, the smell of wood smoke, dark-hued conifers against the brilliant green background of early spring broadleaves, and of the explosive burst that a startled grouse makes as it erupts from its hiding place.

While any one of these reasons is a sufficient motive for studying national forests, perhaps the most practical one is the basic purpose of this study. In the United States, we no longer have a laissez-faire society.<sup>10</sup>

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<sup>10</sup>Raleigh Barlowe, Land Resource Economics, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1958.

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The nation is becoming more and more oriented toward a planned way of life. Planning is gradually creeping into every aspect of our economy, politics, and culture. But planning has been in effect in national forests for over fifty years. A study of national forests offers an excellent opportunity to see the results of planned organization and use of a resource in solving the problem of the forest's dual role. Perhaps the lessons learned from this experience might be applied to other resources, or even to other aspects of our society.

#### National Forests Defined

Many people confuse national parks and national forests. This confusion is so widespread that almost every one who discusses either national parks or national forests must take time to discuss in detail the differences in them. In fact, the Forest Service and the National Park Service have found this confusion so prevalent that they have published a joint statement in an official government pamphlet explaining the differences in activities.<sup>11</sup>

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<sup>11</sup>National Parks and National Forests, issued jointly by the National Park Service and the Forest Service, Dec., 1960. Also see Michael Frome, Whose Woods Are These: The Story of the National Forests, Doubleday and Co., Garden City, New York, 1962.

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National parks are established by Act of Congress to set aside or preserve outstanding areas of natural beauty, unusual geologic features, or plant and animal associations. National parks are administered by the National Park Service, a branch of the U.S. Department of the Interior. The key word in describing national parks is protection or preservation. There is no logging, hunting, or mining of minerals. Some grazing is allowed, but it is being reduced. The Park Service attempts to preserve the national parks as close to their natural conditions as is possible and still allow them to be enjoyed by visitors. Visitor appreciation, intelligent limited use, and preservation of nature as created comprise the basic policy of the national park system.<sup>12</sup>

A national forest, on the other hand, is an area with a very precise boundary set aside by presidential proclamation, within which the federal government may own all or only part of the land. This publicly owned land is administered for timber, range, watershed, wildlife and fish, as well as outdoor recreational purposes on a multiple

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<sup>12</sup>For a more complete discussion of this subject see H. Daniel Stillwell, The Geography of Itatiaia National Park, Brazil, Ph.D. Thesis, Michigan State University, 1961, p. 4, "The Concept of National Parks."

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use, sustained yield basis.<sup>13</sup> A national forest boundary is difficult to define, it is a line accurately measured on the earth's surface which marks the limits of the Forest. It is only within these boundaries that the Forest Service may legally secure land. Legal jurisdiction of forest personnel extends to the boundaries, but not beyond. Fire protection stops at the boundaries, although in some cases the protection may be extended to outside public or private lands if it would benefit the Forest Service. The boundary is the line at which the Forest Service administration, functions, legality, and protection end.

National forests are established by presidential proclamation, or in some very special cases by Act of Congress. When Congress authorizes it, land may also be acquired for national forest purposes by purchase, donation, or exchange.<sup>14</sup> National forests are administered by the

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<sup>13</sup>Letter from Richard F. Droege, Assistant Regional Forester, Region Nine, Milwaukee, Wisconsin, dated May 24, 1962. Mr. Droege states therein: "We have no short definition of a national forest. Enclosed is a statement about national forests which may be of help in establishing a definition for yourself." The above was developed by the author, who takes the responsibility for any inconsistencies it may contain.

<sup>14</sup>National Parks and National Forests, op. cit.

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Forest Service, a branch of the U.S. Department of Agriculture. The key phrases in describing the function of the Forest Service are multiple use<sup>15</sup> and sustained yield.<sup>16</sup>

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<sup>15</sup>The Forest Service Manual of 1958 contains the following statement: "The act of June 4, 1897, providing the administration of forest reserves stated that the purpose of these reserves (early national forests) was to improve and protect the forest, to secure favorable conditions of waterflow and to furnish a continuous supply of timber for the use and necessities of citizens of the United States. The long established multiple use policy and procedures of the Forest Service stem from this law" (page 1013, Nov. 1958). However, Congress amended the Act of 1897, passing the Multiple Use Act of 1960, which broadened and clarified the principles of multiple use. The basic idea of multiple use is that an area can provide many uses at the same time if they are properly managed and equated one against the other. The principle of multiple use as applied to national forests is that forests should provide timber, range for grazing, protection of watersheds, wildlife, fish, and opportunities for outdoor recreation, all at one and the same time, if possible. No one use may transgress upon the others, but certain areas may be set aside for a single specific purpose, such as watershed protection or recreational advantages. In the last analysis, national forest multiple use management is the management of the basic resources, such as wood, wildlife water, and recreation so that the benefits that result may be fully realized and enjoyed to their fullest extent by all the citizens of this country (Tour Guide and Related Information, Forest Supervisor Office, Cadillac, Michigan, Forest Service, United States Department of Agriculture).

<sup>16</sup>Sustained yield, closely related to multiple use, is one of the more recent concepts in forestry and conservation. It means simply keeping the basic renewable resources, such as timber, water, or wildlife, producing at the same level, or at higher levels if possible, over an indefinite period of time while the resource is being used.

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National parks, then are established to allow unusual natural phenomena to be preserved and protected for future generations. The use of national parks is the esthetic value derived from beholding them in their natural state. National forests are used, in a planned way, so that one use will not impair others, and so that all uses may be projected for the benefit of future generations.

#### Proclaiming a New National Forest

The establishment by the Secretary of Agriculture, with the concurrence of the National Forest Reservation Commission, of an area called a purchase unit is the first step in the formation of a new national forest.<sup>17</sup> The purchase unit is an area with very precise boundaries, but not within a national forest, in which the Forest Service may legally acquire land. There are two types of purchase units. The first is designated prior to the establishment of a new national forest. The boundaries of the new forest are laid out, and land is acquired within these boundaries. The area is known as a purchase unit until the government gains control of about thirty percent of the land within the

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<sup>17</sup>U.S. Department of Agriculture, Forest Service, National Forest Areas--Summary, June 30, 1961.

boundaries.<sup>18</sup> Then with the consent of the state government the purchase unit is proclaimed a national forest. The first type of purchase unit, then, is one which is established as a preliminary step in proclaiming a new national forest.

The second is created immediately adjacent to a national forest. The purpose of the type is to expand the boundaries of a national forest already in existence. In some cases it becomes necessary for the Forest Service to control certain areas outside the forest boundaries which are vital to judicious use of the national forest as a whole. A purchase unit is then established, land is acquired within the purchase unit, and when enough (about thirty percent) has passed into government control, the national forest boundary is expanded to include the purchase unit.

#### Reasons for Selecting the Manistee National Forest as a Special Study Area

It became evident quite early in this study that it was impossible for one person to study adequately all

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<sup>18</sup>Interview with H. O. Nixon, member of the specialist staff, Forest Supervisor's Headquarters, Cadillac, Michigan (1962). In a personal conversation with the author, Mr. Nixon stated that the government desires to gain control of about thirty percent of the land within the boundaries of a purchase unit before it is proclaimed a national forest.



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the national forests of the United States. Indeed, it was impossible to carry out an intensive study on all of the five national forests in Michigan. The size, location, and difficulty of access to these Michigan forests were limiting factors in studying all five of them. Because of the great size and range in distribution of national forests even in the state of Michigan, it was necessary to concentrate on a single forest, a forest which would perhaps be typical of other national forests, or at least would have problems common to them. For these reasons, it was decided that the Manistee National Forest should be the one selected.

The subject of the Manistee National Forest as a dissertation topic was first suggested in a conversation with Dr. Lawrence Sommers, Chairman of the Department of Geography at Michigan State University. The author's reaction was one of immediate enthusiasm, for he had utilized many of the recreational facilities of the Manistee<sup>19</sup> for camping, canoeing, fishing, and hunting. In addition, the Manistee was most accessible to him in terms of time, money, and distance.

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<sup>19</sup>For convenience, the terms "Manistee National Forest," "the Forest," and "Manistee" will be used interchangeably.

Aside from this personal interest in the Manistee, there are other very good reasons for selecting this Forest as a specific study area. First, it is the southernmost of the national forests in Michigan, and is the second largest in gross acreage.<sup>20</sup>

In Michigan, a transition zone exists which separates the southern portion of the Lower Peninsula, heavily populated and agriculturally and industrially oriented, and the northern portion, sparsely populated and recreationally oriented (see Fig. 7). The Manistee abuts this zone on the north, and because of this fact offers a variety of unusual problems. In no other national forest in Michigan is there so great a contrast in physical features as that which exists between the southern and northern extremes of the Manistee. The northern portion of the Forest is wild, sparsely settled, and characteristic, in places, of the more remote national forests of Michigan's Upper Peninsula. A large percentage of land in the northern portion of the Forest is owned by the federal government. The southern

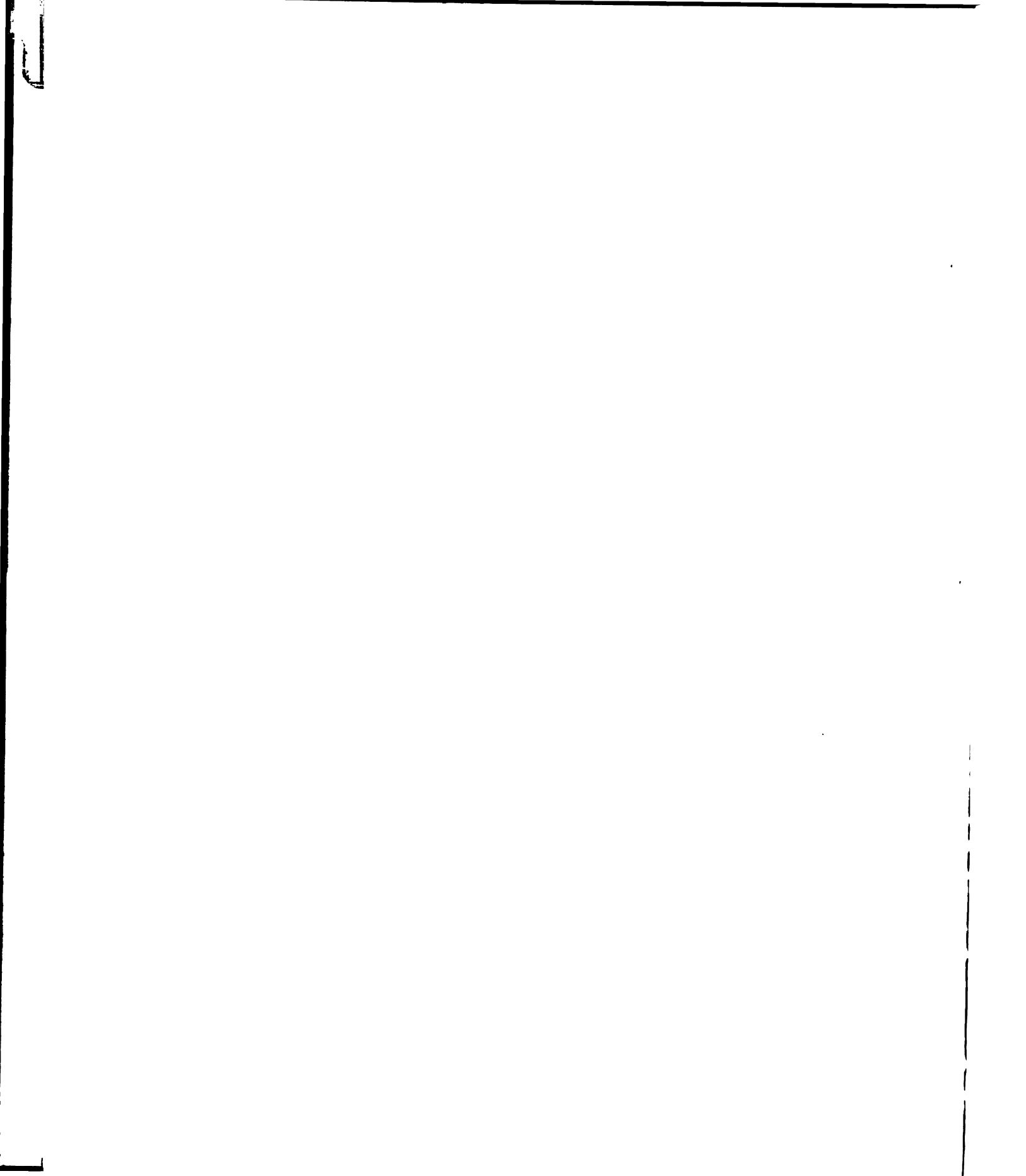
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<sup>20</sup>The gross area of a national forest is all the land contained within the boundaries, including land owned by the federal government, any other public land that may occur, and all the private holdings within the boundaries. The net area is all the land owned by the federal government within a national forest or a purchase unit.

portion is more densely settled, borders several urbanized areas, and contains several larger settlements. The southern section still has a high percentage of private land ownership, with federal ownership scattered, and farming still persists on some of the privately owned acreage. Because of these north-south differences, the Manistee presents problems so varied that they may prove characteristic of a wide range of other national forests in the United States. There is probably no such thing as a typical national forest, but the Manistee, with its variety of problems and characteristics, comes close to satisfying the implications of this term.

The Manistee lends itself to the purpose of this study. Because of the areal changes from north to south within the Forest, it offers the chance of observing the organization and use of the Forest under widely varying conditions. Perhaps something may be learned as to the effectiveness of man's methods of organizing and using this natural resource in such contrasting areas.

Of the national forests in the state, the Manistee is the nearest to centers of population in Michigan, Illinois, Indiana, and Ohio. These population centers are connected to the Forest and other vacation areas farther to



the north by an excellent system of highways. Thus, the demands made on the Manistee for recreational purposes are quite intense. It would be difficult to establish how intensive this use is, but the answer probably lies somewhere between the sparse use of the more remote forests in the western states and the acute use of those forests in the eastern part of the country.

A study of the type proposed should be not only a contribution to the discipline, but also an aid to the people of the study area, since it will offer insights into the organization and development which may be useful in future planning.

### The Study Area

The Manistee National Forest is located on the west-central side of the Lower Peninsula of Michigan (Fig. 2). It is one of the five national forests in Michigan, and is combined as a single administrative unit with the Huron National Forest in the east-central section.

### History

The first inhabitants of the Forest were roving bands of Indians, mostly Chippewa, but also a few Tawas

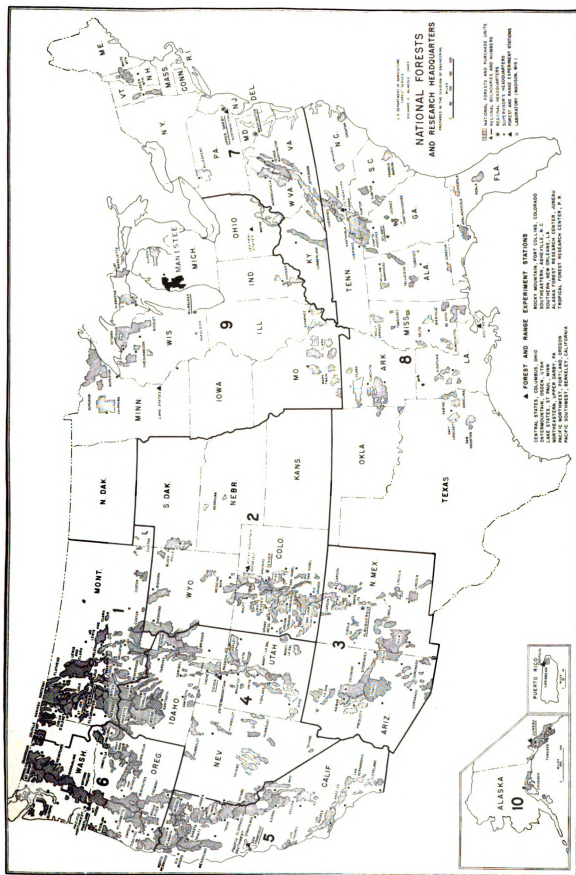


Fig. 2

and Huron.<sup>21</sup> These primitive people used the land extensively, hunting, fishing, and gathering forest products for a livelihood. The first white men to reach the area did not greatly change the pattern of use, for they too used the forest extensively, mostly for the trapping of furs or gathering of forest products. Probably the first white man to visit this area was Father Pere Marquette, who died in 1675 near the site of the present-day city of Ludington.<sup>22</sup> Fur trading prospered until about 1835, when the supply of fur-bearing animals, mostly beaver, was practically exhausted.<sup>23</sup>

Using the Manistee National Forest as an example, it becomes evident that increasing technology has altered the appearance and the pattern of use in this area. Each new group of people perceived the resources of the natural environment, including the forest, in a different manner and made use of these resources according to the viewpoint of their culture, methods of organization, and the level of their technology.

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<sup>21</sup>Manistee Ranger District Multiple Use Plan, prepared by R. E. Larson, Manistee District Ranger, 1961, p. 1.

<sup>22</sup>White Cloud District Multiple Use Plan, prepared by H. A. Lucas, White Cloud District Ranger, 1960, p. 1.

<sup>23</sup>Ibid.



The initial phase of intensive use of the Manistee began in the middle 1800's as the magnificent forest stands began to feel the bite of the saw in order to supply the demands for lumber made by the population expanding westward on the prairies of the Middle West. By the 1890's the pine was almost gone, and in the early 1900's the hardwood forest had been cut; the timber era was over, as both lumberjacks and timber barons moved to the west.

Land speculators sold this cut-over land to settlers at exorbitant prices.<sup>24</sup> Futile attempts were made at farming the light sandy soils which had been leached and eroded after clean cut lumbering, slash fires, and plowing had left them exposed to pounding rains and runoff. Slowly at first, but then with rapid acceleration, much of the land in this area reverted to the state under delinquent tax laws.

In 1923 the legislature of the state of Michigan passed Act 312, MPA 1923, which was the Consent Act for

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<sup>24</sup>Interview with Mrs. R. A. Petchell, postal clerk, Chase, Michigan. Mrs. Petchell told (1962) of her father's buying forty acres of cutover land in 1902 for the then unheard of price of \$600.00. In 1959 he sold the same forty acres to the Forest Service for \$100.00, a net loss in 57 years of \$500.00, plus taxes.

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the first purchase of land in the Manistee Purchase Unit.<sup>25</sup> The federal government began to act in this area, gradually buying up land, or trading for land of equal value which the state of Michigan had acquired. By 1938 enough land was under federal control to establish a national forest, and in October of that year the Manistee National Forest came into existence by presidential proclamation (for added information see Appendix A).

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<sup>25</sup>Letter of Feb. 9, 1962, from Miss Geneva Kebler, archivist in charge, Michigan State Archives, Lansing.

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## C H A P T E R   I I

### NATIONAL FORESTS OF THE UNITED STATES

#### The National Setting

The distribution pattern of national forests of the United States has some striking characteristics, one being that they are situated on the rougher terrain of the country, or in areas that have little or no agricultural value.<sup>1</sup> An examination of Figure 2 will reveal the locations of national forests.

#### Eastern and Western National Forests

A significant distributional fact is the division of forests into two major groups, eastern and western. The division line between these two groups can arbitrarily be set at the 100th degree of west longitude. The grasslands of the Great Plains, as shown by Figure 2, really are a

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<sup>1</sup>Arthur H. Carhart (The National Forests, Alfred A. Knopf, New York, 1959, p. 39) states that "The National Forests, with few exceptions are associated with mountains." This is true in the West, but in the East there are too many exceptions, and land of low agricultural value must also be considered.

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broad, natural division line between eastern and western forests. An interesting feature is the paucity of national forests in Iowa, southern Wisconsin and Michigan, northern Illinois, Indiana, and Ohio. The land here is part of the old "prairie wedge" which extended eastward from the Great Plains. This flat, humid prairie is the single largest and best agricultural area of the world. In our society, a public land use program, particularly a national forest, would never be expected to develop in such rich farming areas.

Another circumstance which further separates national forests into an eastern and western group is the difference in the age of their establishment. Western national forests are older than those in the East.<sup>2</sup> To be able to understand this difference in age, we must first look briefly at the historical development of national forests.

### History

In 1891, Congress took the first step toward creation of our present system of national forests when

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<sup>2</sup>U.S. Department of Agriculture, Forest Service, Highlights in the History of Forest Conservation, Ag. Info. Bull. No. 83, June, 1961

it passed a bill (with a rider added) known as the Forest Reserve Law, whereby land still in public domain could be set aside for federal forest reserves.<sup>3</sup> By the end of his term, President Harrison<sup>4</sup> had set aside 13,000,000 acres of the public domain west of the Great Plains as forest reserves.<sup>5</sup> These reserves were under the jurisdiction of the General Land Office of the U.S. Department of Interior, and since the Forest Reserve Law did not specify what should be done with these areas, they were simply locked up or "preserved" much as our national parks are today.

In 1897, Congress passed a law opening the reserves for use, and defining the reasons for their existence. But the Department of Interior had neither the desire nor the technical ability to properly administer the Forest Reserves, and the Division of Forestry in the

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<sup>3</sup>U. S. Department of Agriculture, Forest Service, The John Weeks Story, 1961.

<sup>4</sup> Benjamin Harrison was the 23rd president of the United States (1889-93). As Senator from Pennsylvania (1881-87) he served on committees dealing among other things with foreign relations and territories. As chairman of the committee on territories he sponsored a bill to preserve and enlarge the national parks. His presidency was marked by new ventures in foreign policy, but a deteriorating domestic situation.

<sup>5</sup>Arthur H. Carhart, op. cit., p. 28.



U. S. Department of Agriculture was not made responsible for the administration of these lands. As a consequence, it could act only in an advisory and an investigating capacity. The job of administering these forest lands was being neglected. This fact caused Gifford Pinchot<sup>6</sup> who was at that time head of the Division of Forestry, and his associates, supported by President Theodore Roosevelt,<sup>7</sup> to lead a drive for the transfer of the Forest Reserves to the Division of Forestry. As a result, in 1905 Congress passed the act that transferred these Forest Reserves from the Department of Interior to the

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<sup>6</sup>Gifford Pinchot (1865-1946) began the first systematic forest work in the U.S. at Biltmore, N.C. in 1892. He was a member of the national forest commission in 1895 and 1896, and was appointed by President Theodore Roosevelt to the committee on organization of government scientific work in 1903, to the commission on public lands in the same year, and to the committee on department methods in 1905. He became president of the National Conservation Association in 1910. He taught forestry at Yale, 1903-06, and co-founded the Pinchot School of Forestry there. After being commissioner of forestry in Pennsylvania (1920-22) he was governor of that state (1923-27, 1931-35). He was the author of several books about forestry and conservation.

<sup>7</sup>Theodore Roosevelt (1858-1919) was the 26th president of the U.S., serving from 1901 to 1909. Outstanding among his achievement in domestic policy was his conservation program calling for the extension of government control over natural resources. His program was highly controversial, and he managed to lose his influence with the Congress. He ended his second term facing an extremely hostile legislative body.



Department of Agriculture, and only a month later, by passing the Agricultural Appropriation Act of 1905,<sup>8</sup> created the U.S. Forest Service. According to the original Forest Reserve Act, only land that was in the public domain could be set aside as Forest Reserves. Most of this land was in the far West, very little public domain existing at this time in the eastern part of the United States. However, a few tracts in Alabama, Arkansas, Michigan (part of the present Huron National Forest), Minnesota, and Florida later became the centers for the establishment of the eastern national forests.<sup>9</sup> On March 4, 1907, the title "Forest Reserves" was changed to that of "National Forests." This change was supposedly made to indicate that these forest lands were being used, not simply reserved.<sup>10</sup> Though very little land could be set aside east of the Great Plains, huge tracts of western land in the public domain were named as national forests, particularly under Theodore Roosevelt's administration.

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<sup>8</sup>Carhart, op.cit., p. 29.

<sup>9</sup>Ibid., p. 30

<sup>10</sup>U.S. Department of Agriculture, Trees, The Yearbook of Agriculture, 1949, p. 31

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By the early 1900's, attention began to shift to the East, where large areas had been clean cut by loggers, burned over by brush fires, or cleared of trees to make room for farms. Much land began to be abandoned as better farmland became available farther west, thus driving the marginal eastern farmland out of production.<sup>11</sup> The established theory in regard to the national resources was that the general prosperity of the country could best be advanced by the development of these resources by private capital, and upon this theory land was either given away or sold for a trifle. Under this policy, over wide areas of timberlands the ground had been stripped bare with reckless waste; the control of the nation's water power had to a dangerous extent passed into private hands; and the public grazing lands and the wealth in minerals and oils in the public domain were bringing enormous dividends to a few, but no returns to the people as a whole to whom these natural resources belonged.

The bare slopes of deforested, abandoned land offered little resistance to running water, and each

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<sup>11</sup>Herbert Kaufman, The Forest Ranger: A Study in Administrative Behavior, published for Resources of the Future, Inc. by Johns Hopkins Press, Baltimore, 1960, p.28.

rainstorm brought more erosion, the formation of more gulleys, more silting of downstream river channels, and a greater danger of floods. In 1908, damage from flood waters in the Connecticut River Valley created headline news, and in the same year the Monongahela and the Allegheny Rivers crested at the same time, doing over \$8,000,000 damage to the city of Pittsburgh.<sup>12</sup> A shocked nation turned to the federal government for help. The answer to the problem advanced by the Forest Service was to re-forest the cut-over slopes in the headwaters of these troublesome watersheds.

But no individual, group, or even state could undertake so large a task, and the federal government could not act because it did not control these privately owned upstream sites and it was not authorized to purchase private land. In 1911, President Taft<sup>13</sup> signed a bill, which had been introduced by John W. Weeks of Massachusetts, authorizing purchase by the federal government of lands

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<sup>12</sup>Carhart, op. cit., p. 31.

<sup>13</sup>William Howard Taft, president from 1909 to 1913, was greatly interested in the conservation of the natural resources of the nation. While he was in full sympathy with the object of the policy set forth by his colleagues, he did not approve of some of the means adopted. In 1910, he dispensed with the services of Gifford Pinchot, the forester.

necessary for the protection of the flow of navigable streams. While the Weeks Law provided a basic public policy for buying forest land to protect navigable streams, it was not broad enough to allow unrestricted buying by the government. In 1924 the Clark-McNary Act was passed, broadening the Week's Law to include the entire watershed of navigable streams and adding timber production as a use of these lands.<sup>14</sup> The delay in the emergence of the Weeks Law and the Clark-McNary Law is the reason why the eastern national forests are younger than those of the West, which had been set up under the earlier Federal Reserve Act.

### Age

Of the 154 national forests in existence on March 1, 1961, 104, or about two-thirds, had been established before 1911. Only six of the 104 national forests established before 1911 were in the eastern group, while

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<sup>14</sup>U.S. Department of Agriculture, Forest Service, The National Forest Service Reservation Commission, a report on the progress in establishing National Forests, 1961, pp. 2-3.

only five of the fifty forests established after 1911 are in the western group. Figure 3 aids in understanding the stages of development of our national forests.

There have been two periods in our history of intensive national forest establishment. The first period was from 1902 to 1911. This was the time of the first great awakening to the wanton destruction of our natural resources and it was during these years that attention was first paid to their revaluation. Eighty-five national forests were created during this period. The second interval, 1929 to 1939, corresponds to the great depression and was a time of readjustment of some poor agricultural land as well as other natural resources. Thirty-one national forests were proclaimed during this period, and as has been pointed out, most of them were in the East (Fig.3).

In each of these periods, one year stands out above all the rest for the number of national forests created. About one-half of all national forests created in these two periods were proclaimed during these two years. In 1908, President Theodore Roosevelt, by proclaiming forty-one, set a record. Roosevelt was under pressure from influential forces in the western



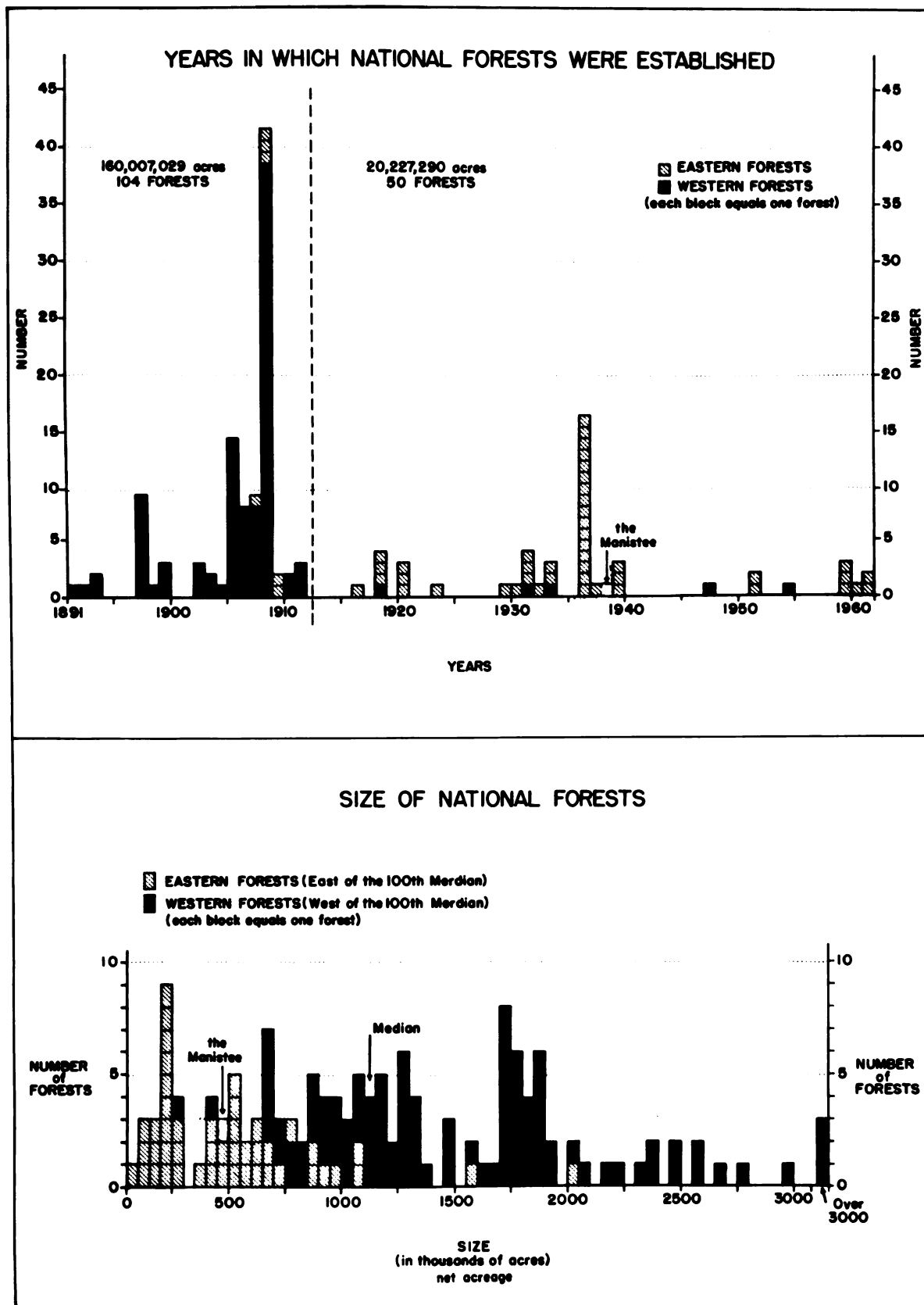


Fig. 3

states to stop placing public domain in national forests.<sup>15</sup> A group of western senators, led by Senator Fulton of Oregon, succeeded in attaching a rider to the Agricultural Bill which would prohibit the President from establishing additional national forests in five Northwestern states. The bill was passed by Congress in February, 1908, but before Roosevelt signed the bill into law in March, he and Pinchot collaborated on the establishment of an additional thirty-three national forests, to bring the total to forty-one added for the entire year.<sup>16</sup>

In the second period, the year 1936 is outstanding, when a total of sixteen forests were added. It may be noted that the administration during this year was led by another Roosevelt, Franklin D.,<sup>17</sup> so that in two years

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<sup>15</sup>For a more complete discussion of this topic, see Michael Frome, op. cit., p. 60

<sup>16</sup>Frome, op. cit., p. 60

<sup>17</sup>Franklin Delano Roosevelt (1882-1945) became president in 1929 when the domestic economy was at a very low ebb. During his first month in office he used his authority to create the Civilian Conservation Corps and to begin a system of public works. He was an earnest advocate of national planning, but by this he meant not the regimentation of society, but only a constant use of foresight in dealing with national problems. Toward the end of his life the problems of national defense absorbed the attention of his administration.

the two Roosevelts established fifty-five national forests, more than one-third of the national total.

### Size

In addition to age, another distinguishing characteristic of the eastern and western forests is the difference in size. Figure 3 shows that the forests of the western group are much larger than those in the East. The average size of national forests in net acreage is slightly over one million, but only four of the eastern forests are that large. This is to be expected of those created from the public domain, where size is limited only by what is a manageable unit. The land in the West was rough, arid, and very poor for agricultural purposes. Intensive settlement had not yet reached the area, and it was easy to set aside enormous acreage in order to establish huge national forests. In the East, however, land had to be bought. In most cases the land desired was rugged or because of other conditions of little use for agriculture, but it was in private hands, and the very act of establishing a national forest on some of these areas had increased their value by creating a new demand upon them.



Distribution Characteristics in the  
Eastern and Western Groups

Eight states in the eastern group, Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, and Rhode Island, contain no national forest land, while Maine has only a small portion of the White Mountain National Forest, which extends across from New Hampshire. Figure 2 shows this distribution clearly. The area, however, contains the greatest population in our country, almost one-fourth of the nation's population lives along the eastern seaboard, an area practically devoid of public land for recreational opportunities.

Iowa, situated in the heart of the tall-grass prairie, is also without any national forest land. This circumstance is to be expected, since the rich farm land here had little chance of being allowed to go into public ownership.

National forests occupy some of the most rugged terrain in the eastern United States, such as the Appalachian Mountains, the Allegheny, and the Cumberland Plateau, the mountains of northern New England, and the Central or Interior Highlands. Situated on these uplands, they are vital to proper watershed management. In the East, too,

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national forests are found on areas of very poor agricultural soil, such as those in northern Michigan, Wisconsin, and Minnesota, and in some cases on poorly drained areas along the Atlantic and Gulf Coasts.

The states which occupy the Great Plains may or may not contain national forests. If a state in this transition zone does have national forest land within its boundaries, it is on the extreme eastern or western edge. For example, North Dakota has no national forest land. South Dakota and Nebraska each contain a forest, but each forest is in the western half of the state. Kansas is without national forest land, while Oklahoma and Texas have only small areas on their eastern edges.

West of the Great Plains every state contains a national forest, and all but Nevada have at least ten percent of their area in national forests. The eight percent of Nevada which is in forest land is a larger area than the total of some of our eastern states. Alaska leads all the states in the total amount of land in national forests, but this is only a little more than five percent of its total area. Table 1, a list of states based on the percentage of state land in national forest, shows that Idaho, with thirty-eight percent, leads all other states.

TABLE 1  
THE PERCENTAGE OF STATE LAND IN NATIONAL FOREST

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State	National Forests in State	Area of State in Acres	Area of State in National Forest (Net Acreage)	Per Cent of State in National Forest
Idaho	16	53,476,480	20,300,577	38.0
Oregon	14	62,067,840	14,833,008	23.9
Washington	9	43,642,880	9,688,591	22.2
Colorado	12	66,718,080	13,710,311	20.5
California	22	101,563,520	19,924,030	19.6
Montana	11	94,168,320	16,635,456	17.7
Arizona	7	72,901,760	11,343,974	15.6
Utah	9	54,346,240	7,853,372	14.5
Wyoming	9	62,664,960	8,570,747	13.7
New Hampshire	1	5,954,560	677,660	11.38
New Mexico	7	77,866,240	8,565,190	11.0
Nevada	4	70,745,600	5,058,028	7.1
Arkansas	3	33,986,560	2,407,250	7.0
Michigan	5	37,258,240	2,553,703	6.9
West Virginia	3	15,475,840	903,985	5.8
Virginia	2	26,121,600	1,447,249	5.5
Alaska	2	375,301,760	20,741,994	5.5
Minnesota	2	53,803,520	2,599,425	4.8
Wisconsin	2	35,938,560	1,467,515	4.1
Vermont	1	6,149,760	231,901	3.8
Mississippi	6	30,538,240	1,132,762	3.7
North Carolina	5	33,735,680	1,124,098	3.3
Missouri	2	44,574,080	1,352,421	3.0
Florida	3	37,478,400	1,074,972	2.9
South Carolina	2	19,875,200	587,260	2.9
Tennessee	1	27,036,160	594,770	2.2
South Dakota	2	49,310,080	1,120,813	2.2
Georgia	2	37,680,640	775,716	2.1
Alabama	4	33,029,760	631,029	1.9
Louisiana	1	31,054,720	591,409	1.9
Kentucky	2	25,852,800	459,777	1.8
Pennsylvania	1	29,013,120	471,077	1.6
Illinois	1	36,096,000	211,021	.6
Indiana	1	23,226,240	119,652	.5
Nebraska	1	49,425,280	245,409	.5
Oklahoma	1	44,748,160	221,653	.5
Ohio	1	26,382,080	107,769	.4
Texas	4	171,096,960	657,997	.4
Maine	1	21,257,600	41,004	.2
Connecticut	0	3,205,760		
Delaware	0	1,316,480		
Hawaii	0	4,130,560		
Iowa	0	36,025,600		
Kansas	0	52,656,640		
Maryland	0	6,769,280		
Massachusetts	0	5,384,480		
New Jersey	0	5,015,040		
New York	0	31,728,640		
North Dakota	0	45,225,600		
Rhode Island	0	776,960		

Source: U.S. Department of Agriculture, Forest Service, National Forest Areas--Summary, June 30, 1961.



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The national forests of the western group can be correlated very closely to the mountain ranges of the Rocky Mountains. The extremely dry areas, such as the Great Basin, and the fertile valleys, such as the Great Valley of California, stand out as areas which contain few national forests. Fig. 2 is quite revealing in this respect.

#### Total Area

How large an area would our national forests cover if they were grouped together in a single contiguous unit? The answer is more than 181 million net acres, an area covering one-tenth of the United States, or all of the states of Illinois, Iowa, Kentucky, Missouri, Wisconsin, and part of Indiana. If we include gross acreage, the state of Michigan would be added to the above. Fig. 4 helps convey the idea more forcefully.

#### Natural Regions

National forests in the continental United States can be divided into natural regions, as shown graphically in Fig. 5. The criteria for establishing these

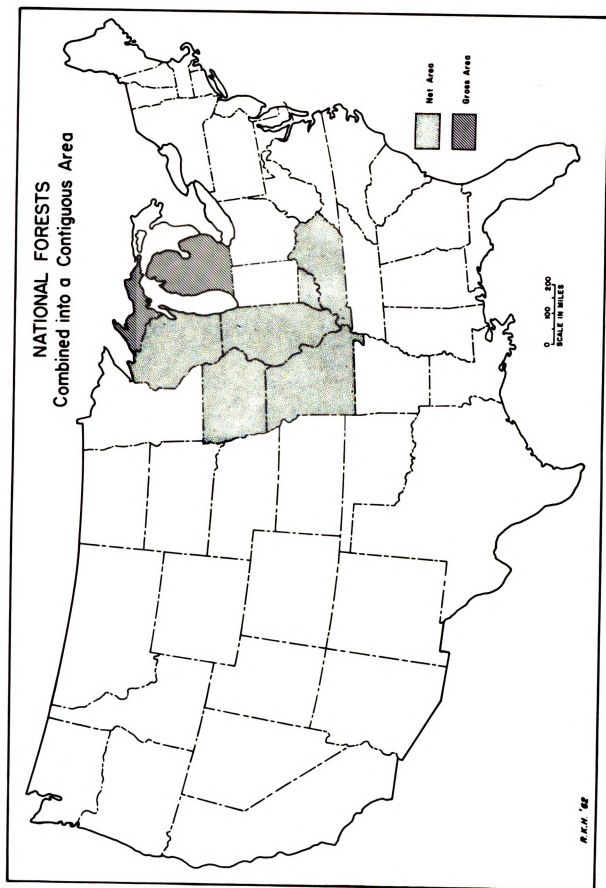


Fig. 4



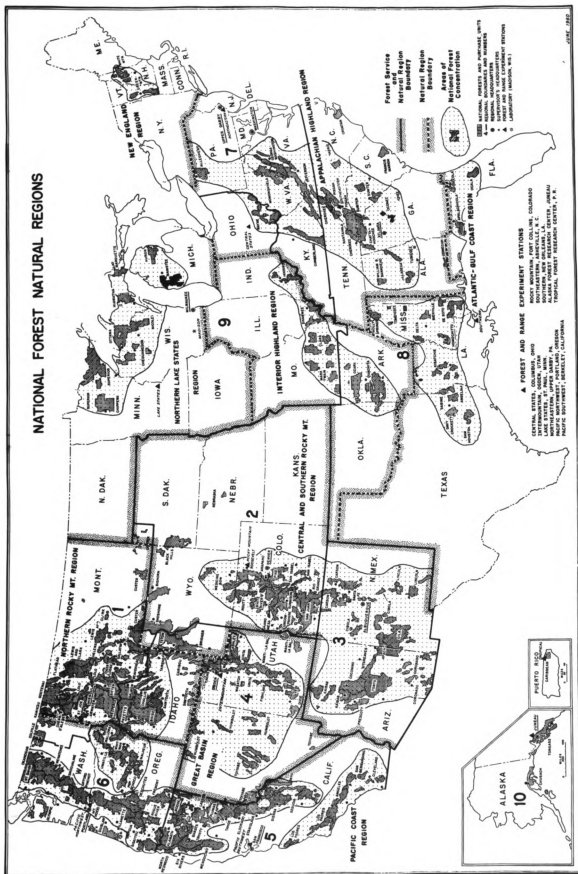


Fig. 5

natural regions are based on a number of factors, including a combination of physiographic provinces, forest associations and state boundaries.<sup>18</sup>

The Forst Service has divided the continental United States into nine administrative regions, Alaska is a tenth region, and for all practical purposes, Puerto Rico could be considered an eleventh, although it is not so designated. Fig. 2 portrays these ten regions. The boundaries of the administrative regions cuts across and divide many of the above mentioned "natural regions." For example, in Fig. 2 we can observe the boundary between Forest Service Regions Seven and Eight cutting directly across the Appalachian highlands from east to west. This administrative boundary divides several physiographic provinces and a major forest association into separate regions.<sup>19</sup> Division of natural regions occurs in other parts of the country (see Fig. 2).

Boundaries of the Forest Service, to some extent, follow physiographic provinces and state

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<sup>18</sup>W. W. Atwood, The Physiographic Provinces of North America, Ginn and Company, New York and London, 1940, p.13.

<sup>19</sup>Trees, the Yearbook of Agriculture, op. cit., p. 113.

boundaries, but there are important departures from both. However, the most startling deviation occurs when national forests which are great distances apart and are in separate forest associations are placed in the administrative region. (Note Region Nine in Fig. 2, the upper lake states and southern Missouri.)

This apparent disregard for natural regions, both physiographic and environmental, so intrigued the author that he questioned the wisdom of the Forest Service in organizing their administrative regions. A letter accompanied by an overlay map of natural regions was sent to the director of the Division of Education and Information of the Forest Service, inquiring into these apparent deviations of administrative boundaries. The reply to this letter spelled out four general assignments of the Forest Service:<sup>20</sup>

- a. National leadership in forestry, including forest and forest-range conservation, development, and use.
- b. National forest administration, embracing the management, development, and use of national forest land and the national grasslands.

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<sup>20</sup>Letter from Clint Davis, director of the Division of Information and Education, Forest Service, Washington, D.C.

- c. State and private forestry cooperation, which includes the protection and proper management of non-federal lands through cooperation with various state, county, and local agencies, and private land owners.
- d. Forest and forest-range research, which involves research related to the five forest resources, timber, soil and water, range, wildlife, and recreation; to forest protection from insects, fire, and disease; to forest products engineering; and to forest resource economics, surveys, and marketing.

Organization into natural regions would place too much emphasis on item b of the above list. In addition, the organization into natural regions is, to a great extent, directed toward managing natural environments, a function the Forest Service accomplishes to a finer degree by separating environmental administration and management of the national forests at the forest level. This method enables a more precise consideration of such factors as species, soils, and site, and local industrial and economic differences. Still a further consideration in the establishment of regional boundaries is the job load. Each administrative region should have equitable distribution of the total job load of the Forest Service. Related to the job load is the need for co-ordination of Forest Service programs with those of





other federal agencies, many of which use state boundaries. The Forest Service also must co-operate with various state agencies.

In the light of the foregoing, it can be seen that natural forest regions are but one factor of the actual practices of administering the national forests of our country. But why examine the subject if it plays only a small role in the organization of the national forests? The reason is that another nail is driven into the coffin of environmental determinism, and we may conclude, with Platt and Hartshorne, that environmentalism "has outlived its usefulness in geography."<sup>21</sup>

Though natural regions show themselves clearly to any student of geography, as an examination of Figures 2 and 5 will disclose, the Forest Service has chosen to ignore them to a large extent and to organize the national forests in a way which is most convenient for overall, man-made purposes of administration. Convenience and

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<sup>21</sup>Robert S. Platt, "Determinism versus Geography" American Journal of Sociology, Vol. 53, 1948, pp. 126-32; and Richard Hartshorne, "Perspective on the Nature of Geography," published for The Association of American Geographers, by Rand McNally and Company, Chicago, 1959, pp. 55-64.



efficiency in administration have been found to be basic tenets of governmental policy, and are implied in many places throughout this study.

### Region Nine

It has been pointed out earlier that the Forest Service has divided the continental United States into nine administrative regions. This study is mostly concerned with Region Nine, which encompasses the heart of the Middle Western states. If the author's system of natural regions were used for this discussion, Region Nine would be divided into two separate regions, the southern part being placed in the interior highland region, and the northern part forming the core area of the northern lake states region (Fig. 6).

The northern boundary of Region Nine borders on the Great Lakes and Canada. The eastern boundary is the eastern border of Ohio, the southern boundary is the Ohio River and the southern border of Missouri, and the western boundary follows the state borders of Missouri, Iowa, Minnesota, and North Dakota. Fig. 6 helps clarify the statement of boundaries.

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Region Nine is not well endowed with national forests, although it is one of the largest Regions in the United States. In 1961 there were only fourteen national forests, totaling 16,703,469 gross acres and 8,411,506 net acres<sup>22</sup> in the Region. The figure for net acreage is relatively small for an entire Region, for the state of Washington has a net acreage in national forests of over nine million, while Idaho has over twenty million. Table 2 has been set up to show progressive acreage increases in Region Nine.

The national forests of this Region lend themselves to a natural division. In the north on the cut-over lands of the northern lake states is a band of national forests extending from eastern Michigan to central Minnesota. The central and western portion of Region Nine was predominantly in grassland when the early pioneers arrived. Today, this section is devoted mostly to agriculture. The central and western portion separates the national forests of the cut-over land in the upper lakes states from a second band of national forest which lies

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<sup>22</sup>U.S. Department of Agriculture, Forest Service, National Forest Areas, Summary, June 30, 1961, p.2.

TABLE 2

THE NUMBER OF NATIONAL FORESTS AND CHANGES IN THE  
GROSS AND NET AREA IN REGION NINE  
(1931 - 1961)

Region Nine	1931	1936	1941	1946	1951	1956	1961
National Forests	7	9	13	13	15	14	14
Gross Area <sup>1</sup>	33.2	45.3	154.3	154.2	176.7	175.9	167.0
Net Area <sup>1</sup>	15.6	27.6	71.2	74.6	82.2	83.3	84.1
In Process of Acquisition <sup>1</sup>	.8	14.0	.8	1.0	.6	.6	.4
Net Area and In Acquisition <sup>1</sup>	16.4	42.7	72.1	75.6	82.9	83.9	84.5

Source: U.S. Department of Agriculture, Forest Service, National Forest Areas--  
Summary, Issued June 30, Yearly.

<sup>1</sup>Figures in hundred of thousands of acres.

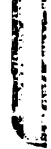


along the southern boundary of the Region. The national forests in this narrow southern fringe extend from eastern Ohio to western Missouri. These two bands of national forest, running east and west, were separated by a wedge of grassland and are composed of two different forest associations. The northern band is situated in a natural forest region called by the Forest Service the Northern Forest (Fig. 6). The Northern Forest is divided into two portions, a northern and a southern, with national forests of Region Nine belonging to the northern portion. This portion of the Northern Forest is composed primarily of spruce, balsam, fir, white, red, and jack pine, sugar and red maple, beech, white, red, and black oak, birch, aspen, basswood, black cherry, ash, northern white cedar, shagbark and pignut hickory, and, in the low-lands, hemlock, elm, willow, and tamarack.<sup>23</sup>

The southern band of national forests in Region Nine belongs to a different natural forest region known as the Central Hardwood Forest. The Central Hardwood Forest is also divided into a northern and a southern

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<sup>23</sup>U.S. Department of Agriculture, Forest Service map, Forest Regions of the United States, 1952.



portion. The southern band of national forests in Region Nine belongs to the southern portion of the Central Hardwood Region. This portion is composed of white, post, southern red, blackjack and pin oaks, sweet gum, tupelo, mockernut, pignut, southern shagbark and shellbark hickory, short leaf and Virginia pine, ash, yellow poplar, black locust, elm, sycamore, black walnut, maple, beech, and dogwood.<sup>24</sup>

This list of trees shows that many species grow both in the northern and southern bands of national forests in Region Nine, but that there are different species in each band, giving each a distinctly different character. Despite the seeming similarity of species, these bands do not correspond closely to each other and yet they are administered from a single headquarters.

All states in Region Nine have national forests except Iowa, which now has a purchase unit, and North Dakota, which has three national grasslands. National grasslands, even though they are administered by the Forest Service, are not included as national forests in any statistics.

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<sup>24</sup>Ibid.

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## C H A P T E R   I I I

### THE NATIONAL FORESTS OF MICHIGAN

Of the nine states which make up Region Nine, this study is mostly concerned with Michigan. Five national forests, more than in any other state in this Region, are found in Michigan.<sup>1</sup> In 1961, these Michigan forests had a gross of 4,713,326 acres, which is also more than the gross acreage of any other state in Region Nine, although Minnesota has a larger net acreage in national forests than does Michigan.<sup>2</sup> As can be seen in Table 1, the national forest net acreage in Michigan amounts to about seven percent of the total state area, which is also the highest percentage of net acreage of any state in Region Nine.

#### The Transition Zone

A transition zone extends in a broad band across

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<sup>1</sup>U.S. Department of Agriculture, Forest Service, National Forests in Michigan, 1941.

<sup>2</sup>National Forest Areas, op. cit., p. 5.

the state of Michigan from Bay City, on Saginaw Bay, toward the southwest to Muskegon on the eastern shore of Lake Michigan (Fig. 7). This transition zone divides the better agricultural soils, heavy population, and industrial concentration in the southern half of the state from the poorer agricultural soils, and the less well-developed northern half of the state. North of the transition belt the soil is extremely sandy. Logging, followed by fires, farming, and erosion removed what little good topsoil had once covered the area. By 1925 most of northern Michigan was in very poor condition. Scrubby cattle roamed on open range, seeking sustenance from the sparse vegetation that had gained a foothold in the sandy glacial deposits after the forest cover was removed. Repeated attempts to crop the land brought one failure after another until farmers gave up in disgust, and much of the land reverted to the state for delinquent taxes.

This economically depressed area, which once contained magnificent forests, and which was gradually reverting to public ownership, became a natural place for the application of the policy of revaluation of natural resources during and immediately following the

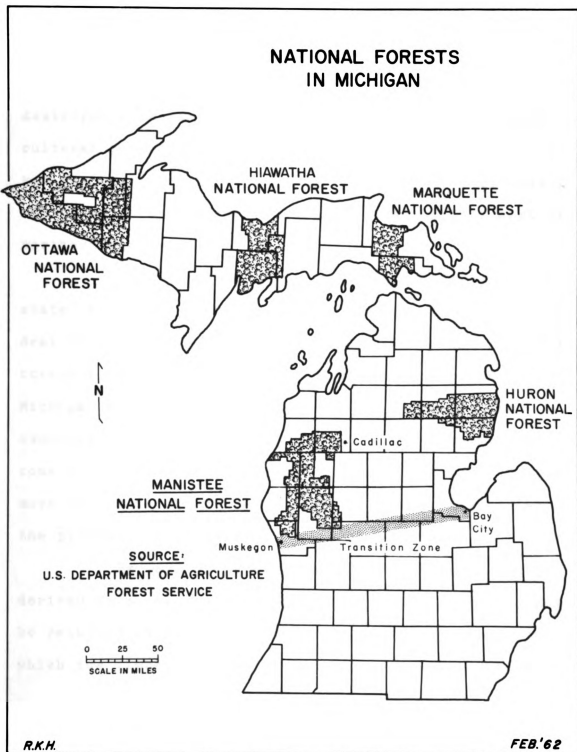


Fig. 7

great depression of the 1930's. So, even as late as 1930, man did not know how to use the forest lands of northern Michigan. He had removed the forests from this land and destroyed them, and had then attempted to use for agricultural purposes the space the forest had occupied. It was now time for the Forest Service to try its program of multiple use and sustained yield on some of this area of northern Michigan.

Five national forests were established in the state, all north of the transition zone. Today, a great deal of the land north of this transition zone is in city, township, county, state and federal ownership. Northern Michigan has lent itself successfully to public land ownership, and the national forests in this area have come to be considered a normal type of land use. Probably more land here should be in national forest than is at the present time.

By law, one-quarter of all the revenue receipts derived from sales of timber, or for grazing rights, must be returned by the Forest Service to the counties from which the timber is cut, or in which the grazing takes



place.<sup>3</sup> In the fiscal year of 1960, revenues from national forests and grasslands and other lands administered by the Forest Service amounted to 148.2 million dollars.<sup>4</sup> In northern Michigan, returns of this kind probably bring in more revenue to the counties than if the land were in private hands and on the tax rolls.

#### Administrative Units

In Michigan, the five national forests are divided into three administrative units. The Hiawatha and Marquette National Forests, in the upper peninsula, are administered as a single unit, known as the Upper Michigan National Forest. In the lower peninsula the Manistee and Huron National Forests are administered as a single unit, known as the Lower Michigan National Forest. The Ottawa National Forest, the largest in the state, at the western end of the upper peninsula, is a single administrative unit (Fig. 7).

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<sup>3</sup>U. S. Department of Agriculture, Forest Service, A Development Program for the National Forest, September, 1961, p. 2.

<sup>4</sup>Ibid.

### Net and Gross National Forest Acreage in Michigan

In the thirty-year period from 1931 to 1961, the net acreage of national forests in Michigan has increased almost eight-fold, from 365,002 to 2,553,703 acres (see Table 3). In the period from 1936 to 1945, net acreage in national forests increased about three and one-half times, from 674,345 to 2,028,075 acres. For each of the five-year periods from 1941 to 1951, the net acreage increase was approximately 200,000 to 300,000 acres, while from 1951 to 1961 it was less than 30,000. The last period, 1951 to 1961, reflects the land-buying policies of both the Truman (1945-53) and the Eisenhower (1953-61) administrations. Both these presidents, one Democratic and the other Republican, felt that the federal government owned enough land, and therefore the purchase of land by the Forest Service was cut to a minimum.<sup>5</sup>

The Ottawa National Forest is the largest national forest in Michigan in net acreage. It is almost

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<sup>5</sup>Frome, op. cit., p. 84. The fact that funds were not available for the purchase of land within the national forest during this period was also mentioned during an interview (June, 1962) with Mr. Louis Pommerening, Forest Supervisor, Lower Michigan National Forest.

TABLE 3  
CHANGES IN THE NET ACREAGE OF NATIONAL FORESTS  
IN MICHIGAN OVER FIVE YEAR PERIODS  
(1931 - 1961)

National Forests	1931	1936	1941	1946	1951	1956	1961
Huron <sup>1</sup>	26.9	31.6	37.7	41.1	41.1	41.5	41.4
Hiawatha	.5	13.9	42.2	45.7	47.5	47.5	47.6
Marquette	.3	13.2	68.3	71.7	84.5	85.3	86.1
Ottawa	25.2	13.2	68.3	71.7	84.5	85.3	86.1
Manistee	--	.6	27.4	36.7	44.3	44.4	44.6
TOTAL	43.2	79.0	202.8	227.9	253.2	254.3	255.3

Source: U.S. Department of Agriculture, Forest Service, National Forest Areas--Summary, Issued June 30, Yearly.

<sup>1</sup>All figures in tens of thousands of acres.



twice as large as the Hiawatha, which ranks second. Excluding the Ottawa, the other four national forests are approximately equal in size. Combining any two of them gives a unit about equal to the Ottawa in net area. This is a clue as to the reason why the Forest Service combines these four smaller forests into two administrative units. The Ottawa National Forest is the largest in gross area, while the Manistee ranks second in this respect. The Marquette is the smallest in the state, only one-third the size of the Ottawa (Table 4).

#### The Lower Michigan National Forest

The Lower Michigan National Forest is composed of the Manistee, the most southern of all the national forests in the northern lakes states, and the Huron, the most eastern of all the national forests in the same area. The Manistee is situated on the western side of the lower peninsula and touches on the previously mentioned transition zone between northern and southern lower Michigan. The Huron, on the eastern side of the lower peninsula, is completely separated from the Manistee. The Huron is the oldest national forest in Michigan. Some of the land in this forest was never in private ownership, and

TABLE 4  
CHANGES IN THE GROSS ACREAGE OF NATIONAL FORESTS  
IN MICHIGAN OVER FIVE YEAR PERIODS  
(1931 - 1961)

National Forests	1931	1936	1941	1946	1951	1956	1961
Huron <sup>1</sup>	55.3	55.7	76.9	76.2	76.2	76.2	69.2
Hiawatha	27.1	27.1	82.2	82.2	82.2	82.2	76.7
Marquette	27.4	27.5	50.3	50.3	50.3	50.4	49.3
Ottawa	25.2	25.2	174.3	174.3	174.2	174.2	150.5
Manistee	--	45.9	125.6	125.4	125.4	125.4	125.4
TOTAL	135.1	181.5	509.5	508.5	508.5	508.6	471.3

Source: U.S. Department of Agriculture, Forest Service, National Forest Areas--Summary, Issued June 30, Yearly.

<sup>1</sup>All figures in tens of thousands of acres.

this public domain land makes up the core of the forest today.<sup>6</sup>

The supervisor's headquarters, from which the Lower Michigan National Forest is administered, is located at Cadillac, situated at the northeastern corner of the Manistee (Fig. 7). While these forests are administered as a unit, they are for all practical purposes two distinct and separate forests, each of which has unique problems and characteristics. For example, the Manistee is larger than the Huron, in gross and in net acreage, but it has a lower ratio of gross to net acreage. The Manistee is not as compact in shape as the Huron. It is also located farther south and thus is closer to the greater population concentrations of southern lower Michigan. For reasons cited earlier, the Manistee was selected as the subject for this study.

#### The Manistee National Forest

The Manistee National Forest is located on the central and western side of the lower peninsula of

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<sup>6</sup>H. O. Nixon, op. cit.

Michigan (Fig. 7). It is the southernmost national forest in Michigan and the northern lakes states, and it touches Lake Michigan in a westward extension just south of the city of Manistee.<sup>7</sup>

### Boundaries

The boundaries of the Manistee are somewhat irregular. In general, the form of the Forest is rectangular, with three major interruptions: an extension reaching Lake Michigan on the west, an indentation on the east, which is part of a state forest, and another indentation on the south, which gives the Manistee the appearance of having two short appendages on this side. The reason for the irregularity of these boundaries can be traced to its beginnings, the original survey team which established the boundaries of the Manistee Purchase Unit in 1933 intentionally excluded from the Forest any

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<sup>7</sup>R. E. Larson, District Ranger, Manistee District, Manistee National Forest, stated (July, 1962) that the Forest Service was attempting to purchase land in this western extension on Lake Michigan. At the present time, the Forest Service does not own land in the area along the shore, and is attempting to purchase from a private estate several hundred acres with lake frontage.





areas of heavier soils.<sup>8</sup> In west central Michigan, light soils are of little agricultural value, while slightly heavier soils are, under proper management, able to support agriculture and yield a fair return. Along the Forest boundaries, the heavier soils stand out today as areas of agricultural land use. Not all heavier soils were excluded from the Manistee, however, and where they cross the boundaries into the Forest, areas of agriculture still persist.

There are many factors which influence the formation of a soil, but five are considered most important. These are: climate, vegetation, parent materials, topography and drainage, and time.<sup>9</sup> These soil forming factors will be discussed later in more appropriate sections. It is sufficient here to state that in various combinations and degrees they are responsible for the differences between heavy and light soils.

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<sup>8</sup>L. A. Pommerening, op. cit.

Heavier soils, as used here, are any soils with a high proportion of silt or clay. A light soil, in contrast, is any soil made up predominantly of sand.

<sup>9</sup>E. P. Whiteside, I. F. Schneider, and R. L. Cook, Soils of Michigan, Special Bull. 402. Agricultural Experiment Station, Michigan State University, December, 1959.

In the main, though, the boundaries of the Manistee National Forest conform closely to the boundaries between the light and the heavier soils (Fig. 8). There are two major exceptions to this generalization. First, the eastern boundary has sandy soils on both sides, but east of the Manistee is a state forest, and this, another form of public land use, is, for all practical purposes, simply an extension of the national forest. If the national forest were expanded to include the state forest, the new boundary would conform very closely to that between the light and the heavy soils. The major exception, along the southern boundary, is a band of heavy soils which have been excluded from the Forest, except where some of them pass through the southwest central portion of the Manistee. Agriculture occurs on these heavier soils in this area (Fig. 9). The Manistee, in large measure, has reason for existence as a physical unit based on light soil associations. In general, it may be said that most lighter soils in northern Michigan are in some type of public ownership. At the same time, the change in land use associated with the heavier soils marks these public ownership areas, such as the Manistee, as distinct areas.



# GENERALIZED SOIL ASSOCIATIONS OF WEST CENTRAL MICHIGAN

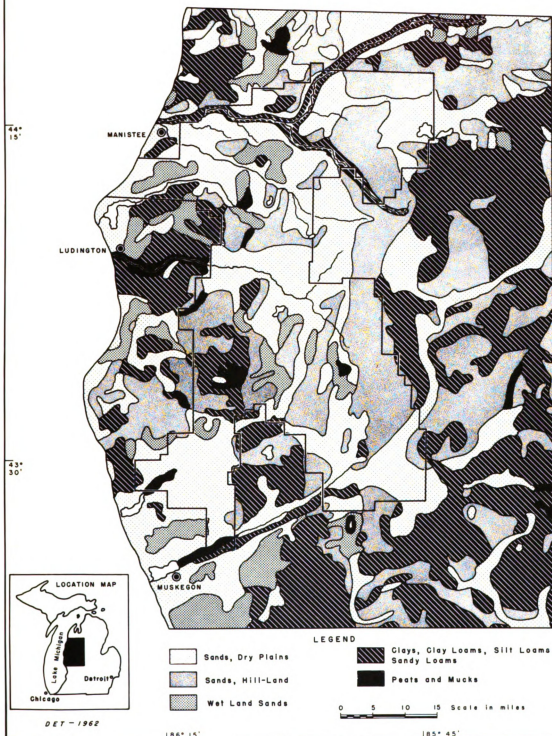


Fig. 8



Fig. 9a  
A Wheat and Corn Field in the Southwestern Portion  
of the Forest; Note Forest Cover in the Background



Fig. 9b  
A View Across the Agricultural Land in the  
Southwestern Portion of the Manistee

The boundaries of the Manistee, while irregular, are with only three exceptions straight lines. The boundary lines were based on the rectilinear survey system, but they do not follow township and range boundaries. Most changes in direction occur at lesser distances, down to as little as one-half mile (see pocket map, just south of Wolf Lake). One of the irregular boundaries is in the extreme west along Lake Michigan. Another is in the northwest corner of the Forest, where the Manistee River serves as the border. And the third irregularity exists along the southeast border of Lake Mitchell.

On the western side of the Manistee are three purchase units. One of these is separated into two parts, but they are both considered together as a single unit. These four separate areas are all immediately contiguous to the present Forest, and in the future will become part of the western boundary.

#### Climate of the Forest

The climate of the Manistee is well suited for growing certain types of trees, but the growing season is a little short for some agricultural crops, for example corn.

The southern tip of the Forest lies very close to the boundary between the "Daf" (humid continental, warm summer, moist) and "Dbf" (humid continental, cool summer, moist) climatic types.<sup>10</sup> This climatic boundary roughly parallels the transition zone shown in Fig. 7, and is one of the many factors which contribute to its existence. North from this southern boundary, the climate of the Forest becomes more typically "Daf" in nature. The overall climatic regime could be described as short, warm to cool summers, with long, cold winters.

The mean annual temperature varies from 45.9 at Croton Dam in the southeast corner of the Forest, (46.6 at Ludington and 46.9 at Manistee on the Lake Michigan shore) to 43 at Cadillac at the northeast corner of the Manistee.<sup>11</sup> While mean annual temperatures are not by themselves of great value, these point out the modifying effect that Lake Michigan has on the west coast of the Lower Peninsula.

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<sup>10</sup>Vernor C. Finch, Glenn T. Trewartha, and others, Physical Elements of Geography, McGraw Hill Book Company, Inc. New York, 4th edition, 1957.

<sup>11</sup>Weather Bureau, U. S. Department of Commerce, Climatic Summary of the United States - Supplement for 1931 through 1952. Climatography of the United States No. 11-16. Washington, 1956.



This "Lake Effect"<sup>12</sup> is also expressed in the variation between the summer and winter average temperatures. While the density of stations in and around the Forest, which record complete weather data, leaves much to be desired, subjective interpolation indicates that the stations along the Lake Michigan shore have warmer winter and cooler summer temperatures. Surprisingly, most of the stations in or near the Forest record their lowest monthly mean temperature in February. Brunnschweiler has pointed out that the lowest monthly precipitation mean commonly occurs, at most stations in the Lower Peninsula, in February.<sup>13</sup> Perhaps this indicates the presence of an unusually cold, dry, stable air mass over the Manistee, indeed the entire Lower Peninsula during this month. Or, perhaps this is a climatic response to the freezing over of Lake Michigan. The modifying effects of the water are mitigated by the icy, snow crusted surface of the lake. In the Manistee, winter minimum mean monthly temperatures are lower eastward away from the Lake Michigan shore, and

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<sup>12</sup>Dieter Brunnschweiler, Precipitation Regime in the Lower Peninsula of Michigan, paper of the Michigan Academy of Science, Arts, and Letters, Vol. XLVII 1962, p. 380.

<sup>13</sup>Ibid. p. 379.

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lower northward in the Forest. Within the Manistee, the lowest mean monthly temperature occurs in February, at Cadillac.

While the "lake effect" tends to hold down summer mean maximum temperature near the western edge of the Forest, the summer means tend to show a decrease to the north and east. At Croton Dam the mean monthly maximum in July is 70.4 (69.3 at Ludington and 70.2 at Manistee) while Cadillac shows a decrease of almost three degrees to 67.8. While it sounds deterministic, summer temperatures in the Forest are almost idyllic for vacationers. Daytime temperatures in the 80's through most of the summer make it warm enough for any type of outdoor recreation, while night time temperatures in the high 50's or low 60's allow one to sleep comfortably. These summer temperatures are an attraction which serves to complement the recreational opportunities of the Forest itself.

Over much of the Manistee, the average length of the growing season is from 140 to 150 days.<sup>14</sup> While normally this would be a sufficient length of time to grow

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<sup>14</sup>U. S. Department of Agriculture, Climate and Man, The Yearbook of Agriculture, 1941, p. 920.

a variety of agricultural crops, in any one year there may occur a very late or very early frost which would considerably shorten the growing season and could do serious crop damage. Length of the growing season is closely related to temperature. As a response to the moderating effects of Lake Michigan, elevation, and latitude, the growing season is shorter in length to the east and to the north. Concentrated between the Lake Michigan shore and western boundary of the Manistee is a segment of Michigan's fruit belt. These orchards, which are a response to the "lake effect", reach almost to the western boundaries of the Forest, in fact in one or two areas, they slightly overlap the boundaries. In the main however, the western boundary of the Manistee demarks the fruit belt from diversified agriculture and forest to the east.

Most of the Manistee receives an average of 31 to 32 inches of precipitation per year.<sup>15</sup> The 32 inch isohyet crosses the Forest from west to east, but swings well north past Baldwin before bending back southward to leave the Manistee near the southeast corner. Precipitation is reasonably well distributed throughout the year

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<sup>15</sup>Ibid.

with no month receiving less than one inch. There is a definite summer deficiency in the precipitation regime of Michigan in a "dry belt" originating in Saginaw Bay and running northwestward to Grand Traverse Bay.<sup>16</sup> This summer drought, corresponding to the period of maximum evapotranspiration, could definitely be a limiting factor in tree growth, especially for younger trees, coming as it does during the middle of the growing season.<sup>17</sup> Of course, this summer drought adds to the danger of forest fire, especially since this is the time of the year when great numbers of campers are in the Manistee. Surprisingly, stations inland away from the lake, receive slightly more total precipitation (about one inch more) than those located on the lake shore itself. This slight increase in precipitation could be a response to the relief effect inland, or a result of increased convectional activity away from the lake.

At the stations in and around the Forest, a definite late spring maximum increase in the mean monthly

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<sup>16</sup>Dieter Brunnschweiler, op. cit., p. 368.

<sup>17</sup>The author observed a pine planting operation in 1962, where concern was expressed by the planting crew that not enough soil moisture was available for the pine seedlings to survive.

precipitation was observed. The summer drought was followed by another increase of precipitation in early fall (September), which commonly had the highest mean monthly precipitation of the year. Following this maximum there was a decrease in the monthly means to February, which normally had the year's low monthly precipitation mean. Much of the precipitation received in the Manistee comes in the form of snowfall. The mean annual snowfall shows a great deal of variation from station to station. Brunnschweiler's map of snowfall<sup>18</sup>, which apparently ignores the anomalies of Hesperia (75.9 inches) and Tippy Dam (77.1 inches), indicates a decreasing amount of snowfall to the east, away from the lake, in this area of the state. There is a lake shore concentration of snowfall which is divided into two unequal parts by a narrow, finger-like projection (less than 60 inches of snowfall) which extends from the east to the Lake Michigan shore, near Ludington.

While such figures are not available, the variability of the mean snowfall from year to year would be interesting to observe. In recent years, more and more

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<sup>18</sup>Dieter Brunnschweiler, op. cit., p. 373.

visitors have been attracted to the Manistee for winter sports, particularly skiing. While the invention of snow-making machines has released ski resorts from their complete dependence on natural snow, it is still considered necessary in order to have a good skiing base.

Deep snows may attract winter sports enthusiasts but it creates many problems for the Forest Service and local governments. With many people living in isolated areas, an extensive network of roads must be kept open throughout the winter. Considering the relatively small number of persons using some of the roads, this is a very expensive operation for the local governments and the Forest Service.

The humid climate of the Manistee has resulted in the removal of the easily soluble minerals from the upper layers of most forest soils. The Manistee lies well within the podzol region of the Lower Peninsula.<sup>19</sup> In the cooler northern portion of the state, the podzols which were formed from coarse to medium textured materials, have a very thin A horizon, which overlies a deeper, thicker

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<sup>19</sup>E. P. Whiteside, I. F. Schneider, and R. L. Cook, op. cit., p. 9.

B horizon. In most cases the B horizon has an ashy-grey appearance, due to leaching, which reminds one of the ashes from an old campfire.<sup>20</sup> The full significance of this type of subsoil is not fully understood, but it is known that if the thin, organic surface layer is disturbed, the soil quickly loses its fertility. At the present time, our best use of this soil type is to keep a forest cover on it.

### Topography

The dominant feature, which gives character to the topography of the Manistee, is the glacial drift deposited during one of the later stages of the Wisconsin Glacial Period. During this period, the area we now know as the Manistee National Forest was covered by ice from two separate glacial lobes. Ice from the Lake Michigan lobe occupied the present day bed of the lake and spread eastward to meet the ice of the Saginaw lobe advancing from the northeast down the channel of Saginaw Bay.

The leading edges of these lobes must have met

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<sup>20</sup>The word "podzol" has a Russian origin and roughly translated means "ash-like soil."



very close to what is today the western boundary of the Manistee. In this zone of contact between the two ice fronts, a great deal of glacial debris was deposited resulting in a series of interlobate moraines.

Throughout much of the Lower Peninsula, the pattern of the morainal complex is fairly well defined, especially the recessional moraines of the Saginaw lobe. But the interlobate moraine pattern between these two ice tongues is very poorly defined. The general trend tends to be from north to south, but on the western side of the Manistee this is not as evident.

These two ice sheets stagnated in this area for a long period of time and as they slowly separated, melting back to the north and northeast, a flood of melt water was released which breached the north-south trending moraines and established the major lines of drainage to Lake Michigan in the west. Within the Forest, many of these moraines have been isolated into outliers completely surrounded by outwash plain. An example of this is the remarkable Udall Hill complex, situated southwest of Wellston, just off M-55, (see map on end cover). This isolated moraine was cut-off by Pine Creek and the Manistee River on the north and the Little Manistee River on the

south. Local relief is high enough here (120-150 feet) so that one side of it has been developed as a winter sports area for skiing.

The structure of the moraine itself is not fully understood, but it is of such a nature that the Forest Service has chosen to declare this an experimental site and is running a series of experiments to determine the effect Udall Hills has upon the water table in the surrounding area.

Empirical observations made in the field indicate moraines in the Forest vary greatly in their internal structure. The Pine River, in the northeast corner of the Forest, has incised down through a series of moraines along its upper and middle courses. Continued erosion has kept these cuts free of vegetation and this allowed the author to investigate the moranic structure. The internal morphology of these moraines is interesting because of the great variety of materials observed. In many places the moraines were laced with hard, impervious, almost indurated clay. Where this clay existed relatively high in the moranic structure, it often produced a perched water table and springs would seep from the exposed river cuts. Some moraines were almost pure sand and must have

been waterlaid, while others had a considerable amount of gravel within them. These empirical observations were too superficial to form anything more than a general statement about moraine structure, but it is evident that this was an area of great deposition and ice wastage. The melt waters must have constantly reworked this material to create the confused and complex moranic pattern that exists today. This pattern can be observed in Fig. 10.

Many of the interlobate moraines in the Manistee could properly be called kame moraines because they are largely made up of water-sorted materials. Kames are ice-contact features which were created by deposition from glacial melt waters. In the Manistee, kame deposits occur as irregular, isolated masses scattered between the moraines. In some areas these water-sorted materials are important as a local source of gravel.

While the moraines create the conspicuous hill lands within the Forest, the largest portion of the Manistee is covered by outwash, most of this in the form of outwash plains. In general these outwash plains are composed of almost pure sand or sand and gravel mixed or stratified.

There are many small areas of ground moraine scattered throughout the Forest. In general this

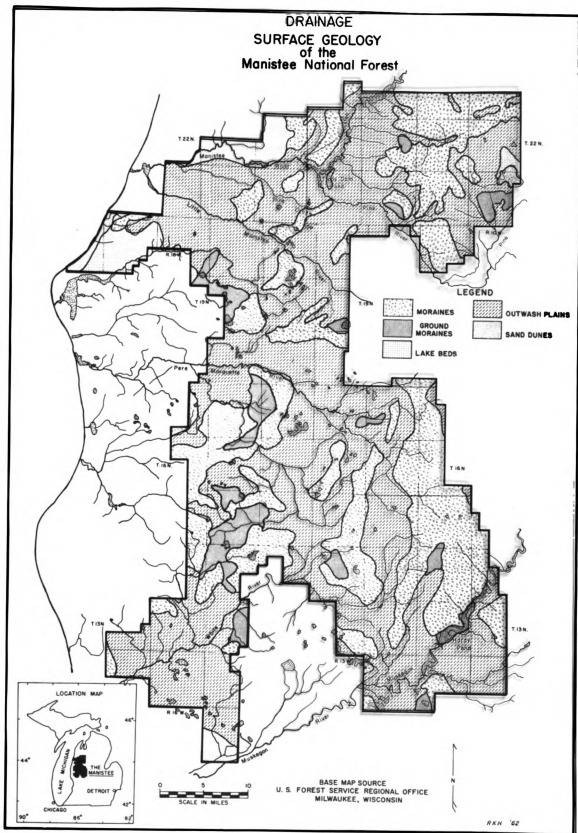


Fig. 10



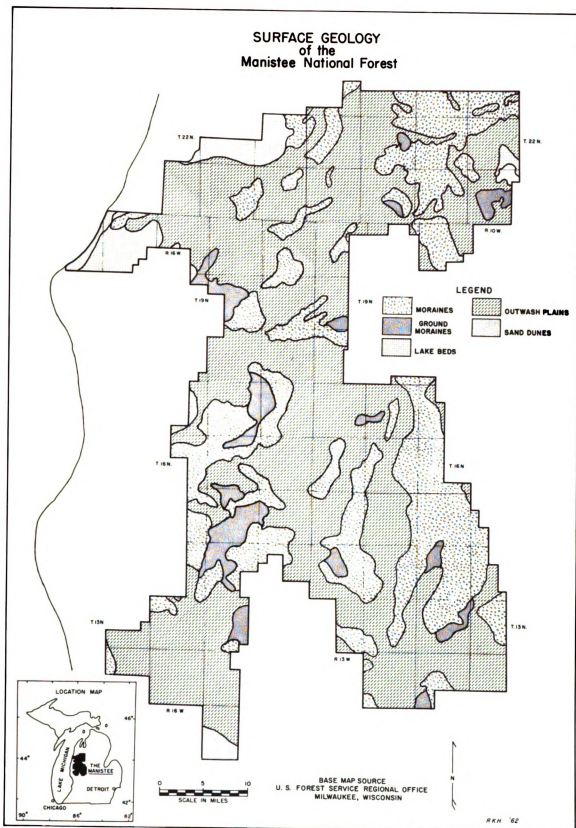


Fig. 10

topographic feature is found in close association with moraines and probably was protected from glacial melt water by them. Areas of ground moraine can be observed in Fig. 10, which also shows their association with moraines. In general this ground moraine tends to make the best agricultural soil in the Forest. The zone of heavier soils, which crosses the Manistee in the southwest central portion, is composed almost entirely of this type of material. All of the soils of the Forest have glacial drift for parent materials. These parent materials vary greatly in texture, fabric, and mineralogical or chemical composition. In Michigan, outwash plains tend to be relatively infertile, poor agricultural land, made up mostly of sands. This is especially true in the Manistee. Agriculture which still persists in the Forest is centered on some moraines and most of the ground moraine. There is a definite correlation within the Forest between soils, topography and agriculture, all of which are influenced by climate. Each of these factors conditioned the type of forest association which developed over various areas of the Forest.

Within the Manistee, there are four fairly large areas of old lake beds, which are composed mostly

of sand. These lake beds occur in the extreme southwest, northwest, and northeast corners of the Forest, Fig. 10. They are relatively flat, very poorly drained, and have reverted to government ownership and today have been overgrown with lowland hardwoods and Aspen.

Along the western edge of the Forest, where the Manistee touches Lake Michigan, a series of well developed sand dunes occur, which are part of the entire dune complex along the west coast of the Lower Peninsula. These dunes, a result of the prevailing westerly winds, should form one of the most important recreational areas in the Forest. However, this land is in private ownership and public access to the beach is prohibited. Slightly inland from the lake, the dunes have been stabilized by a scrub Oak forest association, which is a response to the excessively well drained and infertile, sandy soil.

The outwash plains, which cover the largest area of the Forest, are unique in that they are associated with, and in some cases connected by glacial channels. In the main, these channels are at the present time occupied by streams, many of which are underfit.



### Drainage

In general the drainage pattern of the Manistee is dendritic. The streams have numerous meanders and this is made even more remarkable by the way these meanders have been entrenched down into the outwash plains and valley trains. The material making up these latter two features is loosely consolidated and easily eroded, consequently the stream channels are often choked with sand or gravel bars, and glacial erratics frequently protrude from the river beds. Choked stream channels, entrenched meanders, and wide, underfit valleys are all clear evidence that, in the past, the streams in this region carried a much larger volume of water. As the two ice lobes retreated, the volume of melt water issuing from them must have been enormous. Some evidence of the power, force, and volume of this water is shown by many places where the moraines have been breached by streams flowing to the west. As the ice front retreated and the volume of run-off decreased, the streams were unable to perform as much work, but they maintained enough erosive power to entrench themselves into the loosely consolidated outwash materials.

Several of the older residents in the Manistee remarked during interviews about how poorly drained the lowlands (outwash plains) were before the virgin forest was removed. Any overland travel followed the high ground (moraines).

During and immediately after lumbering took place, these outwash plains were drained by an extensive system of drainage ditches, so that the flat land of the outwash plains could be used for agriculture. The sandy and infertile nature of these areas soon proved too much of a handicap for agriculture and they were allowed to revert to second growth forest, mostly scrub Oak.

In general, within the Forest, the uplands (moraines), containing mostly sand, tend to be excessively well drained. Because of the summer drought, which was previously mentioned, these soils will often exhibit a soil-moisture deficiency. A vegetative response to this condition was the development of a different forest association on the uplands, one made up particularly of trees which could withstand this drought condition.

On the outwash plains, where drainage was poor and water was ponded into lakes or swamps, thick mats of vegetation produced organic soils such as mucks and

peats. The distribution of these soils can be observed in Fig. 8. These poorly drained, acid soils are of little importance for agriculture or forestry. Today they are covered by a dense stand of swamp or marsh vegetation.

Some of the major streams of western Michigan cross the Manistee from east to west on their way to Lake Michigan. Because the Manistee projects well to the north, it touches an area of higher elevation that has been described as the high plains of Michigan.<sup>21</sup> This area of increased elevation receives somewhat more precipitation than the lower terrain surrounding it. The higher elevation and increase in precipitation make the high plains the source area for some of the major rivers of the northern lower peninsula. The height of land acts as a water divide, with drainage flowing east to Lake Huron, north to the Straits of Mackinac, and west to Lake Michigan. The general slope of the land surface within the Manistee is from this height of land on the northeast toward the west and southwest. It is this general slope of topography which conditioned the direction of the river

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<sup>21</sup>Davis, Charles M. The High Plains of Michigan, Michigan Academy of Arts, Science and Letters, Vol. 21, 1935. pp. 303-342.

courses to the west and southwest across the north-south trending moraines.

Because one of the major purposes of national forests is the preservation of watersheds, the Forest Service is responsible for the protection of the drainage basins and stream banks of the rivers within the Forest boundaries. These streams also offer excellent fishing, canoeing and hunting opportunities. Their recreational potential attracts great numbers of people into the Forest from the major population centers to the south. The demands upon these recreational facilities are quite intense, and this pressure on one kind of use sometimes makes it difficult to properly administer other types of multiple use within the Forest.

#### Natural Vegetation

The early settlers around the present site of the Manistee found a magnificent stand of virgin timber. This forest was closely associated with the soil on which it grew. On the outwash plains there was a mixed pine and oak association which dominated most of the area of the Manistee (Fig. 11). This association was divided

into two types. The first was a mixture of oaks with white pine interlaced with aspen and red maple, found along the southern edge of the Manistee. The second type was made up of Norway, jack, and white pine mixed with black, white, red, and jack oaks interlaced with aspen and maple (Fig. 11). This was the most common type of tree association found in the pre-settlement Manistee area, and it extended from the southern part of the Forest to the northern boundary.

The Forest associations on the moraines were more complex than those found on the outwash plains. Depending upon local conditions of soil and drainage, associations on a moraine might vary from mixed pines and hardwoods to northern coniferous and deciduous. On the sand dunes along Lake Michigan, a scrub oak forest developed, while the poorly drained lowlands supported mixed wet-land deciduous and evergreen species, such as cedar, tamarack, fir, spruce, hemlock, aspen, willow, poplar, elm, and birch. In the southeastern corner of the present forest, several small dry prairies developed, called "oak openings" by the early settlers.<sup>22</sup>

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<sup>22</sup>E. P. Whiteside and others, Soils of Michigan, Agricultural Experiment Station, Michigan State University, Sp. Bull. 402, 1956, p. 10.

# PRESETTLEMENT TIMBER TYPES WITHIN THE MANISTEE NATIONAL FOREST

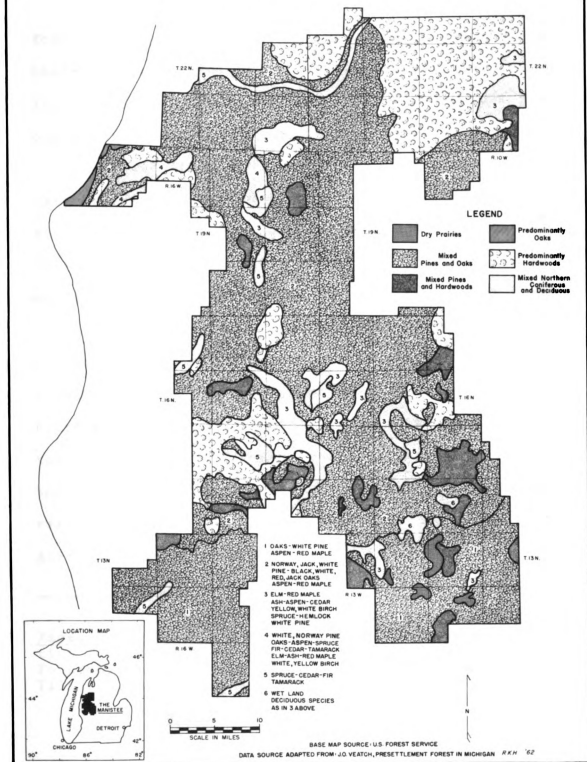


Fig. 11

The forest just described is what early settlers found when they came to west central Michigan. How did their use and organization of this natural resource change its appearance? To answer this question, we must first examine what man's use does to a forest.

The first products man exploits from a wilderness are animals for food and furs. Then the best or high value trees are harvested. An example of this is the ruthless exploitation of white pine in New England for ship masts, spars, and naval wood.<sup>23</sup> As civilization presses in on a forest, trees of lesser value are utilized. Under increased pressure, even the least desirable species are finally used for firewood, charcoal, mine props, and cooperage. Livestock is allowed to forage and browse in the woods, and man frequently allows fire to burn over the forest.<sup>24</sup> This intense use of the forest allows certain species, which can resprout or otherwise reproduce themselves under harsh conditions, to become

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<sup>23</sup>John T. Curtis, Man's Role in Changing the Face of the Earth, published for the Wenner-Gren Foundation for Anthropological Research and the National Science Foundation by the University of Chicago Press, Chicago, Illinois, p. 722.

<sup>24</sup>Ibid.

dominant.<sup>25</sup> For example, many species like maple, beech, oak, and aspen have the ability to resprout from roots, runners, or stumps after cutting. Other species, such as jack pine, are aided by fire in the release of seeds from the cone, whereas fire destroys white pine seed in the cone. Certain species, such as white pine and white cedar, are selected by browsing animals in preference to other species, such as balsam or fir. The result is the development of a new, and often less desirable, forest association (Fig. 12).

In the Manistee, clear cut lumbering, fires, and agricultural activity have considerably modified the presettlement forest association. The out-wash plains are covered by scrub oak, intermingled with a little pine. The oak is poor quality, and much of it has been fire damaged or is gnarled and twisted sprouting from old stumps. Today, this is the most dominant forest cover in the Manistee (Fig. 13). The second most common type of forest cover is dense stands of aspen. This quick growing soft wood can stand clear cutting, browsing,

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<sup>25</sup>Ibid.





Fig. 12a A Stump Fence



Fig. 12b A Stump Fence, A Sight Fast Disappearing From  
the Manistee

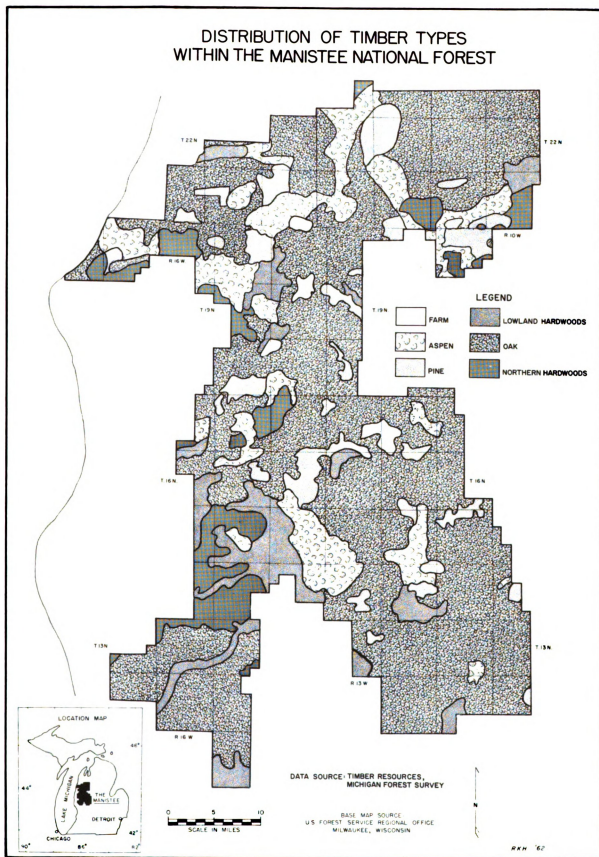


Fig. 13

and fire; it is an early volunteer species appearing on abandoned agricultural land.

Pine is almost as common in the Manistee as aspen and is found in two types of stands. The first is volunteer growth, mostly jack pine, which has been able to gain a foothold after fire has released its seeds. The second stand is found in the pine plantations which are planted by the Forest Service (Fig. 14). The pine plantations consist mostly of red (Norway) and jack pine. Along the streams and in the poorly drained lowlands, the wet-land deciduous species still persist, although the better trees have been logged from these areas. A few scattered clearings exist where the land has been completely cleared of all forest cover, while scattered remnants of the northern hardwoods are found throughout the Forest on the moraines (Fig. 13).

The single most pressing problem of timber management within the Manistee is that of finding a market for the low-grade timber growing on national forest land. The Manistee is growing more timber than the estimated allowable cut. The problem then becomes one of removing these highly competitive but less valuable species and replacing them primarily with pine,



Fig. 14a A 15 to 20 Year Old  
Norway (Red) Pine Plantation



Fig. 14b Newly Planted Pine Rows

which grows more rapidly and will produce a better timber crop.

Man's use of the Manistee National Forest has left a new forest association. The size and quality of the trees has been diminished, and less valuable species, with greater regenerative powers, have replaced those of the past. The result is an immature forest of poor quality trees which will take many years to be brought back into top production.

### Population

Geographers and demographers know that it is difficult to census accurately even a small area. People are mobile and, at least in our society, they move about with a great deal of speed. Because the boundaries of the Manistee cut across county and township lines, it is even more difficult to estimate the exact number of people who reside therein. To compound further the problem of estimating the population, many people residing in the Manistee through the summer live elsewhere during the winter. Why bother with estimating the population if it is such a difficult task that any figures obtained will

probably be inaccurate ? Difficult as it is to obtain, for an intelligent discussion of man's organization and use of the Manistee, the purpose of this study, an answer is necessary. It is impossible to answer the questions asked by this study unless we know something of the number of people who live, work, and find recreational outlets within the Forest.

#### Types of Residence

At the very beginning of this study, a wall map of the Manistee National Forest was prepared from county highway maps. A striking feature of this map was the difference in appearance between the area outside the Forest and the area inside. The area within the Manistee was much lighter in value,<sup>26</sup> the area outside much darker. A closer examination proved that this was because there were fewer cultural symbols (buildings) inside the boundaries. These symbols for buildings were of four types: farm, non-farm, commercial, and seasonal dwellings, such

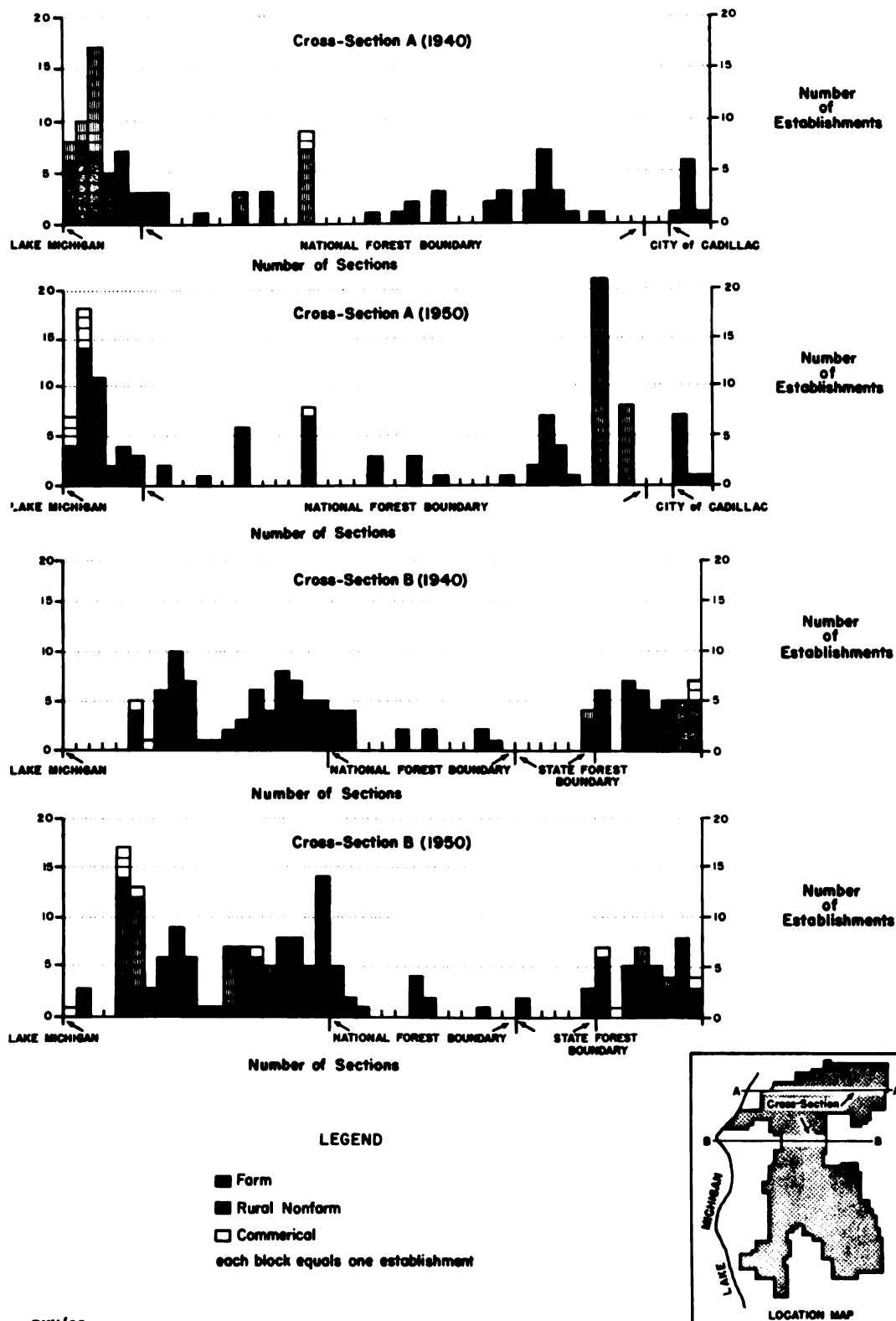
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<sup>26</sup>Value, as used here, means the amount of light reflected from any surface. It is the variation of the gray scale between black at one extreme and white at the other extreme.

as summer cottages. By counting the number of permanent dwelling units within the Forest and multiplying by the census figure for the average number of people living in a residence, it was possible to estimate the population. Because there are two sets of county maps in existence, one compiled in the 1940's and the other in the 1950's, it is possible to estimate the population of the Forest at two separate times, and to show the changes that have taken place in approximately a ten-year period.

Such a comparison reveals that both the Manistee and the state forest, on its eastern border, have fewer buildings within their boundaries than the area surrounding them. If a graph is constructed from a traverse along a line of sections, starting at Lake Michigan and running across the forests from west to east, the state and the national forests are the low points on the graph (Fig. 15). Not only are there more buildings outside the forests, but there is also a change in function. A higher proportion of these buildings are farm residences, as would be expected, since the better agricultural soils have been excluded from the Forests. There is also a difference between a graph constructed from the 1940 figures and one constructed from the 1950

# CROSS-SECTION OF THE NUMBER OF ESTABLISHMENTS THROUGH THE MANISTEE NATIONAL FOREST



RXH '62

Fig. 15



figures. In the 1950's there were fewer farm buildings, many more non-farm residences, and added commercial establishments. This is true both inside and outside the Forest, although the absolute number of changes is greater outside the Forest.

A second factor which becomes apparent when one examines the map is that many sections in the Manistee have very few or no buildings. If a line is drawn around these sections, we see that large areas of the Forest have only a limited number of buildings (on Fig. 16 these would be the delineated areas).<sup>27</sup> These areas containing very few buildings correspond very closely with national forest ownership within the Forest boundaries. Land which passes into federal ownership within the Forest boundaries is no longer available for private building sites. Despite large areas in the Forest empty of buildings, there are many sections<sup>28</sup> which have a great number of establishments on them. Concentrations of buildings tend to be

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<sup>27</sup>Delineated areas, as used here, are arbitrary units set aside by the author, which have a low density of buildings.

<sup>28</sup>Section, as used here, refers to the rectangular survey measurement of 640 acres, or one square mile.

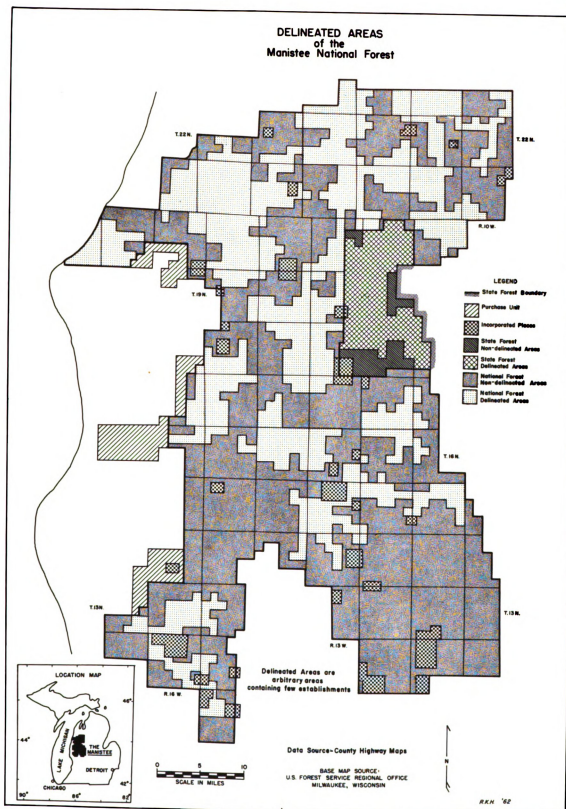


Fig. 16

centered on prime recreational sites, such as around lakes or along streams, by routes of communication, or in areas where the soil is slightly heavier and still supports agriculture. From careful study of the county highway maps three kinds of areas can be isolated. The first are the delineated areas, within the Forest boundaries, which had no buildings, or at least very few, per section. The second area is the remainder of the Forest, outside the delineated areas. The third area is that outside the Forest boundaries, but immediately contiguous.

The delineated areas within the Forest cover a total of 754.5 square miles and contained 279 buildings in the 1950's as compared to 256 in the 1940's. This was an increase, in the total number of buildings, of 8.9 percent. The significant factor here is not the increase in total number of buildings but the change in function. Farms declined by almost 50 percent, while non-farm residences increased over 380 percent and commercial establishments increased 60 percent (Table 5). So even though most of this land is in federal ownership, the number of buildings is still increasing. But the function of the buildings, with the decrease in farm residences and the great rise in non-farm residences and commercial establishments, is rapidly changing.

TABLE 5

THE NUMBER OF ESTABLISHMENTS BY FUNCTION WITHIN THE DELINEATED  
AREAS OF THE MANISTEE NATIONAL FOREST<sup>1</sup>

Building Type	Year		Change From 1940-1950	% Change 1940-1950
	1940	1950		
Farm	207	103	104	-49.7
Non-farm	44	168	124	381.8
Commercial	5	8	3	60.0
TOTAL	256	279	23	8.9

<sup>1</sup>The delineated areas totaled 754.5 square miles.

Inside the Forest boundaries, but outside the delineated areas, 1,093 sections were checked for buildings. In the 1950's there were a total of 5,857 buildings on this area, an increase of 44.1 percent from the 4,058 in the 1940's (Table 6). The rate of increase for total number of buildings was 44.1 percent, which is much greater than it was in the delineated area. This fact lends support to the thesis that land controlled by the Forest Service, in the delineated areas, is simply not available for building sites. In the non-delineated areas the number of farm buildings declined from 3,431 to 2,832, a decrease of 17.5 percent. This rate of decline is less than one-half that for farm buildings in the delineated area. Such a finding is to be expected because through the years the Forest Service has acquired the poorer agricultural lands. Those lands which would not support agriculture have been abandoned or sold to the Forest Service. The slightly better agricultural lands inside the Forest, but outside these delineated areas, have been able to support agriculture and so the decline in number of dwellings is not so rapid. Some decrease in farm dwellings would be expected because the general trend in Michigan is for the total number of farms to decrease, the average

TABLE 6

THE NUMBER OF ESTABLISHMENTS BY FUNCTION WITHIN THE MANISTEE  
NATIONAL FOREST BUT OUTSIDE THE DELINEATED AREAS<sup>1</sup>

Building Type	1940	Year 1950	Change From 1940-1950	% Change 1940-1950
Farm	3,431	2,832	599	-17.5
Non-farm	566	2,891	2,325	410.8
Commercial	61	124	63	103.3
TOTAL	4,058	5,847	1,789	44.1

<sup>1</sup>The area within the forest but excluding the delineated area totaled 1,093 square miles.

size of farms to increase, and the total amount of land in cropland to decrease.<sup>29</sup>

The increase in non-farm residences in the Forest from 566 in the 1940's to 2,891 in the 1950's, an increase of 410.8 percent, is startling (Table 6). This tremendous rise is probably the result of the prosperity following World War II. Up to 1941 the country was just emerging from the depression, and there was little opportunity for development in this area. During the war years little construction took place, but immediately thereafter more leisure time, new and better roads, and increased purchasing power have enabled people to purchase land, to build summer homes or permanent homes, and to commute long distances to work. Within the Forest, the great rise in non-farm homes has been around lakes and along streams and major routes of transportation. This jump in non-farm residences is not peculiar to the Manistee, but has occurred throughout the southern half of the lower peninsula of Michigan.<sup>30</sup> It is interesting

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<sup>29</sup>U. S. Department of Commerce, Bureau of the Census, 1959, U. S. Census of Agriculture--Michigan Counties, Vol. I, Pt. 13.

<sup>30</sup>Allen K. Philbrick, Analyses of the Geographical Patterns of Gross Land Uses and Changes in Numbers of Structures in Relation to Major Highways in the Lower Half

to note that the Manistee, as a whole, is not acting as a barrier to the settlement of non-farm residents. It is only the delineated areas which retard settlement, and even these areas do not completely restrict development. Commercial establishments in the Forest, but outside the delineated areas, increased slightly over 100 percent, almost 60 percent more than the rate of increase within the delineated areas.

Outside the Forest, but immediately contiguous to the boundaries, 1,098 sections were checked for number and type of establishments. In this area a total of 6,641 establishments were found in 1940, compared to 4,058 within the Forest in 1940, or 63.7 percent more in almost exactly the same number of sections. However, in 1950 there were 8,529 structures outside the Forest compared to 5,847 inside, or a difference of only 45.8 percent. The decline of almost 20 percent between the 1940 and 1950 percentages seems to indicate that new establishments are being constructed at a more rapid rate within the Forest than immediately outside its boundaries.

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of the Lower Peninsula of Michigan, Michigan State University Highway Traffic Safety Center, and Department of Geography, East Lansing, Michigan, 1961.



However, the total number difference between these two time periods (2,583 for 1940 to 2,682 for 1950) indicates that buildings are being constructed at a slightly faster rate outside the Forest boundaries.

Another outstanding difference between these two areas is that the rate of decline in the number of farm residences is slower outside the Manistee than it is inside (Table 7). This would be expected, since the better agricultural soils were excluded from the Forest.

The Forest has a slight numerical advantage in the number of non-farm residences. The rate of change between the 1940's and the 1950's is very close to the same, 410 percent inside the Forest as opposed to 397 outside. In total there are many more farm establishments outside the Forest (5,530) than there are inside (2,832). The rate of decline is greater inside the Forest (-17.5 percent) than outside the Forest (-7.5). Again, the author believes that this reflects the better soils outside the Forest and the land-buying policies of the Forest Service within the boundaries. In the 1950's the number of commercial establishments outside was almost double that of the Forest area, 225 to 124. The rate of change from the 1940's to the 1950's is about equal, even

TABLE 7

THE NUMBER OF ESTABLISHMENTS BY FUNCTION OF A SELECTED  
AREA OUTSIDE, BUT CONTIGUOUS TO, THE MANISTEE<sup>1</sup>

Building Type	1940	Year 1950	Change From 1940-1950	% Change 1940-1950
Farm	5,890	5,530	450	-7.5
Non-farm	588	2,774	2,216	397.1
Commercial	103	255	122	118.4
TOTAL	6,614	8,529	1,888	28.4

<sup>1</sup>The area outside the forest totaled 1,098 square miles.

though the total number of establishments involved here is very small.

The most important factor revealed here is that there are more establishments outside the Forest than inside. The difference in the total number of establishments is made up almost exclusively of farm residences. This could be due to two reasons: first, the many recreational areas within the Forest which offer choice building sites; and second, the better agricultural land contiguous to the Forest does not offer as much in the way of recreational opportunities, and on this better soil agriculture can compete with recreation for land use.

#### Forest Population

So much for the broad changes which are taking place in the settlement of the Manistee. But what of the number of people living within it? The Forest Service attempts to assess total population by taking the figure for all of the population of all of the townships completely within the boundaries of the Forest (this information is available from the census data) and then calculating the population of the townships which are only partially within the Forest. In other words, if one-half

of a township is inside the Forest boundaries, the Forest Service counts one-half the population of a township and adds it to the population of the Forest. If only one-third of the township is inside, the Forest Service counts one-third of the township population and adds that number. Of course, the dangers of error in such a system are many, for population is not distributed uniformly, and it has been proven earlier that areas within the Forest are less densely populated than those outside.

Since the above method cannot but contain inaccuracies, another method has been used to compute the Forest population. The total population was calculated by multiplying the census figure for the average number of people living in an establishment by the number of permanent establishments in a portion of the township within the Forest. The number of establishments in the Manistee had already been computed, and therefore it was only necessary to correlate this information with the census figures.

The population of the Forest was computed for each ten-year period from 1930 through 1960. To do this, the number of people in each township lying wholly within the Forest was first listed under the county in which they

resided. For townships situated partly within the Forest, the population was computed by multiplying the number of establishments enumerated in the part of the township within the Forest by the census figure for the average number of people living in establishments.<sup>31</sup> These computed figures, for townships lying partially within the Forest, were then added to figures of townships wholly within, giving a total population for each county in the Forest (Table 8). A major weakness in this method is that the figures for number of establishments come from only two time periods, the 1940's and the 1950's. In order to compute the residents for townships partly within the Forest for 1930 and 1960, it was necessary to use the number of establishments counted in the 1940's for 1930 and the 1950's for 1960. It has already been proven that the number of residences is changing in the Forest, increasing from the 1940's to the 1950's. If this increasing trend was constant for the four ten-year periods, then the figure for 1930 is too large and that for 1960 is too small. Despite this obvious weakness, the figures

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<sup>31</sup>U. S. Department of Commerce, Bureau of the Census, The 1950 Censuses -- How They Were Taken, procedural Studies of the 1950 Censuses, No. 2, Washington, D.C., 1955.

TABLE 8

THE POPULATION OF THE MANISTEE NATIONAL  
FOREST BY COUNTY  
(1930 - 1960)

County	1930	1940	1950	1960
Lake	2,602	3,116	3,855	3,938
Manistee	1,194	1,417	1,436	1,599
Mason	1,869	1,888	1,619	1,692
McCusta	445	467	520	517
Mountcalm	168	174	189	198
Muskegon	899	1,256	1,801	2,992
Newaygo	8,857	8,460	9,000	8,735
Oceana	3,115	3,377	3,525	3,661
Wexford	2,145	2,699	2,634	2,644
TOTAL	21,294	22,854	24,579	25,976

arrived at are meaningful as they form a general picture of what is happening to the total population of the Manistee.

### Population by County

The portion of Newaygo County within the Forest is the most populous of any area in the Manistee, having more than twice as many people as the portion of Lake County within the Forest, which ranks second. Mountcalm County, with less than a full township inside, has the smallest population. The number of people in the portion of each county within the Forest is in general holding stable or increasing slightly. The exceptions are Mason County, which lost population (Table 8), and Muskegon County, which has increased.

The total population of the Manistee was estimated to be 25,976 in 1960. In summer the number increases, since summer residents, tourists, campers, and other non-permanent citizens swell the population. The permanent population has increased at the rate of six to seven percent for each ten-year period since 1930. While this increase is slow, it is nevertheless steady and consistent.

If the total population of the individual counties making up the Manistee is considered, regardless of the Forest boundaries, it can be seen that the rate of total population increase is greater than that of the portion of the counties within the Forest. The population of the counties touching on the Forest has been increasing at a rate of about fourteen to fifteen percent for each ten-year period since 1930, or about twice as fast as the Forest population. This comparison, however, is unrealistic, since the major urban areas of these counties lie outside the Forest, and some of these counties barely touch the Forest.

Another interesting point is that the Forest Service has been acquiring more land within the Forest boundaries each year since the establishment of the Manistee. Over this same period, the population of the Forest has been increasing; therefore, a larger number of people have been concentrated on a smaller amount of private land inside the Manistee.

#### Population by Forest Ranger Districts

There are four Ranger Districts within the Manistee. They are named for the cities where the ranger



district headquarters are located. Other aspects of these districts will be discussed in greater detail in the following chapter. Only population figures are of concern here.

The White Cloud District, which is the largest and southernmost of the four in the Manistee, has the largest share of the Forest population, almost sixty percent (Table 9). The Baldwin District, just north of the White Cloud, covers the central portion of the Manistee and is the second largest district, with about twenty percent of the population. The other two districts, in the northern part of the Forest, have about ten percent of the people, and are about equal in size. These statistics show that the Forest population is not evenly distributed, almost sixty percent being concentrated on slightly more than one-third of the Forest area in the southern portion (Table 9). Of course, there are areas in the southern portion where large blocks of land are in public ownership and on which the population is very sparse. But in general it can be said that the farther north one progresses the more sparsely settled the Forest becomes.

TABLE 9

POPULATION WITHIN THE MANISTEE NATIONAL FOREST  
BY FOREST RANGER DISTRICT

Forest Ranger District	1930	1940	1950	1960
<u>White Cloud</u>				
Total Population	12,442	12,573	13,915	15,183
Number Change	--	131	1,342	1,268
Per Cent Change	--	1%	10.7%	9.1%
Per Cent of Total Forest Population	58.4%	55%	56.6%	58.5%
<u>Baldwin</u>				
Total Population	4,130	4,882	5,330	5,323
Number Change	--	752	448	-7
Per Cent Change	--	18.2%	9.2%	-.13%
Per Cent of Total Population	19.4%	21.4%	21.7%	20.5%
<u>Cadillac</u>				
Total Population	2,240	2,835	2,770	2,795
Number Change	--	595	-65	25
Per Cent Change	--	26.5%	-2.2%	.9%
Per Cent of Total Population	10.5%	12.4%	11.3%	10.7%
<u>Manistee</u>				
Total Population	2,482	2,564	2,564	2,567
Number Change	--	82	0	111
Per Cent Change	--	3.3%	0	4.3%
Per Cent of Total Forest Population	11.7%	11.2%	10.4%	10.3%
Total Population	21,294	22,854	24,579	25,976
Number Change	--	1,560	1,725	1,397
Per Cent Change	--	7.3%	7.5%	5.7%

Land Use

Population and land use are closely related and because there is a larger concentration of people in the southern end, a change in land use would be expected between the southern and northern portions of the Forest. In fact, this change does occur. Cleared land exists throughout the Forest, but tends to cluster where farming still persists, especially close to the eastern, southern, and western borders (Fig. 17). In the southwestern corner of the Manistee, a zone of heavier soils crosses the Forest from the southeast (Fig. 8). This is definitely the largest area of agricultural activity within the Forest. The federal government owns much more land in the northern and central portions of the Manistee than it does in the southern portion. It is on these federally-owned lands that real forested areas exist, although there is a movement within the Manistee for more of the private land to be planted in trees.<sup>32</sup> When climbing a fire tower in the northern section of the Forest, one is offered an almost

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<sup>32</sup>The Ingham County News, 16 May, 1962. The Consumers Power Company of Michigan planted 750,000 red (Norway) pines in 1962, part of a continuing program in operation since 1924 in which more than 23 million trees have been planted.

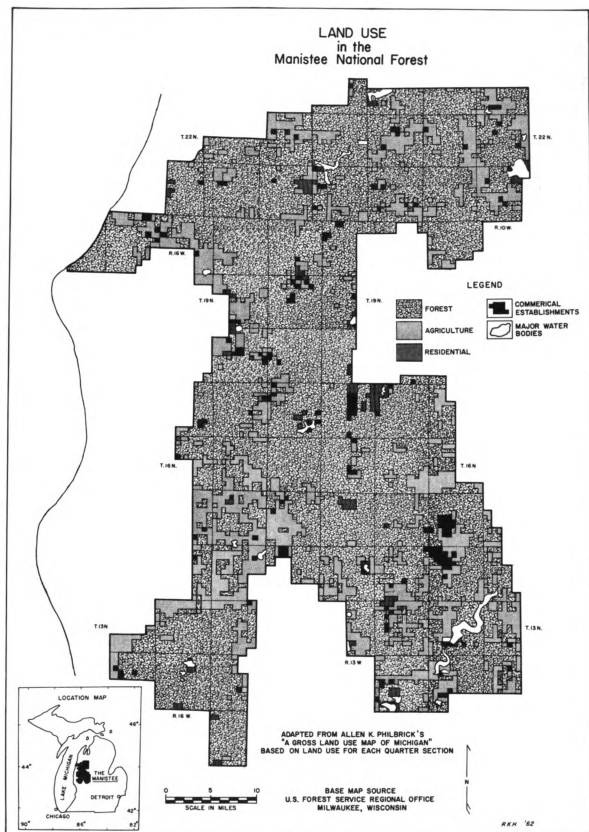


Fig. 17

unbroken panorama of second growth forest, sprinkled only here and there with small clearings (Fig. 18). The same view from a fire tower in the southern portion shows large blocks of timber, also, but these blocks may be surrounded, interrupted, or interspaced with equally large clearings. By and large, these clearings, both in the north and in the south, are areas of farming on better soils, or they are private holdings that were cleared in the past and that have not been replanted in trees.

Forest is by far the dominant land use in the Manistee, more so in the north portion, though, than the south. Agriculture is the second predominate type of land use, farms being scattered in clumps located mostly in the southern portion or along the borders. While these two types occupy the greatest area, the most conspicuous type of land use is for recreational purposes. In driving about the Forest one constantly encounters signs extolling the virtues of fishing camps, summer resorts, road houses, restaurants and all other types of facilities making up a resort area. More income is brought into the Forest by recreation than by timber and agricultural production combined.



Fig. 18a A View Looking West  
From the Irons Fire Tower  
(Note the Small Clearing)

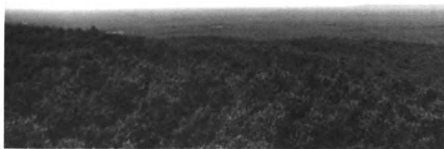


Fig. 18b A View Looking South  
From the Irons Fire Tower

Recreational land use in the Manistee is so important to private individuals that it seriously hampers multiple use practices of the Forest Service in providing recreational opportunities. The recreation map in the back cover shows net acreage in dark green, and private land as white. The map reveals that the net acreage is scattered in blocks and clumps, concentrated in the north and central part (Fig. 19). The lakes and larger streams stand out in a band of white. The land around the lakes and along streams is predominantly in private ownership. Land in close access to water is considered prime recreational land, or land which has a higher value because of the recreational opportunities it offers. The Forest Service owns very little of this prime recreational acreage. Because one of the duties of the Forest Service is to provide recreational opportunities within national forests, they should own much more of this prime land.

Within the Manistee, most of the land around the lakes has been divided into lots and sold to private individuals for summer cottage sites or summer resorts. Some lakes have cottages almost side by side around their entire shoreline. Most of the land along the larger streams is owned by the Consumer's Power Company, or by wealthy

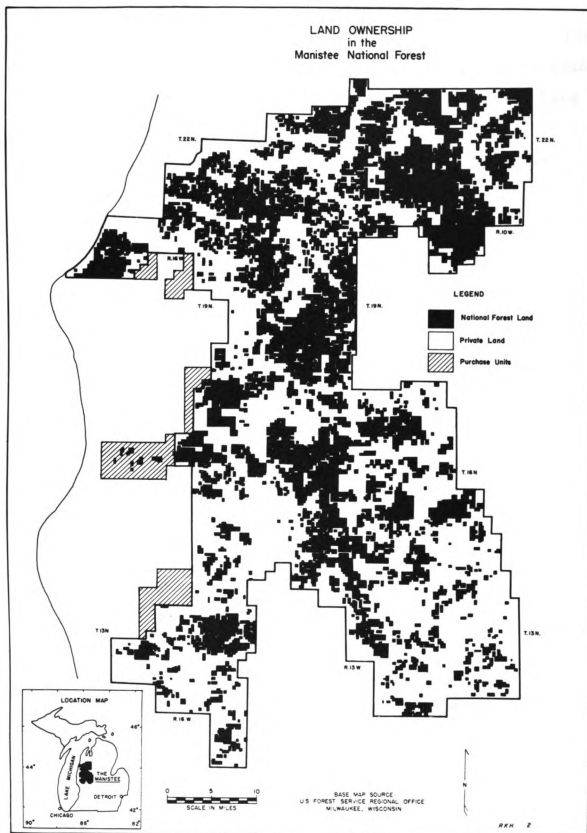


Fig. 19



individuals who have purchased large blocks of river frontage. The concentration of this prime recreational land in the hands of a few private individuals creates a problem of access to these sites. The Forest Service recognizes the need for more land that will provide access to water, but such land is seldom for sale, and if it is offered for sale the limited size and high price makes purchase by the Forest Service prohibitive. In simple words, the recreational value of the land with access to water is so high that it has not become publicly owned. If any land is offered for sale, it is immediately purchased by private individuals. However, the demand for land with access to water has led to the over-development of most of the lakes and streams within the Forest. This over-development has destroyed the very quality that attracted people initially. Perhaps in the future these lakes and sections of streams may be abandoned, as they become even more overcrowded. Then the Forest Service may be able to obtain the land and start restoring some of its natural beauty. But this distance in time is beyond the range of a single individual, and only a public agency such as the Forest Service can patiently wait for restoration.

The net acreage in national forest land in the Manistee is open to the public for camping, hiking, hunting, and fishing, except for a few restricted areas, or during times of extreme fire danger. Figure 20 shows two of these types of recreational uses. In addition to this almost unlimited access to the land, the Forest Service provided fifteen improved campgrounds and two picnic areas, all with access to water.<sup>33</sup> There are also two special use permits which have been issued for the establishment of two winter sports areas by private groups.<sup>34</sup>

By law, the Forest Service must provide opportunities for recreation, and while those listed here for the Manistee may sound adequate, they are severely overcrowded during the summer months. The Forest Supervisor has recognized the need for new recreational sites and the improvement of existing facilities, though their

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<sup>33</sup>Improved campgrounds are provided with water, garbage disposal cans, fireplaces, tables, and outdoor toilets. They are cleaned and maintained by the Forest Service and may be used for no charge by the public.

<sup>34</sup>Special use permits are granted by the Forest Service to private individuals, groups, companies, or other public agencies to use national forest land for special purposes. For example, a power-line crossing national forest land must have a special use permit.



Fig. 20a Canoeing the Pine River



Fig. 20b The Pines Point Campground  
on the White River

development has been hampered by an inadequate budget.<sup>35</sup>  
More recently, with more money available, the Forest Service has again begun to move ahead with recreational development plans.

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<sup>35</sup>L. A. Pommerening, op. cit.

## CHAPTER IV

### THE POLITICAL AREA ORGANIZATION OF THE MANISTEE NATIONAL FOREST

The organization of the Manistee National Forest by the Forest Service is one of two types of organization with which this study is concerned. It is public, and is carefully planned. It has been professionally developed, and tried in the field in the administration of our national forests. Where it has been found lacking, it has been adjusted to correct defects which might have weakened its proper functioning. It is part of the systematic organization of every national forest in the country. As such, it is an example of the administrative area organization by fiat which is typical of political area organization. This type might be compared to a pre-cut garage, where two separate builders following the master plan for the garage would construct a building similar in appearance, detail, and function.

#### The Overall Organization of National Forests

The Forest Service, a division of the Department of Agriculture, has headquarters in Washington, D. C., and

is responsible for administering the national forests of the United States. As in any agency responsible for administering large areas over great distances, the Forest Service has developed various levels of organization.

The highest of these levels is the nation as a whole. In turn, the nation is divided into ten regions. Each region has a number of national forest supervisor's headquarters. The headquarters may administer one or more national forests. Each forest is divided into ranger districts, and each ranger district has numerous fire wardens. This discussion will start with the lowest level, developing the framework of organization in an orderly sequence from the lowest level to the top.

#### The Basic Unit

The basic unit in the organization of a national forest is the fire warden. Fire wardens are not members of the Forest Service, but are private citizens appointed by the district ranger to help in fire control. They provide a contact between the public and the Forest Service, help the district ranger maintain control over his district, and perform many other necessary functions.

The Forest is divided into four ranger districts, unequal in gross area. In driving through the Manistee, it becomes evident that the area of each of these districts is very large. Table 10 discloses that the White Cloud District, for example, has a gross area of 467,403 acres, and is interrupted by private lands outside the Forest boundaries, thus increasing the distance that must be traveled to visit remote parts. The district ranger's time is taken up in paper work, professional and civic meetings, and talks and field work, such as timber sales and fire suppression. With time at a premium, it may be weeks or even months before the ranger or any of his staff is able to visit far corners of the district. The district ranger maintains close contact with the district through the basic unit, the fire warden.

#### The Fire Warden

The fire warden is not a full-time employee of the Forest Service. In fact, he receives pay only for those times when he is actually engaged in fighting a forest fire. He is an interested, responsible, private citizen, usually a property owner, who lives in, or very close to, the boundaries of the national forest.

TABLE 10

THE GROSS AND NET AREA, POPULATION, AND MAJOR PROBLEMS  
OF THE MANISTEE NATIONAL FOREST RANGER DISTRICTS

	DISTRICT			
	White Cloud	Baldwin	Manistee	Cadillac
<u>Gross Area</u>				
Acres	467,403	346,655	238,475	202,322
Per Cent of Gross Area	37.2	27.6	19.0	16.1
<u>Net Area</u>				
Acres	101,486	139,032	94,797	111,828
Per Cent of Net Area	22.7	31.1	21.2	25.0
<u>Population</u>				
Total	15,183	5,323	2,675	2,795
Per Cent of the Manistee	58.5	20.5	10.3	10.7
<u>Major Problems</u>				
(In order of their importance to the District)	Scattered Ownership	Population Problems	Fire	Population Problems
	Lack of Ownership	Fire	Scattered Ownership	Fire
	Population Problems	Lack of Markets for Low Grade Timber	Soil Depletion	Lack of Markets for Low Grade Timber



At first glance it would seem that private citizens should be excluded from the Forest Service organization. But it is the warden who provides the whole national forest system with contact between the political, economic, and social organizations existing side by side with the Forest Service organization. It is the fire warden who provides the Forest Service with basic information about resources, people, and attitudes in his area of the district.

Besides being a personal link between the Forest Service and the public, the fire warden is delegated authority to issue burning permits. It is unlawful to start a fire in a national forest outside of designated camping areas without first obtaining a burning permit. This is true even for private land within the forest boundaries. The reason for this is obvious, for during very dry periods, when the fire towers are being manned, any smoke sighted in an area where a fire permit has not been issued would be reported as a fire out of control. Another reason for issuing burning permits is that the very process of obtaining a permit makes a person more conscious of the need for care in controlling the fire. And, of course, during times of extreme fire danger when the Forest is very dry burning permits can

be refused, thereby reducing the risk of fire getting out of control.<sup>1</sup>

By delegating authority to the fire wardens to issue burning permits, the district ranger decentralizes this activity. With fire wardens scattered throughout the district (Fig. 21), individuals do not have to travel great distances to secure burning permits. If this authority were not delegated, each person wishing to obtain a permit would have to travel to the district headquarters, which might create hard feelings and establish the habit of neglecting to secure a permit.

Fire wardens have no prescribed area in which they can issue burning permits. One issued by a warden is valid anywhere in the district. The warden simply sends the time, date, and location of the proposed fire to district headquarters. The fire warden's home is his office, and normally the area in which he issues permits extends for several miles around this point. A person seeking permission to start a fire may travel a greater distance in a certain direction simply because the road

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<sup>1</sup>Interview with Dave Cline, Assistant Ranger, White Cloud District, Manistee National Forest (1962), who provided most of this information on fire wardens.

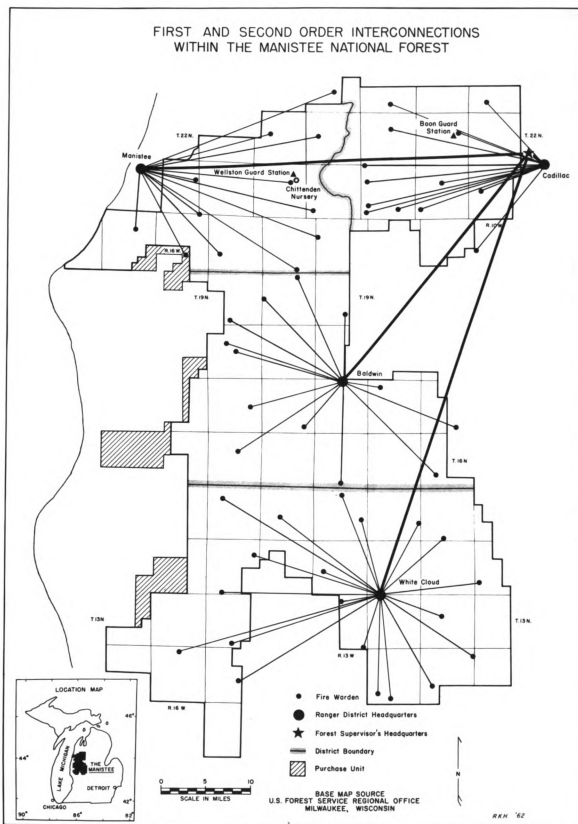


Fig. 21

is better, or because he knows a warden personally.

The fire warden is also given the authority to fight fires. Each warden organizes a fire fighting crew from his local area. When a fire is reported in the vicinity, he notifies his crew, which is made up of other local residents. They, in turn, assemble at his home, where a cache of tools is stored. The warden notifies the district ranger, who dispatches the regular district fire fighting crew if assistance is necessary. The warden and his crew are paid for the time they spend fighting the fire.<sup>2</sup> The authority delegated to the fire warden, together with his influence, is in turn disseminated throughout the surrounding area and to the people who make up his fire fighting crew. According to Kimball, then, the appointment of fire wardens is the "basic step" necessary in any form of land use planning or organization.<sup>3</sup> This basic step is the involvement of the local people in the planning and organization of the area in which they live.

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<sup>2</sup>Dave Cline, op. cit.

<sup>3</sup>William Kimball, contents of a lecture on Land Use Planning, Course in Land Use Planning 815, Department of Resource Development, Michigan State University, East Lansing, Winter, 1961.

### Selecting the Fire Wardens

There is no prescribed number of fire wardens for a ranger district. The ranger may appoint as many as he sees fit. Certain factors, however, control the approximate number required. For example, the gross area of the district will be taken into consideration. The number of people living in a district will also be a factor. If the population of a district is small, the number of interested local people will be reduced. There will thus be fewer conscientious people available to form a fire fighting crew, but there also may be less incidence of fire, or demand for burning permits. The number of wardens necessary in such a district would be reduced. The ranger tries to make appointments in such a way that no large area of the district is without a fire warden. Of course, local population distribution and numbers are always considered.

The qualities the ranger looks for in a fire warden have been touched upon above. He must be interested in the Forest, and possess qualities of leadership, or at least be well known in his immediate area. He must have a feeling for conservation, and he must get along with

people, for his duties as warden will bring him into contact with them in great numbers and variety. Persons wishing to secure burning permits must come to his home or place of business, which sometimes happens at awkward or inopportune times. While a fire warden receives no pay for his duties, he is not completely without compensation. The Forest Service erects a large, attractive sign near the warden's home, proclaiming him a national forest fire warden. The cache of fire fighting tools is in a nearby conspicuous shed (Fig. 22). Once a year, the wardens and their crews gather together for a dinner, where they are shown movies on fire fighting techniques, and here they have a chance to meet with other wardens and Forest Service personnel. All of this lends a certain prestige and importance to the position.

#### The Organization of the Fire Wardens in the Manistee

Figure 21 has been prepared to show the location of the fire warden sites. These locations are nodal points interconnected to district ranger headquarters by lines of communication and transportation.<sup>4</sup> The station headquarters

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<sup>4</sup>Allen K. Philbrick, "Principles of Areal Functional Organization in Regional Human Geography," Economic Geography, Vol. 33, No. 4, October, 1957, p. 305.



Fig. 22a Fire Warden Sign



Fig. 22b Tool Shed Where Fire Fighting Equipment is Cached

becomes the focal point on which each of these nodes is focused.<sup>5</sup>

The White Cloud Ranger District on the southern end of the Manistee has a typical star-shaped cluster of nodal points surrounding it, somewhat off-centered to the east due to the interjection of the enclave of private land between its two southward extending appendages (Fig. 21). It should be pointed out that the map does not show every fire warden for each district. The number of wardens varies as from time to time some die, move away, lose interest, or simply no longer have time to keep up their duties. The dots listed are those for the wardens who were most active and reliable at the time of the interview at district headquarters.

The Baldwin District, just north of the White Cloud, occupies the center of the Forest. It also has a star-shaped cluster of nodal points around it, but the northeast quadrant of the cluster is missing. Baldwin is located on the eastern edge of the Manistee, or the southern corner of the enclave of state forest land which extends into the Manistee from the east. No Forest Service

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<sup>5</sup>Ibid., p. 303.



wardens are needed in this northeast sector, which is not in the national forest.

Both the Manistee and Cadillac Districts cluster of nodal points focus in a single direction, to the west for Manistee, and to the east for Cadillac. This is due to the respective locations of the district headquarters, adjacent to the western and eastern edges of their districts (Fig. 21).

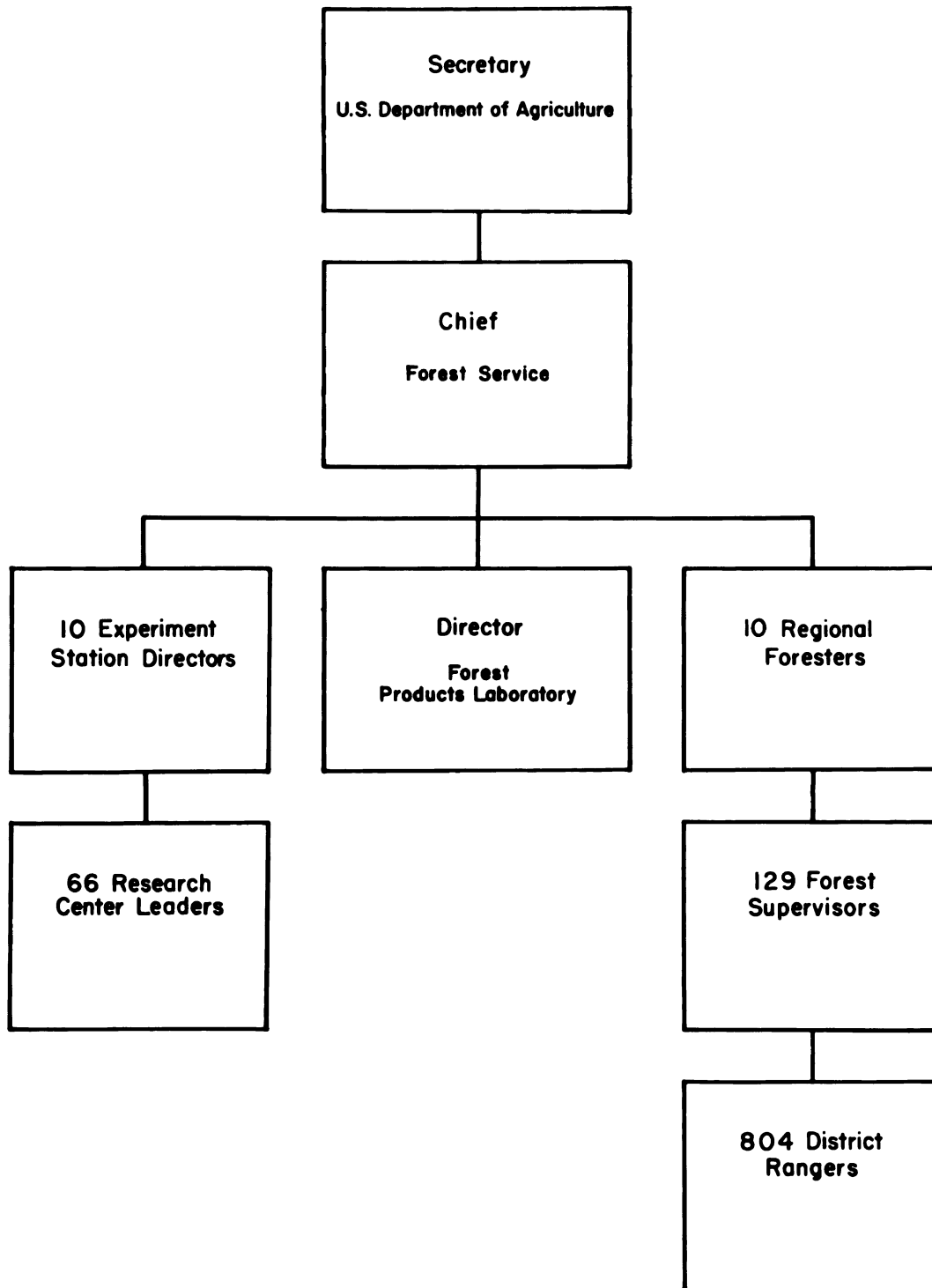
#### Forest Ranger Districts

The forest ranger district is the next step in the hierarchy of the organization of national forests, and is the first official level recognized by the Forest Service. Line authority leads from the district ranger up through to the Chief.<sup>6</sup> At present, there are 804 ranger districts in the Forest Service organization (Fig. 23). The Forest Service considers the district ranger a resource manager, because it is he who implements the policies initiated in upper echelons. It is obvious that with 804 individuals scattered across the country in remote regions, some method of coordination is needed to

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<sup>6</sup>Herbert Kaufman, op. cit., p. 41.

## FOREST SERVICE ORGANIZATION LINE OFFICERS



*R.K.H.'62*

Fig. 23

enable the district ranger to make decisions that are not contrary to the aims of the Forest Service as a whole.<sup>7</sup> The ranger has the Forest Service Manual and Handbook to use as a guide in making his decisions. This seven-volume book comes in two parts, one which sets forth basic policy for the entire Forest Service, and one which tells the ranger in great detail how he must carry out this policy.

#### Size of Ranger Districts

As can be observed in Table 10, districts vary in size. The Cadillac District, for example, contains slightly more than 200,000 acres. This is the smallest district. The White Cloud contains well over 400,000 acres, more than twice the number in the Cadillac. Size of a ranger district, however, as used by the Forest Service refers to volume, complexity, and diversification of workload, as well as acreage.<sup>8</sup>

At one time, there were five ranger districts in the Manistee. But the workload for each was so small that one district was eliminated and its area incorporated into the remaining four districts. More recently there has been

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<sup>7</sup>Ibid., p. 91.

<sup>8</sup>Forest Service Manual, op. cit., 1323.51, Amended, March, 1962.

an adjustment in the boundaries of the four remaining districts; the size of the White Cloud District was increased while the others were reduced in area.<sup>9</sup>

Authority to change the size of a district is vested with the regional forester, a still higher step in the Forest Service organization. Districts may be combined or boundaries shifted to spread the work load.

While there is a great discrepancy in the gross acreage of the four districts in the Forest, their net acreage is much closer in both size and per cent of the total net acreage (Table 10). Because the Forest Service bases the size of a district on work load as well as area, these areas are more similar than would appear from their gross acreage. The White Cloud District, the largest in gross acreage, is one of the smallest in net. The net acreage, though, is dispersed, which makes administration more difficult. These factors combine to make the work load equal to that of the other ranger districts in the Forest.

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<sup>9</sup>L. A. Pommerening, op. cit.

### The White Cloud District

Within each ranger district some regionality can be observed. The most acute problem in the White Cloud is the scattered ownership of the scant acreage under the control of the Forest Service. At the same time, this district has a larger population than any other, and it is located closer to the large population centers in southern Michigan. It also has more and better roads, which provide better access for visitors, than any other district. It is made up of parts of five counties, and because the Forest Service must operate in conjunction with local governments, this intermeshing of local political and forest authority causes occasional trouble.<sup>10</sup> For example, one county passed a resolution against pine release by the Forest Service.<sup>11</sup>

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<sup>10</sup>Dave Cline, op. cit.

<sup>11</sup>Pine release is the killing or harvesting of other tree species to allow pines planted beneath them to mature more rapidly. Some local residents believe that acorns from oaks annually provide valuable food for deer. They feel that the removal of these oaks would seriously deplete the local deer herd.

This district, located closest to population centers, has the fewest and most poorly developed recreational sites within the Forest. The White Cloud has more agricultural area, more cleared land, and is lower in elevation than the other three districts. There is also very little jack pine here, as the Lake County-Newaygo County line is about the southern limit for this species.

#### The Baldwin District

The Baldwin District is the most centrally located of all the ranger districts in the Forest. It has the largest amount of net acreage, and has the largest volume of timber sales each year. The most pressing problems in this district are those associated with people, and their use of the Forest. Fire is the second most important problem, and finding a market for low-grade timber which grows in abundance within this district is next in importance. The district has few well-developed public recreational sites, although there are many private sites which have been developed. There is easy access into the area, as Baldwin is situated at the crossroads of two major highways and is a division point for the C. and O. Railroad.

### The Manistee District

The Manistee District is situated in the northwestern portion of the Forest. It is the only one that touches on Lake Michigan. The Manistee District has the smallest amount of net acreage, and this acreage is very scattered and dispersed. This ranger district has developed a record for the fewest number of fires. Despite this record, however, fire is still considered the number one problem there. This is because of the flat terrain and the large number of maturing pine plantations which would make a fire almost impossible to control if one started. To add to the problem of fire hazard, there are the large number of both public and private recreational sites which attract many visitors. According to the district ranger, the dispersed ownership is the second most pressing problem.<sup>12</sup> Access to, and administration of, national forest land is very difficult. Another problem common to all districts, but especially troublesome in the Manistee District, is the depleted condition of the

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<sup>12</sup>R. E. Larson, op., cit.

soil which makes it very difficult to grow trees of high quality.

Because the headquarters for the district is situated at Manistee, which is outside the Forest, a central work point, called the Wellston Guard Station, has been established at Wellston, located on Highway M-55 (Fig. 21). At this point, the Forest Service has concentrated equipment, vehicles, and supplies in sheds, garages, maintenance buildings, and work shops. There are a number of residences here for use by some of the personnel assigned to the district. While the administrative focal point of the district remains at Manistee, the focal point for work, fire fighting, and maintenance is centered at Wellston. Thus the Manistee District has dual focal points. From this fact it can be concluded that the Forest Service finds it easier to move men than it does equipment to and from the District.

The Manistee District also is well known for the Chittenden Nursery, located just outside Wellston, named for Professor Alfred K. Chittenden of Michigan State University (Fig. 24).<sup>13</sup> The nursery has supplied over 300

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<sup>13</sup>U.S. Department of Agriculture, Forest Service, Chittenden Nursery, Wellston, Michigan.





Fig. 24a Pine Seedlings  
at the Chittenden Nursery



Fig. 24b Pine Plantation  
From Chittenden Nursery Stock

million trees for use in national forests throughout Region Nine, linking by this service the products of this district and the Forest to every other national forest in the Region.<sup>14</sup>

At the same time, there are several research projects which are being conducted in the District by the Lake States Experiment Station. This work in turn links the District and the Manistee National Forest to the rest of Region Nine.

#### The Cadillac District

The Cadillac District is situated in the northeast corner of the Forest. It is the smallest district in gross acreage in the Manistee, but ranks second in the amount of net acreage. The major problems of the Cadillac District are those associated with people living in and using the Forest. The next most serious problems here are fire, and a lack of markets for the low-grade pines which also grow here in abundance. There are several public and a number of private recreational sites in the District, but again a difficulty in the development of more recreational area is the lack of government owned sites near

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<sup>14</sup>Ibid.

bodies of water. The area has few lakes, and the land along the major streams is privately controlled by Consumer's Power Company. The Cadillac District has a guard station located at Boon, which gives this district a dual focus, as was true of the Manistee District. There is easy access into the District by three major highways and the Ann Arbor Railroad.

#### The District Headquarters as a Focal Point

It is clear that the district headquarters is the focus for each ranger district in the Manistee National Forest. Administrative direction and decisions on management of timber, establishment and maintenance of recreational sites, manning of fire towers, purchase of land, and management of wildlife originate from these headquarters. The district is organized around this central place, looking to the personnel for guidance and leadership. The district occupies the second order in the hierarchy of organization developed by the Forest Service, and is the first order officially recognized. But the district is only a part of the Forest as a whole, and each of these focal points, district headquarters, is in turn centered upon

a still higher focal point, which becomes the third step in the Forest organization.

### The Manistee National Forest

The Forest Service manages a national forest as a single unit, a unit usually having some physical basis which makes it a homogeneous area. For example, the Manistee National Forest is an area of lighter sandy soils of little value for agriculture. Because the Forest boundaries cut across political boundaries, the Forest becomes a natural region which could be compared to a drainage basin. Indeed, some national forests do occupy drainage basins.

The job of the Forest Service in managing this physical unit is really very much like that of a regional planning commission, with all the inherent problems that go with planning for a region composed of diverse areas and occupied by a diverse group of people.

Planning for the Manistee originates at the forest supervisor's headquarters in Cadillac. Here the grand strategy and major policy decisions for the Forest as a whole are made. These strategic decisions are passed

down to district headquarters where the tactical decisions are made on how policy should be implemented in the field. While broad policy decisions are made for the entire Forest, the basis of these decisions is the multiple use plan which is compiled at each ranger district, usually for a five-year period. The multiple use plan prepared by each district ranger must be approved by the forest supervisor. This plan makes available to supervisory personnel, at the forest level, the wide range of diverse facts which are necessary for the formulation of overall Forest policy. Forest policy is based on peculiarities and diversities of the districts, as reported by the men who are in contact with them at working levels. National forest planning is at once regional and local, depending upon the point from which it is viewed.

The forest supervisor's headquarters provides administrative and specialized technical skills which may be needed in the various districts of the Forest. The supervisor's headquarters becomes the focal point for each district, and lines of interconnection focus on these headquarters from each district (Fig. 21). The lines are maintained by two-way, open system radios located in the headquarters of each district, and in some of the mobile units

used by Forest Service personnel. Radios are on during all hours of the working day, and any message broadcast to a particular district can be heard by all other districts. Thus all districts are tied together within the Forest; any order, question, or command is heard forest-wide. There are other types of interconnection besides the two-way radios, such as directives, regular meetings, inspections, and reports, which serve to maintain contact between these two levels of organization.

#### The Forest Supervisor

According to the Forest Service Hand Book, the forest supervisor is a manager, responsible for quantity and quality of work performed by the organization under his charge.<sup>15</sup> At present, there are 129 forest supervisors in the national forest service.<sup>16</sup> A supervisor's headquarters may consist of one national forest or possibly two if their individual workloads are small. The headquarters is staffed with a clerical force and a variety of specialists who are

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<sup>15</sup>Forest Service Hand Book, op. cit., 1334.22, Amended, March, 1962.

<sup>16</sup>Letter (1962) from Bill Bergoffer, Division of Information and Education, Forest Service, Department of Agriculture, Washington, D.C.

trained in various technical skills which are in demand at district levels. For example, a specialist might be trained in wildlife management, or engineering of roads, recreational sites, or building construction.

Size of a national forest does not alone determine the rank or responsibilities of a forest supervisor. The Forest Service Manual clearly states that a national forest will be as large as is consistent with the ability of a forest supervisor to:

1. Maintain technical and administrative control of the work by personal review of each ranger's activities in the field at least semi-annually.
2. Personally coordinate the work of his technical staff and administrative personnel.
3. Maintain a thorough working knowledge of the economic, social, and political conditions and situations within his zone of influence.<sup>17</sup>

If a new forest is proposed, or if the work load becomes so heavy that it is deemed advisable to divide an existing forest, or if the work load is so light that two forests could be united under one administrative headquarters, then the necessary changes will be considered

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<sup>17</sup>Forest Service Manual, op. cit., 1323.3,  
Amended, March, 1962.

on the merits of each individual case.<sup>18</sup> Any changes in national forest boundaries, or the establishment of a new or elimination of an old forest, requires a presidential proclamation, the procedure of which is outlined in the Forest Service Hand Book.<sup>19</sup>

In summary, the forest supervisor develops long-range plans for the national forest under his care. But because he does not have as intimate a knowledge of the forest as the district ranger, his planning must be in participation with this lower level in the organization.

#### The Cadillac Forest Supervisor's Headquarters

The forest supervisor's headquarters at Cadillac is unusual because Cadillac is also a ranger district headquarters. One would think that these two offices should be housed in the same building, but they are not. The district headquarters is located in the downtown business district of the city, while the forest supervisor's headquarters is located several miles away in another building at the

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<sup>18</sup>Ibid.

<sup>19</sup>Forest Service Hand Book, op. cit., 1323,  
Amended, March, 1962.



edge of town. This is a good illustration of the separation of these two levels of the Forest Service organization. For reasons of economy, it does indeed look as if the two offices might be housed together. To keep the district an autonomous, independent, self-functioning unit, however, these two organizational levels are kept entirely separate. In Figure 21 the two levels are shown at an exaggerated distance apart to magnify the separation of these distinct focal points.

The Cadillac Forest supervisor's headquarters also administers the Huron National Forest on the eastern edge of Michigan. The Manistee and Huron National Forests, although separate and distinct units, are at the same time interconnected through the supervisor's headquarters. In their activities and through the forest supervisor's center, each of these forests is connected to the next level, the regional headquarters.

### The Region

According to the Forest Service Manual, there are no specific standards which determine the extent or

boundaries of national forest regions.<sup>20</sup> However, certain factors do influence the size of the present regions; they are not inviolate, and can be changed if the need arises. The overall forest service programs, national, economic, and cultural conditions, and consideration of effective operation would be prime factors in determining whether or not changes were needed in a national forest region.<sup>21</sup> Authority to make changes is vested in the Secretary of Agriculture.

The Forest Service tries to consider all the many variable principles and factors of fundamental organization in the establishment of a national forest region. The physiographic and natural forest regions are considered, as is the size of the area and the job load. But it is impossible for the Forest Service to separate completely these regions from state boundaries because of its cooperation with other federal agencies, many of which use state boundaries, and with the various state agencies with whom the Forest Service cooperates.<sup>22</sup> This is the reason that present regions do not conform entirely to natural forest regions, to physiographic provinces, or to state boundaries.

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<sup>20</sup>Forest Service Manual, op. cit., 1323.1, Amended March, 1962.

<sup>21</sup>Ibid.

<sup>22</sup>Bill Bergoffer, op. cit.

Broad policies for all national forests are developed by the Chief of the Forest Service. Within the framework of these policies, more specific policies, known as regional guides, are developed at regional levels.<sup>23</sup> These guides may be prepared for a whole region, or for only a sub-region, depending upon similarity or differences in existing conditions.

It follows, then, that every national forest is interconnected with the region in which it is situated because planning for an individual forest must remain within the framework of the overall guide. For this reason, no forest, no matter how remote, is isolated from the regional headquarters.

#### Experiment Stations and Research Centers

Existing at about the same level as regional headquarters, but in a different line of organization, are the ten experiment stations of the Forest Service. At a slightly lower level are research centers, of which there were sixty-six in 1959. At first glance it might seem as if each region would have an experiment station, but this

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<sup>23</sup>From a paper delivered by Edward P. Cliff on March 17, 1962, when he became Chief of the U. S. Forest Service.

is not the case. Regions One and Three do not have such stations, while Region Eight has two. There is also a tropical experiment station on the Island of Puerto Rico (Fig. 2). In general, experiment stations have been set up to coincide with major forest types, or physiographic provinces of the United States.<sup>24</sup> Approval for any changes in these stations is vested in the Secretary of Agriculture. The stations carry on research related to the five forest resources, timber, soil and water, range, wildlife, and recreation, and they also perform research on forest protection from insects, fire, and disease.<sup>25</sup> Research centers can be set up anywhere as long as the area is characteristic of the whole region, and is close to the problem under study.<sup>26</sup> The research centers are usually established in an area to study a specific problem; for example, an area infected with white pine blister rust might be designated as a research center. The assistant chief for research has power to set up or to move these centers.

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<sup>24</sup>Forest Service Manual, op. cit. 1323.2. Amended, March, 1962.

<sup>25</sup>Bill Bergoffer, op. cit.

<sup>26</sup>Forest Service Manual, op. cit. 1323.4 Amended, March, 1962.

There is one forest products laboratory, located at Madison, Wisconsin. This laboratory conducts research into new forest products and better ways of producing and using old ones.

### Region Nine

Each national forest region is administered from a regional headquarters. The headquarters for Region Nine is at Milwaukee, Wisconsin. There are fourteen national forests administered from ten national forest headquarters, each of which is focused on the Milwaukee headquarters. Lines of interconnection run from each of these ten national forest headquarters to the regional office (Fig. 25). These interconnections may be in the form of telephone conversations, directives, commands or questions sent by mail, meetings (at either the regional or the forest level) and inspections. The Manistee National Forest is interconnected to every other national forest in the region through the regional office. Region Nine, in turn, is interconnected to the next higher level in the organization of national forests by the Forest Service.

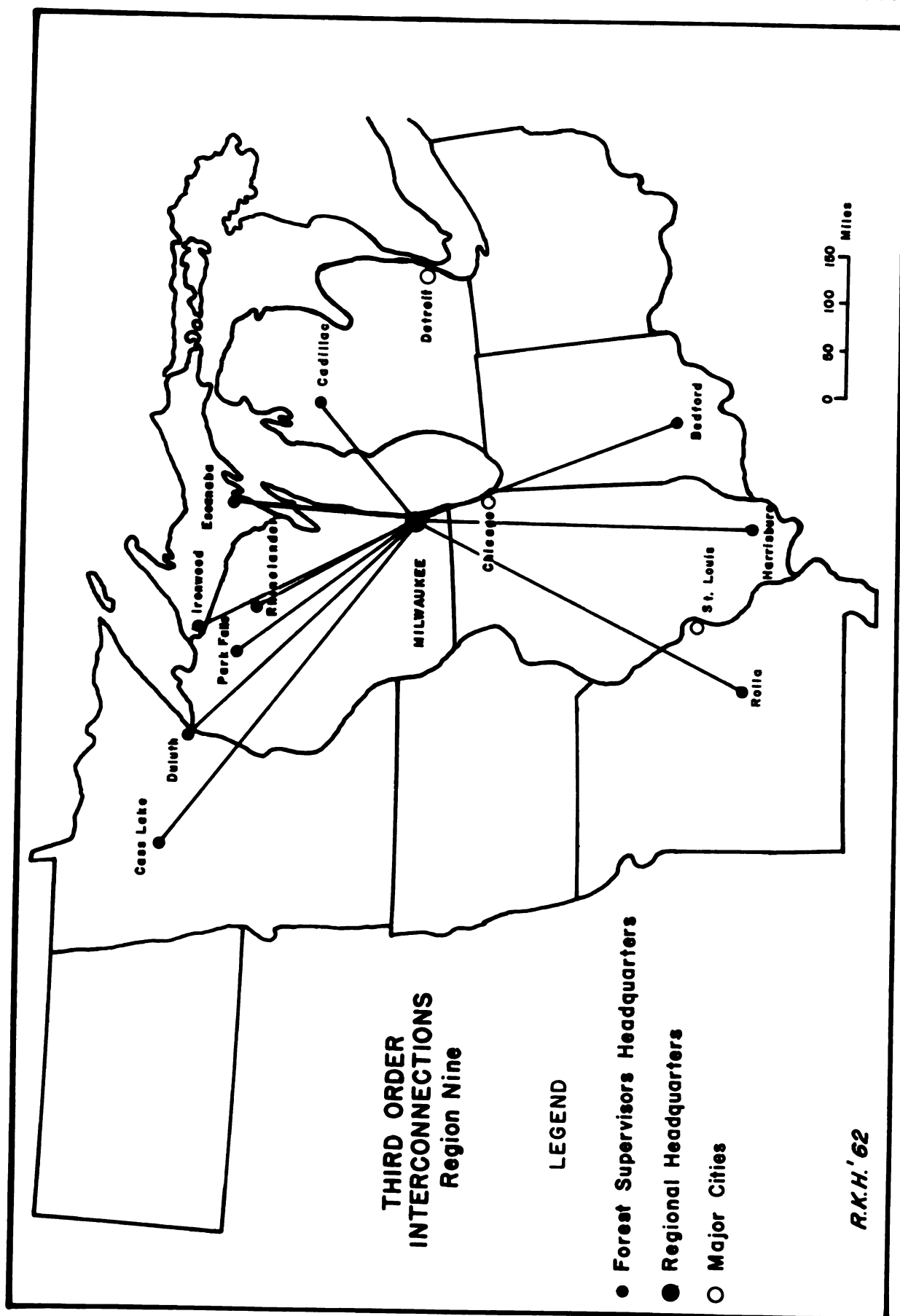


Fig. 25

## The Nation

As has been stated, the continental United States is divided into nine national forest regions, with Alaska making a tenth, and Puerto Rico, in effect, an eleventh. Within each region, the headquarters acts as a focal point, becoming the center of a star-shaped cluster of lines of communication from each national forest within the region (Fig. 26). In turn, each of the regional headquarters is interconnected to the Forest Service in Washington, D. C. It is from this headquarters that the broad programs for the entire Forest Service are administered and directed.<sup>27</sup> The Forest Service is a branch of the Department of Agriculture, with the Chief being responsible to the Secretary of Agriculture for its overall operation. Thus it is that any one of the four ranger districts within the Manistee National Forest is interconnected with, and becomes a part of, all of the various higher levels in the organization. A ranger district in the Manistee is both local or national in scope, depending upon the level in the hierarchy of organization at which it is observed.

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<sup>27</sup>Bill Bergoffer, op. cit.

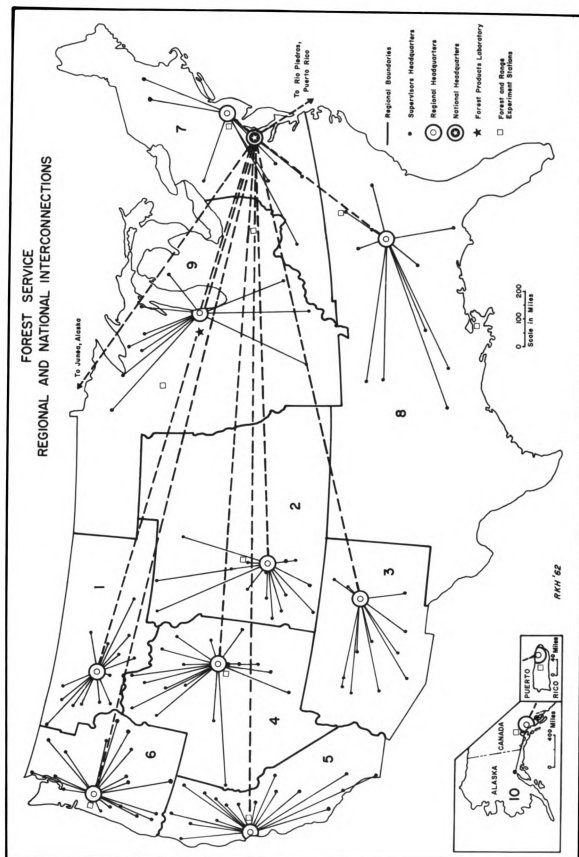


Fig. 26



### The Hierarchy of the Organization

This discussion has attempted to show the development of a pyramid-like structure interconnected by lines of communication and transportation. The first level, or base, is formed by the numerous fire wardens within each district, who focus on the district headquarters. There are many wardens in a national forest but only a few ranger districts, and each of these less numerous second levels of organization focuses on a single forest supervisor's headquarters at a still higher level. Each national forest headquarters within a region is focused on, and interconnected with, a single regional headquarters, the next higher level of the organization. Each of the ten regional headquarters has as a focal point the Forest Service Headquarters in Washington, and the Chief of the Forest Service. At the apex of this pyramid is the Secretary of the Department of Agriculture.

The base of the pyramid is the fire warden, the apex the Secretary of Agriculture, but it is clear that each higher level of the organization is made up of the more numerous levels below it. As in any organization, the higher the level the fewer the number of



positions (Fig. 23). The pyramid-like structure of the Forest Service allows basic policy directives to flow from the Chief to every national forest, and in the end to filter down to the basic unit. It is, in effect, an orderly hierarchial arrangement of levels of organization, which combined form the Forest Service.

As already stated, if the pyramid-like structure is viewed from the administrative end, the apex focuses on the Secretary of Agriculture. But this apex can shift from one end of the organization to the other. If the structure is viewed from the operational end, the apex is focused at the ranger district as the basic unit, with the whole massive complex machinery of the Forest Service, and numerous support personnel at each higher level, being brought to bear on this single point. The pyramid is then quite like an optical illusion; that is, it changes its apex depending upon the viewpoint.

This organization of the Forest Service is a deliberately planned, man-made, consciously directed hierarchy, which is well documented. While sharp lines of division separate each level of organization, the system is not mutually exclusive, because each higher level is composed of more numerous lower levels. The

organization is a systematic grouping of levels of responsibility and, as in any system conceived by man, the orderly progression from one step to another is clear-cut and well-defined. The system is easy to understand and comprehend, and its function can be clearly perceived.

#### The Result of Forest Service Organization on the Manistee National Forest

How does the Forest Service organization of the Manistee National Forest help to solve the problem of the double role assigned to forests by man? The greatest contribution is the application of the principles of multiple use and sustained yield to the forest. In the Manistee, the better agricultural land remains in farms, privately owned. Land can sustain only one type of use at a time, either agricultural crops, or timber. Although we have a food surplus now, our expanding population may need the food grown on these farm lands at some future time.

The lighter soils, which will not grow crops competitively with better agricultural areas elsewhere, will grow trees, and most of the Manistee has lighter soils. The Forest Service has planted trees and has

planned for the future through selective cuttings, with a program of sustained yield from these plantations in mind. While this forest is growing, it protects the watersheds of the river basins, provides homes for wildlife, and offers recreation for our increasing population.

In effect, the Forest Service is managing the renewable resources of soil, water, timber, wildlife and recreation on the poorer lands in such a way that the Forest is being used for a number of different purposes at the same time. Basically, the Manistee is producing forest products from the lighter soils in juxtaposition with the better soils, which are producing agricultural crops.

The answer to the question proposed at the beginning of this section leads to a series of other questions. What of the people who live in the Forest? How do these people earn a living while they wait for a forest to mature? Where do they get the food they need and the timber products they must have if the space of the Forest is occupied by a growing forest? To answer these questions we must turn to the economic area organization of the Forest.

## C H A P T E R    V

### ECONOMIC AREA ORGANIZATION OF THE MANISTEE NATIONAL FOREST

The second type of organization of the Manistee National Forest is economic. It differs from the first type, the political, in that it is private in nature and it is not so clearly defined, or planned. This type could be compared to two garages built from raw lumber, with the plans laid out only in the mind of the builders. The resulting structures would have the same function, but probably would be very different in appearance and detail. This method has developed by trial and error, and its variety of functions are grouped at various levels depending upon the area served. In order to understand the economic area organization of a national forest, it is necessary to understand how a forest is functionally organized.

#### 1. Areal Functional Organization

Scattered throughout the Manistee, as we have seen, are a number of establishments. These represent

human occupance, the basic unit and the first level of the economic area organization.<sup>1</sup> It is at this level that goods and services are consumed. An establishment can be a home, a farm, or a factory. In certain places establishments are clustered together into groups. Groups of establishments are called focal places.<sup>2</sup> Each focal place has a function which it performs in the economic organization of the area in which it is situated. Usually, as the focal place increases in size the number of functions it performs for the surrounding area increases. The hierarchy of functions which develop in each of these places has been noted by geographers in many different countries, and is considered to be fundamental to the understanding of regionality.<sup>3</sup>

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<sup>1</sup>Allen K. Philbrick, "Principles of Areal Functional Organization in Regional Human Geography," op. cit. p. 303.

<sup>2</sup>Ibid.

<sup>3</sup>Walter Christaller, Die Zentralen Orte in Süddeutschland, Jena, 1933.

August Lösch, Die räumliche Ordnung der Wirtschaft. Translated by W. H. Woglom and W. F. Stopler as The Economics of Location, New Haven, Yale University Press, 1954.

Hans Carol, "Das Agrargeographische Betrachtungssystem. Ein Beitrag zur landschaftskundlichen

As the number and kinds of functions increase in focal places, organization becomes more complex and these places assume a higher rank in the hierarchy.

The essential viewpoint of areal functional organization is that man has developed a pattern of human occupance by the application of human creativity in solving the problems of everyday living.<sup>4</sup> The basis for this viewpoint has been established in a number of works by R. S. Platt in which he has developed the elementary

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Methodik dargelegt am Beispiel der Vin Südafrika," Geographica Helvetica, No. 1, 1952, pp. 17-67.

J. E. Brush, "The Hierarchy of Central Places in Southwestern Wisconsin," The Geographical Review, Vol. 43, pp. 380-402.

E. L. Ullman, "A Theory of Location for Cities," American Journal of Sociology, Vol. 46, pp. 853-864.

B.J.L. Berry and W. L. Garrison, "Recent Developments of Central Place Theory," Papers and Proceedings of the Regional Science Association, No. 4, 1958, pp. 107-120.

B.J.L. Berry and Allen Pred, Central Place Studies: A Bibliography of Theory and Applications, Regional Science Research Institute, Philadelphia, Pennsylvania, Bibliography Series No. L, 1961.

<sup>4</sup>Allen E. Philbrick, "Principles of Areal Functional Organization in Regional Human Geography," op. cit., p. 303.



idea of focality.<sup>5</sup> However, it was Philbrick who expanded the idea of focality, showing that each establishment is interconnected, and that this interconnection leads to the evolution of areal units of organization which are larger and more complex and have more functions than the individual establishment.<sup>6</sup>

More recently, this concept has been applied by Bjorklund to a city and its surrounding region.<sup>7</sup> Brown has studied political activities, using areal functional organization, and has shown that the political organizations of the world constitute a hierarchy of areas and

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<sup>5</sup>Robert S. Platt, "A Detail of Regional Geography: Ellison Bay Community as an Industrial Organism," Annals of the American Association of Geographers, Vol. 18, 1928, pp. 81-126.

Robert S. Platt, "Field Study of Republic, Michigan, A Community in the Marquette Range," Scot. Geogr. Mag., Vol. 44, 1928, pp. 193-203.

Robert S. Platt, "Problems of Our Times," Annals of the American Association of Geographers, Vol. 34, 1946, pp. 1-43.

<sup>6</sup>Allen K. Philbrick, "Principles of Areal Functional Organization in Regional Human Geography," op. cit., p. 305.

<sup>7</sup>E. M. Bjorklund, Focus on Adelaide, Chicago: University of Chicago, Department of Geography, Research Paper 41, 1955.

functions.<sup>8</sup> Larimore has applied the concept of areal functional organization to a primitive settlement pattern in Uganda.<sup>9</sup> Masai has used this viewpoint to study two areas which developed under the impact of different cultural environments.<sup>10</sup> Most recently, Philbrick used this viewpoint as a basis for the development of a textbook on world regional geography.<sup>11</sup> It is revealing to apply the viewpoint of areal functional organization to this study of the Manistee, and to examine the method of organization which man has imposed thereon in trying to solve the double role assigned to forests.

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<sup>8</sup>R. H. Brown, Political Areal Functional Organization: with Special Reference to St. Cloud, Minnesota. Chicago: University of Chicago, Department of Geography, Research Paper 51, 1957.

<sup>9</sup>A. E. Larimore, The Alien Town, Chicago: University of Chicago, Department of Geography, Research Paper 55, 1958.

<sup>10</sup>Yasuo Masai, Lansing, Michigan and Sigzuoka, Japan: A Comparison of Areal Functional Organization in Two Different Environments, Doctoral Dissertation, Department of Geography, Michigan State University, 1960.

<sup>11</sup>Allen K. Philbrick, This Human World, John Wiley and Sons, Inc., New York, 1963.

### The Hierarchy of Economic Area Organization

Philbrick, in his work on the principles of areal organization, identified seven orders of levels.<sup>12</sup> These levels are not mutually exclusive, for each lower level makes up, or is a part of, a higher order. This system is sometimes called a nested hierarchy.

The first order, or lowest level, identified by Philbrick is the establishment. As defined, the establishment, which may be a home, farm, or factory, is the point where goods and services are consumed.

When groups of establishments begin to cluster together a focal place takes on the added area function of retailing both goods and services. This activity, or function, becomes the second order, or level, in the hierarchy of organization.

The third order is a cluster of focal places. At this level another function, that of wholesaling, may be isolated. This level is significant in this study because, although it is not strongly developed,

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<sup>12</sup>Allen K. Philbrick, "Principles of Areal Functional Organization in Regional Human Geography," op. cit., p. 331.

it is the highest order of economic area organization identified within the boundaries of the Manistee National Forest.

When two or more clusters of focal places grow together, a central place is formed. Central places become the fourth level in this hierarchy and take on the added function of transshipment. Transshipment, as used here, can be bulk breaking activities or regrouping of rolling stock associated with the transport of goods.

A group of central places becomes the fifth order and performs the exchange function. Philbrick defines exchange as the "bringing together of a buyer and seller without the physical handling of the items bought or sold."<sup>13</sup>

In certain large cities, concentration of economic power is centralized. This concentration of power in the form of common ownership, interlocking directorates, merged corporations, and spheres of interest, exercises control over large areas. This function, control, becomes the sixth level in the economic functional organization of area.

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<sup>13</sup>Ibid.

The seventh and last level in the hierarchy is that of leadership. Leadership is a nebulous idea, hard to map and analyze, but as used here it is a combination of economic control and power which gives direction and guidance to broad programs of the national economy. This is the level which "sets the economic pace" for all lower levels.

#### The General Pattern of Economic Organization

The general pattern of economic area organization in the Manistee is one of consumption and production, with the former more important than the latter. The people living and working in the Forest demand and consume the great array of goods and services that today are common to the American market. The most backwoods country store will offer for sale nationally-known products. Tropical fruits may be on sale, along with clothes from New York, drugs from California, hardware from Japan, and frozen foods packaged in Chicago. Products from everywhere in the country flow into the Manistee business establishments from centrally located points surrounding the Forest and interconnected to it by lines of transportation and communication.

While production of goods is not as important in the Forest as consumption, it nevertheless plays a significant role in the economy. The primary product of the Forest is "services," which are associated with the recreational opportunities that attract the great majority of the people to the area; these people in turn become the market for the services.

After services, the next most important item of production in the Forest is timber. Timber from the Manistee is used to produce pulp for paper, packaging materials, and in some instances lumber. According to the Michigan Forest Survey, in 1955-56 there were thirty-six sawmills and other plants operating in the Manistee which used logs and bolts.<sup>14</sup> Many of the so-called sawmills and other plants are operated by a single individual. Others do only custom work, or cut firewood, or are only operated part time. In the Forest only six sawmills were found which had more than two employees. One of these used more than a dozen men, but the others had only from

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<sup>14</sup>Timber Resources--Michigan Forest Survey, Baldwin Block, Lower Peninsula of Michigan 1956, and the Cadillac Block, Lower Peninsula of Michigan 1955, Michigan Department of Conservation, Lansing, Michigan.

three to seven employees. The number of people who are gainfully employed in sawmills in the Manistee is insignificant. A major reason is the poor quality of trees. The timber is immature, gnarled, knotty, and twisted. Log sizes are small, and at least one sawmill operator found it more profitable to buy timber outside the Forest. A major problem within the Manistee is finding a market for this low-grade timber. Timber production will increase in the Forest as more land comes into Forest Service ownership, as the trees mature, and as selective cutting improves the quality of the remaining timber.

Manufacturing plants, other than sawmills, are almost non-existent within the Forest, only three having been found. They are located in the larger cities, two in White Cloud and one in Baldwin. They employed a combined total of less than sixty workers.

Because of the glacial topography, water-washed sand and gravels are widely distributed in the Manistee. Extractive industries making use of these deposits are common, but nowhere are these operations large or well-developed, and they serve rather local areas.

The farming areas on the eastern, western, and southern borders produce some agricultural products,

mostly wheat, oats, barley, and dairy products. Farms are limited to the heavier soils and their total numbers, for the entire forest, are small.

The general economic pattern can be summed up with a symbol T S T, which stands for tourists, services, and timber. The Forest acts like a magnet drawing people for recreational purposes, and at the same time drawing goods and offering services to be used by these people.

#### The Retail Organization

Thirty-three focal places were visited during the preparation of this thesis. Some of these focal places, such as Carr Settlement, or Hoxeyville, consisted of but a single retail establishment serving a cluster of residences. In these small focal places, interviews were conducted at all of the retail establishments. In the large ones, such as Baldwin and White Cloud, the number and kinds of retail functions increased to the point where time permitted only a sample of the total number of business establishments.

Regardless of the size of the focal place, the first step was a complete inventory of all economic activities in the town. Inventories were recorded on a



specially prepared form (see Appendix B). In the larger towns, such as Baldwin and White Cloud, the owner of at least one of each type of business inventoried was interviewed. Businesses which were more numerous were sampled more heavily. For example, in Baldwin sixty establishments were tallied. Seventeen interviews were conducted, representing at least one of each type of business inventoried, and thirty-five percent of the total number in the town.

In all, interviews were conducted with over one hundred and thirty business operators in the Forest. To facilitate these interviews, a prepared interview sheet was used (see Appendix C). The interview sheet consisted of two parts, a section on general information about the business and its relation to the Forest, and a section on the leading products sold, including information as to where these products were obtained by the retail dealer.

#### General Nature of the Businesses in the Forest

The first section of the interview was of a general nature, designed to answer questions about the relation of economic activity to the National Forest.

More than twenty-five different retail functions were covered. The more specialized functions, such as those of furniture stores, radio and television repair shops, and realtors, were concentrated in the two largest central places, Baldwin and White Cloud. The most common retail functions found throughout the Forest as a whole were grocery stores, gas stations, and taverns.

Each business operator was asked if he was aware of the National Forest. Eighty-four percent said they were, but surprisingly sixteen percent admitted that they did not know of the existence of the Manistee. This certainly indicates that certain types of businesses do not depend upon the National Forest as a drawing power to supply customers.

More than half (fifty-two percent) of the operators interviewed had no feelings either good or bad about the Forest. Forty-four percent felt that the existence of the Manistee was good for the area, and only four percent had antagonistic feelings. This last group objected to government ownership of land in general and not specifically to the Manistee National Forest itself. Only one person was really violently opposed to the National Forest. A subsequent interview revealed that

this individual had been refused a job with the Forest Service, and as a result was in a mood to condemn the whole national forest system. In general, it certainly appears that the Forest Service has done an excellent job of public relations. Most of the people living and working in it are favorably inclined toward the Manistee.

Exactly one-half of the business operators interviewed felt that the National Forest helped their business, mostly because of the recreational opportunities which attracted people to the area. Half the operators thought that the Forest did not influence their business in any way. None thought the presence of the Forest in the area hindered their business.

Within the Forest business is definitely seasonal. Many businesses close through the winter months. The greatest economic activity takes place in the three summer months of June, July, and August, with a late fall upsurge during the deer hunting season. In the spring the opening of the trout season, and, in recent years, the mushroom gathering season have given an earlier spurt to the economy.

Attempts have been made, with some notable success, to attract visitors into the area for winter

sports. Both the Manistee and the Cadillac ranger districts have winter sports areas operated on government land by private groups under special use permits. But most of the seventy-seven percent who stated their business was seasonal felt that they had to make enough profit in summer to carry them through the winter months. Seventeen percent of the operators felt their business was not seasonal, while six percent had not been in operation sufficiently long to answer the question.

The average length of time in business was eleven and one-half years for all of the establishments recorded. However, there was a great deal of variation from this average. One business had been in operation for fifty years by the same man, whereas another had only been open one week. Certain types of businesses in the Forest change hands frequently; for example, restaurants and gas stations. Hardware and grocery stores seem more stable in length of ownership. Generally, the businesses most closely related to the tourist industry are most unstable within the Forest.

Reasons for starting a business in the Forest were varied, and fifteen percent of the operators interviewed could not clearly explain why they had decided to

open a retail establishment in the Manistee. Thirty-six percent felt that they were taking advantage of a good business opportunity, and another thirty percent had opened a business simply because they lived in the area. Eight percent of the operators gave fondness for the area as a reason for going into business, while still another eight percent had inherited the family business. Two establishments (one percent) are in operation because they can take advantage of a local source of raw material.

In general, the Forest influences retail trade by providing recreational opportunities which attract visitors to the area. The economic health of a business is directly related to its success in providing services and products which are sought by tourists. In the tourist areas, businesses tend to be unstable, and they also have a tendency to specialize. Away from the tourist areas, business functions are more diversified and somewhat more stable. The economic base of such businesses is more stable, since they do not have to depend upon the whims of tourists or the vagaries of weather, both of which are subject to change from one year to the next.

### Types of focal places

Six types of focal places were recognized in and around the Manistee (Fig. 27). They are: (1) abandoned settlements, or sites where towns existed in the past, but only traces, such as stone foundations, remain today; (2) relic settlements, or those left from former days when lumbering or agriculture was more widespread and better developed, the number of functions having decreased, but a cluster of establishments still persisting around one or more retail outlets; (3) highway oriented settlements, or focal places which have sprung up along routes of communication to take advantage of business opportunities offered by the movement of goods and people; (4) recreational oriented settlements, or those which have developed around lakes and along streams; (5) migrating settlements, which are a combination of two and three above, that is, a relic settlement migrating toward a transportation route; and (6) combinations of these and other types of settlements. Types of combinations consist of highway and recreational settlements, political and highway settlements, and political, highway, and recreational settlements (Fig. 28).

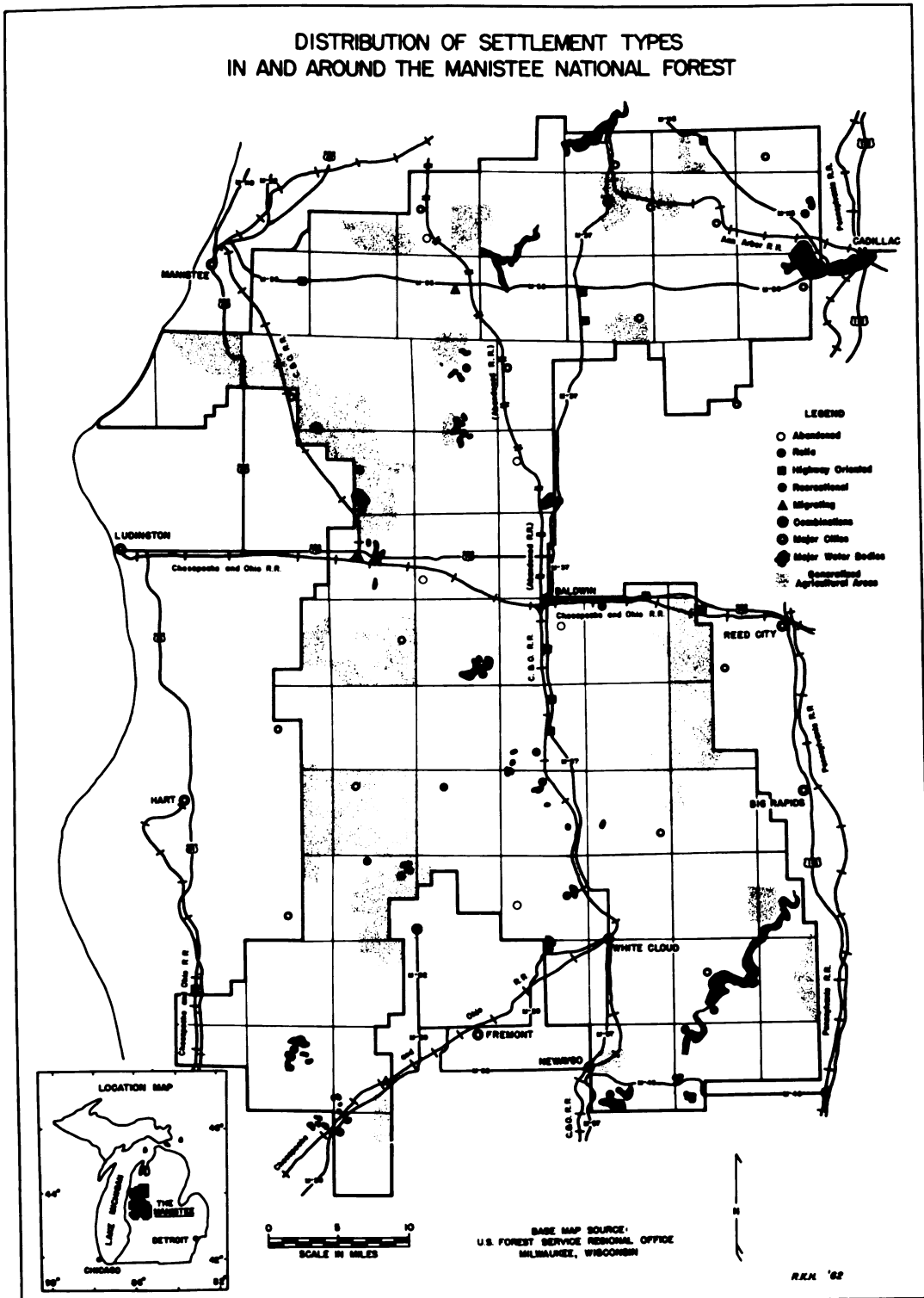


Fig. 27



Fig. 28a Irons, Michigan, A Relic Settlement



Fig. 28b A Small Recreational Oriented  
Retail Establishment



These focal places have a very definite distribution, as indicated in Figure 27. Abandoned and relic settlements are situated in the more remote corners of the Forest, off the beaten path, removed from major transportation routes. Highway settlements are distributed along the major routes of travel, particularly at intersections of major highways and connections with secondary roads. Recreation settlements are located around major lakes, or clusters of minor lakes, or near major streams. Migrating focal places are always near a major highway. Combinations of types are the large towns, which have assumed a larger number of functions. Each of these combinations is on a major transportation route.

These varied types of settlements reflect the evolution and development of man's use of the Manistee National Forest. The abandoned and relic settlements are examples of the past organization wherein the natural resources of the forest were exploited. But as the trees were cut and the fertility of the soil waned, the old organization collapsed, and its centers or focal places were abandoned, or declined in importance.

After the initial exploitation of the Manistee, wise men began a revaluation of this resource. All-weather

highways were constructed into the Forest, and the Forest Service began a long-term program of sustained yield forestry, including also the development of recreational resources.

These changes brought a new economic organization. Settlements sprang up along the highways to take advantage of the economic opportunities offered by local and transient tourists. Around the lakes and streams recreational settlements began to evolve. Some relic settlements began to migrate toward nearby highways to take advantage of this new economic impetus. At the same time, larger economic centers developed where major transportation routes crossed. These larger centers combined some or all of the functions of the smaller centers, and added some new ones not found at lower levels.

Recognition of these six types of settlements supports the concept of economic functional area organization. As establishments cluster together into focal places, they can be isolated as one of the four types of settlements, relic, highway, recreational, or migrating. These focal places take on a higher-level function than the individual establishments, and they can be equated to the second order, retailing level,

of economic area organization. At the same time, when groups of these focal places appear in clusters, they become a combination of the settlement types mentioned above, with additional and higher functions.

These groups of focal places, in some cases, can be equated to the third order, the wholesaling level.

### The Retail Trade Area

Each business operator interviewed was asked to indicate his retail area on an overlay map of the Manistee National Forest. Figure 29 is a composite map showing the extent of the retail trade area for each of the thirty-three focal places.

In a town such as Baldwin, where seventeen interviews were conducted, there is a great range in the size of the retail trade areas. Certain functions in such a city attract people from a greater distance than do other functions. But when the boundaries of these retail areas are placed on a map, one on top of the other, a definite trade area begins to emerge, from which most of the retail activity focuses upon the nodal point in the retail center. In the case of Baldwin, most of the retail operators mentioned a focal place in

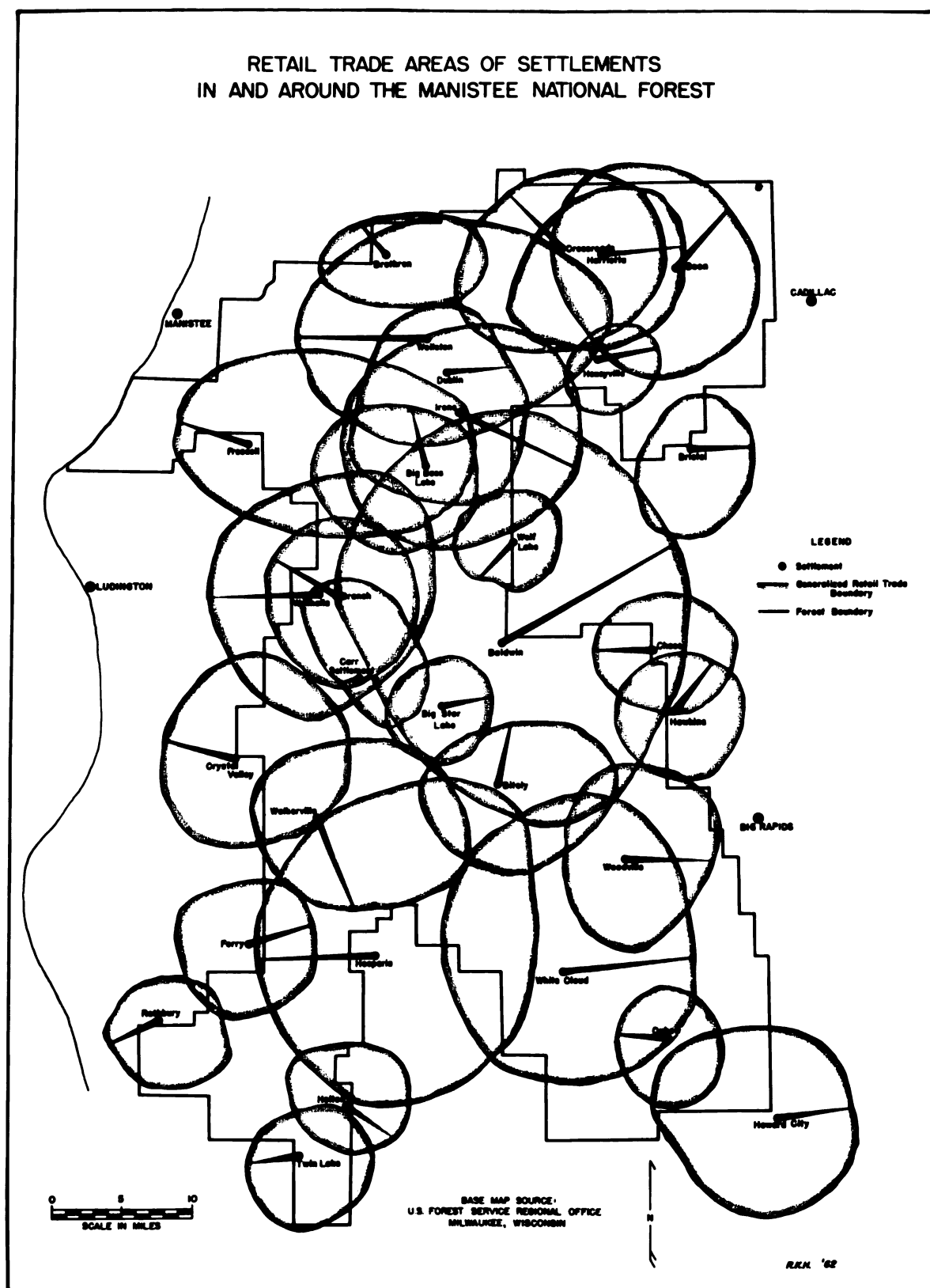


Fig. 29

each of the cardinal directions which they felt was the normal limit of their selling area. Notice that the retail area of Baldwin is delimited by Branch on the west, Bitely on the south, Chase on the east, and Irons on the north. Yet each of these smaller focal places also has a retail area which it shares, in part, with Baldwin.

The retail area of every focal place overlaps that of some other focal place. In certain cases, a smaller focal place is completely within the trade area of a larger one (see the trade area of Wolf Lake and Big Star Lake in Fig. 29).

Three retail trade centers dominate the retail area of the Forest, Baldwin, White Cloud, and Hesperia. Each of these dominant centers shares its market with smaller centers, competing with them for business. Yet because of their more central location and larger size, each of the dominant places can perform certain types of functions which are impossible for the smaller places. For example, Wolf Lake cannot provide the services of a dentist, doctor, or bank. Each of these services is found in Baldwin, where Wolf Lake residents go when such are needed.

In the northern and north-central part of the Forest, there is no large retail center. A cluster of smaller focal places shows a very complex pattern of overlapping retail areas. Here, there is well developed competition for retail trade from the establishments within this area.

The duplication of function within these smaller focal places is amazing. Almost all had not one but two, and sometimes three, country stores. The stores were generally concerned with the sale of foodstuffs, but they all also offered, in varying degrees, hardware, clothing, drugs, sporting goods, beer, and liquor. Invariably each store had a set of gas pumps to provide gas and oil for their customers. This type of store was particularly characteristic of the older settlements. None of them appeared busy, yet they carried large inventories of goods. It seems certain that the competition between two establishments offering almost exactly the same goods and services for the limited amount of trade in the area places each retail operator in an extremely precarious position. He must remain open long hours, offer a variety of goods for sale, maintain good public relations, operate on a small margin of profit, and yet

his prices must remain competitive with those of his competitor across the street, or, in good weather, with those of the large cities on the periphery of the Forest. Most of the owners of the stores visited held down a second job, at least during the summer months. The store usually was operated by the wife of the owner while he was at other work.

Thus far, two orders of organization have been examined. The first order, establishments, where goods and services are consumed, are scattered throughout the Forest. By routes of transportation and lines of communication they are focused upon the nodal point of the second order of organization, the retail center. An establishment may be interconnected to one or more retail centers. From this discussion it becomes apparent that each retail center must be interconnected with a source of supply for the products which it sells. The focal places which supply different retail centers becomes the next level in the economic organization of the Manistee.

### The Wholesale Organization

Third order area organization develops when a cluster of focal places becomes mutually connected in





terms of some higher function.<sup>15</sup> In the case of economic area organization, the function uniting a cluster of focal places into a node of activity is wholesaling, which includes the wholesaling by manufacturers.<sup>16</sup>

It has already been stated that the people in the Manistee demand products which are marketed throughout the country. Most of these products do not move directly to retail centers from their point of origin. They are collected by routes of transportation in wholesale centers located around the periphery of the Forest. Goods collected in such wholesaling centers are then redistributed to the focal places of the second order. It is this interconnection of the wholesaling function, not the wholesale activity itself, which gives third order centers their higher rank. Just as each retail center has a group of establishments focused on it, so each wholesale center is in turn the focus of a group of retail centers.

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<sup>15</sup>Allen K. Philbrick, Principal of Areal Functional Organization in Regional Human Geography, op. cit., p. 314.

<sup>16</sup>Ibid.

Each retail operator interviewed was asked to indicate (a) the ten leading products sold, by volume, and (b) the places from which these products were supplied. Because of the great variety of retail functions found in the interviews, the number of products reported was quite large. When the wholesale origin of these products was plotted on a map, a significant pattern began to evolve.

Six wholesale centers located on the edge of the Manistee dominate the wholesale activity of the Forest (Fig. 30). Three are located between Lake Michigan and the western border of the Forest; two are situated adjacent to the eastern border; and the sixth lies well to the south. Other minor wholesale centers are scattered between these larger centers competing with them, but usually for only specialized items which they can produce or distribute more cheaply.

The three wholesale centers situated on the shore of Lake Michigan are in the unfortunate position of having for their hinterlands the Manistee National Forest. No retail trade can develop to the west over the lake. These cities must look to the east, and this area which has traditionally been economically dependent must be competed for, and share with, the wholesale centers

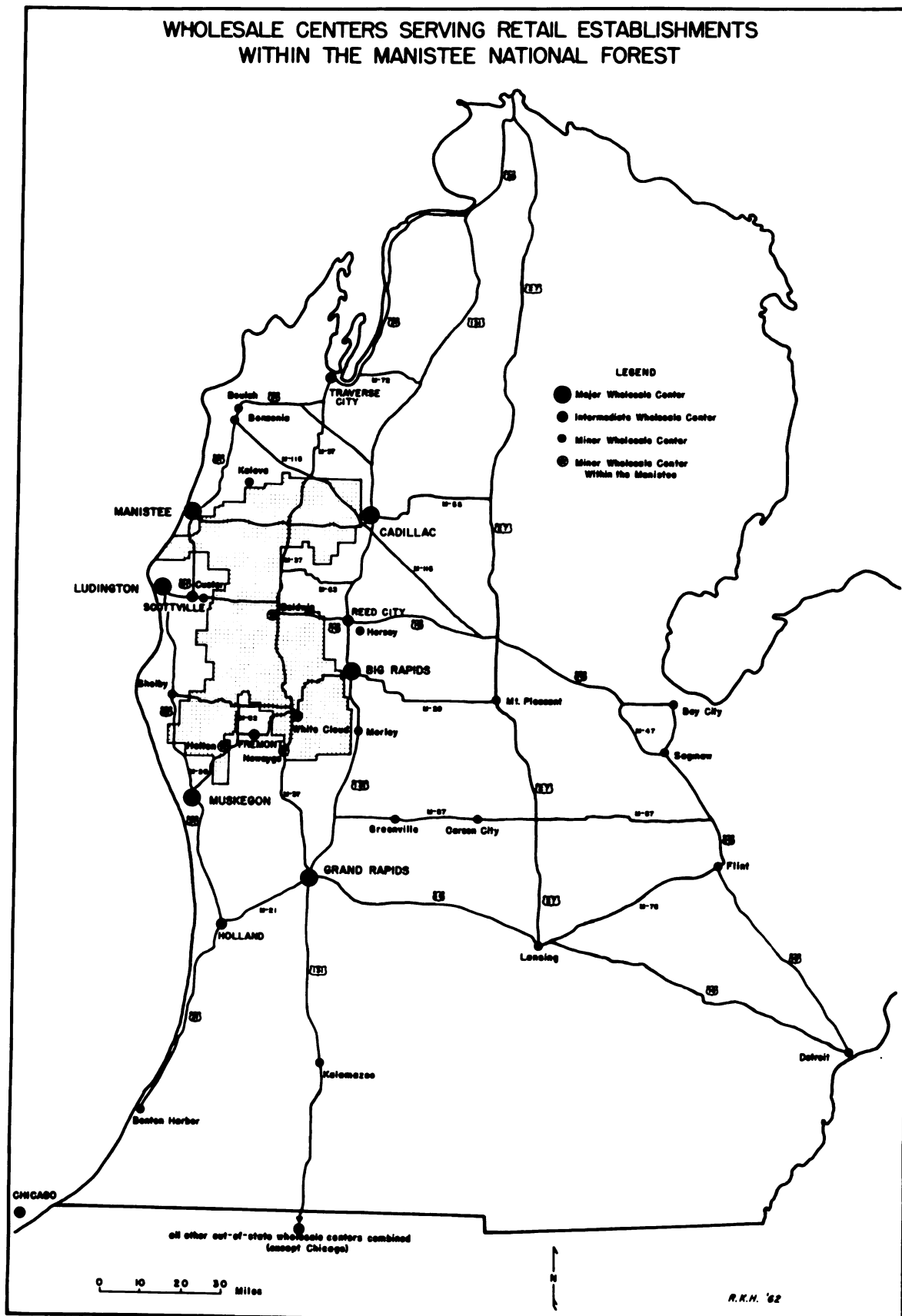


Fig. 30

on the eastern and southern sides. Needless to say, this places the three western centers at a disadvantage, and the continued rehabilitation of the Manistee to a productive level is necessary to the future economic growth of these cities.

One wholesale center, Grand Rapids, situated south of the Manistee, dominates the wholesale activity of the entire Forest, indeed of all western lower Michigan. A particular retail establishment may be greatly dependent upon any one of the other wholesale centers, so that within a local area the influence of Grand Rapids may be modified, but no other wholesale center affects so large an area within the Forest, or competes against every other wholesale center for sales. As one progresses farther to the south, within the Forest, the influence of Grand Rapids becomes more dominant. Just south of the central point of the Manistee all other wholesale centers become over-extended and except for the extreme southwest corner Grand Rapids is the dominant center.

The wholesale picture, then, is one in which centers compete from the southwest, northeast, west, and east, and over this entire area the activities of Grand Rapids dominates the wholesale trade. Just north

of the center of the Forest, the wholesale trade areas of all the six centers overlap. From this central point of maximum concentration of wholesale activity, the numbers of centers competing for trade diminishes and individual centers become more dominant.

One other point should be made about wholesaling activities. The amount of influence exerted by political and corporate decisions on retail activities at or above the wholesale level is extraordinary. For example, there are the state liquor stores from which all retail establishments must buy. The choice of the center from which a retail store buys is not left to the individual operator. This decision is made by the state. Retailers frequently are forced to travel long distances to get to a state store when there is one located much closer. Quite often trips must be made over backroads when other centers would be more accessible by a major highway. For other products distribution routes are set up by a company. The distribution center might be eighty miles away from a certain retail center, while a competing retail center a mile or so in another direction receives wholesale goods from only five to ten miles away. This inequality in districting could force a

retailer who is farther removed from the distribution point to carry a much larger inventory, and reduce the flexibility in the amount of goods he could buy. These observations were made in the field while interviewing, and the subject might offer a fruitful area for future research.

The cities called major wholesale centers in this study supply seven to eight times as many products, in sheer numbers, as the next lower rank, those labelled intermediate wholesale centers. Intermediate centers are quite important to local areas of the Forest, and they usually specialize in specific products. For example, Scottville, on the western edge of the Manistee, is an intermediate wholesale center specializing in the distribution of milk and dairy products. The area of the Forest influenced by the intermediate centers is, of course, not nearly so large as that affected by the major centers. Scattered throughout the state are a series of wholesale centers mentioned only a few times in the interviews. These were designated minor wholesale centers, and they usually supplied a specialized item or brand of goods to a single retail dealer. The minor centers are located at varying distances from the

Manistee. The location of these major and minor wholesale centers can be observed in Figure 30.

Only four cities within the Forest perform any wholesale functions, Baldwin, White Cloud, Holton, and Newaygo. They supply some other focal places in the Forest with goods, but the quantity is insignificant. Actually, these places should not be ranked as third order centers of area organization. Masai has classed third order focal places having four or less focal establishments as sub-third order.<sup>17</sup> The four towns here would all be sub-third, then, according to him.

Chicago is an intermediate out-of-state wholesale center for retail establishments in the Forest. All other out-of-state wholesale centers are minor, and even if grouped together in total they could only be ranked as an intermediate center. It is clear that the majority of the wholesale goods which reach the retail establishments within the Manistee come from the six major wholesale centers.

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<sup>17</sup>Yasuo Masai, Lansing, Michigan, and Shizuoka, Japan, op. cit., p. 117.

### Major Wholesale Centers

Figure 31 shows the interconnections of the thirty-three focal places of the second order with the six major wholesale centers. Each focal place within the Manistee receives the majority of its wholesale products from one of these major centers. At the same time, goods move from the other major centers into these focal places in lesser amounts. The interconnections shown in Figure 31 are based on the wholesale center which supplies the largest number of goods to a focal place labelled first rank, and the wholesale center which supplies the next most numerous amount of goods given second rank.

The first rank and second rank interconnections indicate that each of the six major wholesale centers dominates an area of the Forest, with the influence of Grand Rapids covering almost the entire Forest. Yet the interconnections are quite complex, showing overlapping of wholesale centers and competition for markets. If third rank interconnections are placed on this map, the pattern becomes so complex that it is difficult to read the map.



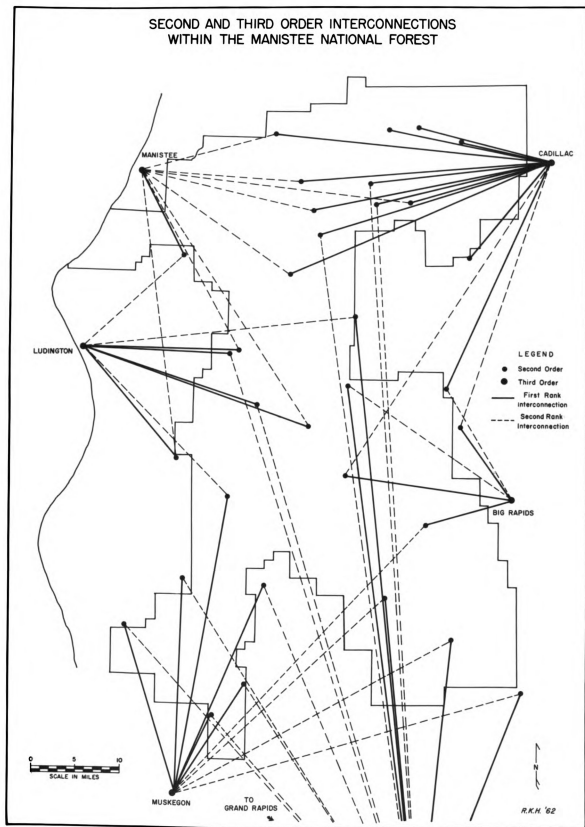


Fig. 31

If one considers that the area organized around any third order focal place is extended through the area organized by the second order focal places under it, one can arrive at the wholesale area for each of the six major wholesale centers around the Forest. For example, the wholesale area of Big Rapids, on the eastern side of the Manistee, is extended to include the retail area of Bitely (Fig. 29).

A particular retail establishment may be very dependent upon any one of the other five major wholesale centers, so that within a local area the influence of one may be modified, but no other center affects so large an area within the Forest, or competes against every other center for sales, as does Grand Rapids. As one progresses southward within the Forest the influence of Grand Rapids becomes more apparent. Just south of the central point in the Forest, all other centers become over-extended and, except for the extreme southwest corner, Grand Rapids becomes the dominate major wholesale center.

Muskegon, situated on the southwest corner of the Forest, extends a wholesale area to the northeast. In juxtaposition to this is Cadillac's wholesale area. Cadillac, situated on the northeast, extends its trade

to the southwest toward Muskegon. These two centers compete along a line located just north of the center of the Manistee (Fig. 32).

From the northwest and west, Manistee and Ludington send overlapping wholesale trade areas into the Forest, the city of Manistee's trade area extending somewhat farther to the north, while Ludington's extends somewhat farther to the south. From the east, Big Rapids competes with Ludington and Manistee, in the same way that Muskegon and Cadillac compete (Fig. 32).

The wholesale area organization of the Forest, then, is composed of areas in which the major centers compete. Just north of the center of the Forest, the wholesale trade areas of five centers overlap. This is the point of maximum concentration of competition between these centers. From this central point of maximum concentration the numbers of centers competing for trade diminishes, and individual centers become more dominant (Fig. 32).

The Manistee, in reality, is an area of consumption organized by six third-order focal places (wholesale centers) one of which is dominant. A non-mutually exclusive hierarchy of functions exists within

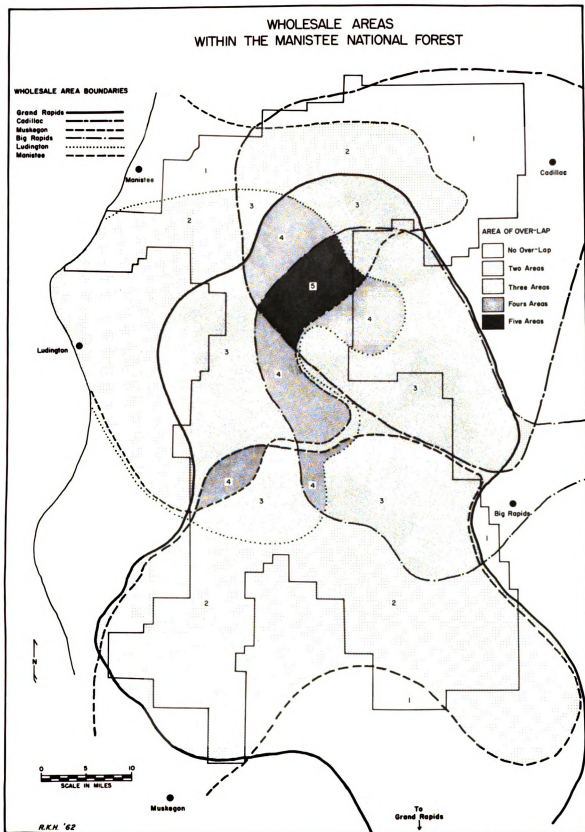


Fig. 32

the economic organization of the Forest. The basic unit is the establishment where goods are consumed. A group of establishments is served by, interconnected with, and focused upon one or more second order focal places (retail centers). A group of second order focal places is served by, interconnected with, and focused on one or more third order focal places. Each lower order function is found contained within the next higher function, so the entire system is a nested hierarchy.

This nested hierarchy of economic area organization exists within the Forest, side by side with the Forest Service organization, and tends to focus non-forest activities away from the Forest. Yet these two organizations function together, without antagonism and in apparent harmony, even though both have organized the same area in separate ways.

#### Forest Service and Private Economic Area Organization

The major differences between Forest Service Organization and private economic area organization find expression in four points: (1) The boundaries drawn by the Forest Service between areas are clear-cut and

definite. This is not true in economic area organization, in which areas overlap at all levels. (2) The organization of area by the Forest Service is a type of public planning, the result of conscious direction of effort. Economically, an area simply develops as a result of man's living on and using it, and what happens is the consequence of man's creativity in solving the day-to-day problems of making a living. Any one phase may be consciously directed, but there is no overall, coordinated planning which encompasses the entire system. (3) The organization of the Forest Service has developed from the top, at the highest levels, downward to the lowest. Economic area organization develops from the bottom upward. There could be no such system without the basic unit, the establishment. As establishments develop into clusters of focal places, the functions needed by the inhabitants become more complex and specialized, so the area organization develops around these functions. For example, when a number of establishments group together, the citizens may find it convenient to support a local retail store which can supply their basic needs. As soon as such a store is added, the group of establishments takes on a new function and advances to

a higher level. (4) The Forest Service, a political structure, is organized through executive order, by size of area, by administrative work load, and by the type of work performed. This type is based on power delegated by the Constitution, with responsibilities of administrators spelled out at the various levels. Economically, on the other hand, an area is organized by functions, as it is recognized that more specialized functions are found only at higher levels of organizations.

The Result of Economic Area Organization on the  
Double Role of the Forest

The preceding discussion leads to the question, "How does economic development affect the double role of the Forest? Our modern exchange society, operating in a free economy, is part of the answer to this question. At present food can be produced in areas other than the Manistee and brought into the Forest to meet the demands of the people living there. So these residents are released from their dependence upon the soil and the space which is now occupied by the forest. No longer do the inhabitants have to supply themselves with wood products from the surrounding forest, nor do they have to clear the





land of trees to plant crops for food. Food and products made from wood can be brought into the Forest from outside.

But the people dwelling within the Forest must make a living. The great majority of them earn a livelihood by producing goods and services for other people who are attracted to the Manistee by the recreational opportunities provided by the existence of the Forest. It is this influx of capital, goods, and people which is facilitated by modern transportation that allows the use of the renewable resources of the Forest without destroying it. Such usage is possible only in an exchange society, characteristically one which has developed a pattern of economic area organization.

The economic dependence on the Forest itself by the people living in the Manistee has been shifted so that the inhabitants can make use of specialized functions which have developed in our highly complex society outside of the Forest. It is the organization of area by function, in conjunction with the simultaneously political organization of area by administrative order by the Forest Service which enables man, in the Manistee, to develop the double role of the forest.

## C H A P T E R   V I

### SUMMARY AND CONCLUSIONS

Forests have always played a dual role in man's activities. The materials they produce and the functions they sometimes perform have been prized by man, and yet forests always have provided competition for space needed for crops and flocks. This two-fold problem of the best use of the forest is still perplexing the human race.

The vast forest resources of the United States were ruthlessly exploited and there is evidence that if this careless, wanton destruction had been allowed to go unchecked, this valuable resource might have been completely destroyed. Two extremely powerful and influential men played outstanding roles in the protection of the forests of the United States, Theodore Roosevelt and Gifford Pinchot. It was they who were responsible for setting aside most of our national forests and establishing the Forest Service.

One of the results of Forest Service administration is the organization of all national forests into an administrative hierarchial unit. An example of

administrative area organization by fiat, it is typical of political area organization. Its broad base rests within the framework of the Constitution of the United States. Narrower, more specific rights are granted from legislative acts and laws, and executive orders, proclamations, and decrees. Broad policy programs for national forests are laid down by the Secretary of Agriculture, adhering to the policies created by the laws and decrees. Specific policy and methods of organization are developed by the Chief of the Forest Service, implemented by the use of the Forest Service Manual and Handbook. The result of this gradual narrowing of control is to focus upon each national forest exactly the same type of area organization.

The area organization of national forests, while unique in some respects, is not exceptional. There are other types of political area organization in the United States which have been granted powers by fiat. For example, the National Park Service, Fish and Wildlife Service, and the Bureau of Census are organized in a somewhat similar manner.

This study has examined the evolution of political area organization of the Forest Service. Today, the

Forest Service is a vast, complex, activity under which one-tenth of our nation's land area is administered. The Forest Service implements its system of area organization through a program designed to apply the principles of sustained yield and multiple use to produce timber, protect watersheds, offer grazing for domesticated cattle and for wildlife, to provide recreational opportunities, and to maintain esthetic values. The application of these two broad concepts, multiple use and sustained yield, creates a unity of purpose and direction within the Forest Service. Their combined application enables the Forest Service to approach a successful solution to the dual role of the forest.

From its inception, the Forest Service has been struggling with the problem of using one resource for more than one purpose. The lessons learned by the Forest Service, forged on the anvil of adversity, through the bitter experience of trial and error, in developing a program of multiple use, are applicable in other areas and to other resources.

Since the turn of the century, our country has gone through a slow and sometimes agonizing revaluation of our national resources, which is still not complete

in the 1960's. This writer feels that the results achieved by the Forest Service, at least in its managing one of our typical national forests, the Manistee, forces us as a nation to take a critical look at some of our other resource programs. Because the Forest Service has proven in the Manistee that a given area can be put to several uses at the same time, can we afford to set aside an area containing a variety of resources for a single exclusive use? The question strikes at the heart of some of our most basic conservation policies.

There are people, some who hold, and have held, high offices in our government (including some former presidents) who feel that the Forest Service is too big, and controls too much of our national territory and resources. Of course, this is a part of a still broader disagreement among the people of our country over the role of the federal government. Should our government act in the laissez faire way of our founding fathers, or should it take an active part in the development of our nation, analyzing and planning developments? The author feels that the latter choice is our only intelligent course of action.

National forests may be divided into an eastern and western group based on size and age. The larger, older forests are in the West; newer, smaller forests are found in the East.

This study is most concerned with the Manistee National Forest, which is a typical national forest not because of its soils, climate, or growing season -- in fact, not for any reason of physical environment. The Manistee is typical because it is a part of our national forest system and therefore has an organization similar to all other U. S. national forests.

The Manistee is an idiographic case only because of its location on the western part of the Lower Peninsula of Michigan. It is the actual physical site on which the Forest is located that gives it a uniqueness.

The Manistee had been ravished by timber barons, land speculators, and settlers. A low quality, second growth forest began to grow back, which was vastly different from the original forest cover and added little to area economy. How could this violated area be made to contribute again to our national economy? It was beyond the abilities of a single individual or even a

group of individuals. Even the State of Michigan, with its greater resources, could not undertake this restoration. Only the federal government, with its vast resources and with nation-wide planning, could cope with the problem. No other individual group, or agency, had the finances, time, or the patience to rehabilitate this area. The Manistee had once supported a magnificent forest, what could be more appropriate than to try and re-establish this forest? The most logical organization to carry out the reforestation and reorganization of the area was the Forest Service.

Within the Manistee, the first level of organization officially recognized by the Forest Service is the Ranger District. The number of ranger districts is based on area, accessibility, and workload of a national forest. There are four ranger districts in the Manistee of varying sizes, each of which is distinctive. They vary in size, shape, natural features, population and problems, as well as in the supervisory personnel who operate them. And, yet each of these diverse, districts is very similar in nature because of organization which is imposed upon it from the next higher level of organization.

The district ranger manages to maintain close contact with the district through the "basic unit", the Fire Warden. The fire warden is not a full-time employee of the Forest Service. This level of organization is not officially recognized by the Forest Service, but it does involve local people in over-all administration of a national forest.

Within the Manistee, each of the four ranger districts is a nodal point focused upon the Forest Supervisor's Headquarters, the control center for administrative decisions affecting the homogeneous area of the Manistee National Forest.

While the Manistee is a homogeneous unit of government organization, it is not closed to private entrepreneurs. Not all of the land within a National Forest is owned by the federal government; private farms, homes, and commercial enterprises do exist inside the Forest. While the rate of growth inside the Forest, of both the number of permanent residents and the number of establishments, is slower than the growth rate outside the Forest, both population and establishments continue to increase slowly in total numbers. In effect this means that as the Forest Service acquires more land



within the Forest, an increasing number of people and establishments are concentrated on a decreasing amount of private land.

A single national forest, or perhaps two if their workload is small, is administered from the forest supervisor's headquarters. National forests often cut across political boundaries, township, county, or state. By law, twenty-five per cent of all money received from timber sales in the national forest, must be returned to the counties making up the forest.

National forests, in most cases, have some natural phenomena which gives them a degree of unity. Because the Forest Service manages a national forest as a single unit, regardless of political boundaries, a forest is very much like the area administered by a regional planning commission.

The Forest Supervisor's Headquarters has a large staff of technical personnel who have skills that are too specialized to be assigned to individual ranger districts. The Forest Supervisor also is responsible for the development and coordination of broad forest-wide policies and planning. This planning is facilitated by a multiple use plan which is submitted to the Forest Supervisor by each district ranger.

The Forest Supervisor's Headquarters for the Manistee is at Cadillac, Michigan, located just outside the northeastern corner of the Forest. This office also serves as Forest Supervisor's Headquarters for the Huron National Forest, located on the eastern side of Michigan's Lower Peninsula.

The continental United States is divided into nine National Forest Regions, Alaska is a tenth, and there is a tropical research center in Puerto Rico which in effect is an eleventh, although it is not so designated. Each National Forest Region is administered from a regional headquarters. The Forest Supervisor's Headquarters within a region is a nodal point which focuses upon the regional headquarters. The regional headquarters gives direction and unity to each national forest by planning, in the form of a regional guide.

Each regional headquarters is in turn a nodal point focusing upon Washington, D. C., the headquarters for the Forest Service as a whole. It is the national headquarters which develops the broad policy which gives the Forest Service over-all unity.

In the end, the political area organization of the Forest Service is a series of homogeneous areas, each

with a focal point which in turn focuses upon a higher level of organization.

The preceding discussion has been confined to the political area organization established by the Forest Service. But this study has also been concerned with the economic area organization of national forests. It is necessary to draw some conclusions about this method in order to understand how the two types of area organization, operating in conjunction, help solve the problem of the dual use of forests.

The general pattern of economic area organization of the Manistee is one of consumption and production, with the former more important and better developed than the latter.

While production is not as important in the Forest as consumption, it nevertheless plays a significant role in the economy. The primary item of production is services. These are associated with recreational activities, which attract people to the area, and it is these people, in turn, who become the market for which the services are provided. The next most important item of production is timber. However, because of the poor quality of trees within the Forest, the quantity of

timber produced is insignificant. A major problem of the Forest Service is finding a market for this low-quality timber. This problem will gradually be resolved as the trees mature and Forest Service practices slowly improve the quality of the timber being grown.

Man's economic area organization contributes by filling the voids which the Forest Service is incapable of filling. For example, as has been pointed out earlier, the Forest Service does not own all of the land within the Forest boundaries, and over twenty thousand people reside permanently within the borders. At the same time, great numbers of tourists and travelers are attracted. Both permanent and temporary residents of the Forest want and demand all the goods and services that are provided to people in areas outside the Manistee. Therefore, economic area organization aids in solving the dual role of the Forest by providing goods and services to portions of the Manistee which are assigned non-forest use.

Seven levels of economic area organization have been identified in the exchange world of modern society. Within the Manistee, only the three lowest of the seven levels exist, and the third level is but

poorly represented. Retailing takes place in a variety of establishments scattered throughout the Forest, but concentrated into focal places. Six specific types of focal places were recognized within the Manistee: (1) abandoned settlements, (2) relic settlements, (3) highway oriented settlements, (4) those recreationally oriented, (5) migrating settlements, and (6) combinations of these and other types.

The size of the area served by each of these types of settlements is highly variable. By far the largest retail areas are those served by the combinations of settlements, which are also the largest towns in the Forest. In several cases, their retail trade area is so large that it completely encompasses one of the small settlement's trade area. In effect, this puts the smaller center in direct competition with the larger one.

In the smaller centers diversification becomes more pronounced. While this diversification requires a large inventory and consequently a considerable investment of capital, most business operators felt that they must offer variety for the convenience of their customers. The prices of goods in the smaller centers

also must remain competitive with prices in the larger ones. For in our mobile society, a small retail trade center existing within the trade area of a larger one must provide goods at competitive prices and in great variety in order to be able to take advantage of one major asset, the convenience of its location for customers.

This discussion leads to still another point, that of duplication of function within the smaller retail centers of the Manistee. In almost every settlement within the Forest, two or more stores with almost exactly the same function have developed, creating intense competition for a limited amount of business.

Similarities and differences were found to exist between second order economic area organization and second order political area organization. These two orders, the retail trade area and the forest ranger district, both have nodal points. The nodal points are, for the former, the stores from which goods are sold, and for the latter, the ranger district headquarters. Both areas are organized so that lines of communication and transportation enable human activity to be focused on the nodal point of each respective

area. But there are important differences in these two areas. The ranger district has a predetermined, clearly-defined boundary. Local activities focusing on the district headquarters do not originate beyond the district boundaries, except in very rare and unusual cases. The ranger district tends to be a homogeneous area, the delimiting criteria being the district boundary which borders the area of focality.

The retail trade area has no clear-cut and defined boundary and fluctuates from day to day. The only criteria that could be used in establishing a homogeneous area would be the point of origin of the customers who trade at the retail center. Because many of the customers are in transit, or at best, are temporary residents, such as tourists, any boundary drawn around such an area would have to be a very general approximation of doubtful value.

Second order retail centers are supplied with goods by the next higher level of economic area organization, wholesaling. Very little wholesaling originates within the Manistee. The Forest acts like a magnet, drawing products into the retail outlets from wholesale centers located on the periphery of the Forest.

Six centers dominate the wholesaling activity of the Forest. Three of these centers are located between Lake Michigan and the western border of the Manistee; two are situated adjacent to the eastern border of the Forest; and the sixth lies well to the south of the Manistee. Other minor wholesale centers are scattered between these larger centers, competing with them, but usually for only specialized items which they can produce or distribute more cheaply.

One wholesale center, Grand Rapids, situated south of the Manistee, dominates the wholesale activity of the entire Forest, indeed all of western lower Michigan. A particular retail establishment may be very dependent upon any one of the other wholesale centers, so that within a local area the influence of Grand Rapids may be modified, but no other wholesale center affects so large an area within the Forest, or competes against every other wholesale center for sales.

The wholesale picture, then, is one in which centers compete from the southwest, northeast, west, and east, and over this entire area the activities of Grand Rapids dominates the wholesale trade. Just north of the center of the Forest, the wholesale trade areas of



all six of these centers overlap. From this central point of maximum concentration of wholesale activity, the number of centers competing for trade diminishes and individual centers become more dominant.

In reality, a non-mutually exclusive hierarchy of functions exists within the economic organization of the Manistee National Forest. The basic unit of this hierarchy is the establishment, where goods are consumed. A group of establishments is served by and interconnected with a retail center, which sells to establishments within its trade area. A group of retail centers is served by one or more of the six wholesale centers surrounding the Forest. This system, while not having as well defined boundaries as the organization of the Forest Service, nevertheless functions within the Manistee and tends to focus non-forest activities away from the Forest.

This study has examined two systems of area organization. The Forest Service, a type of political area organization, is granted powers by fiat. It is consciously organized, well-ordered, and defined, and has developed from the top down. The economic area organization is man-made, but vague, poorly defined,

over-lapping, and in competition, and it developed from the bottom upward. These two systems exist side by side and each functions in the same area. Each apparently meets the needs and satisfies the demands made upon it. In the final analysis, these two systems, inter-meshed and functioning together, offer the best answer to date for the age-old problem of how to approach the dualism of utilization of forests.

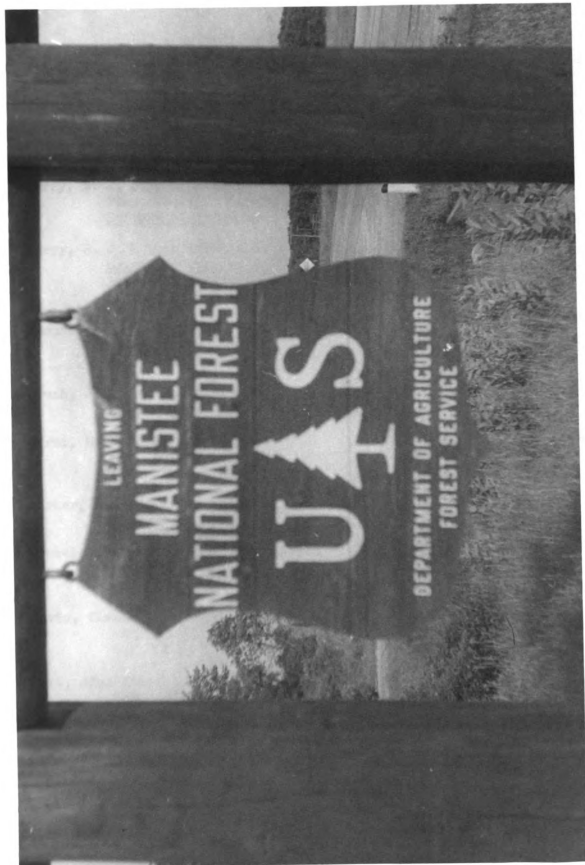


Fig. 33

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## APPENDIX A



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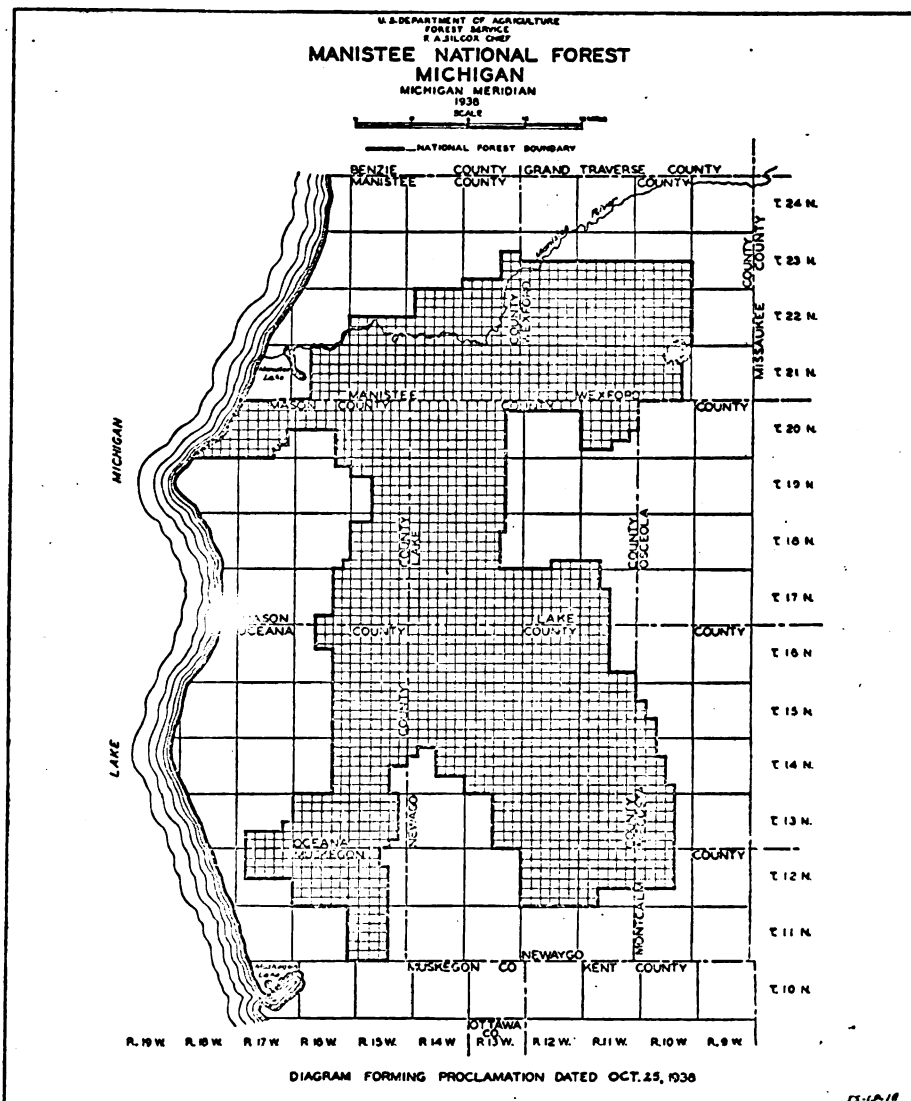
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hereby reserved and set apart as the Manistee National Forest all lands of the United States within the area described hereinafter and shown on the diagram attached hereto and made a part hereof, and (2) that all lands within such area which may hereafter be acquired by the United States under the authority of the said acts of March 1, 1911, June 7, 1924, March 31, 1933, June 16, 1933, and April 8, 1935, shall upon acquisition of title thereto become, and be administered as, part of the said Manistee National Forest:

#### MICHIGAN PRINCIPAL MERIDIAN

- T. 11 N., R. 15 W., secs. 3 to 10, inclusive, secs. 15 to 22, inclusive, and secs. 27 to 34, inclusive.  
 T. 12 N., R. 10 W., secs. 3 to 10, inclusive, and secs. 15 to 22, inclusive.  
 T. 12 N., R. 11 W., secs. 1 to 24, inclusive, and secs. 29 to 32, inclusive.  
 T. 12 N., R. 12 W., all.  
 T. 12 N., R. 15 W., secs. 4 to 9, inclusive, secs. 15 to 22, inclusive, and secs. 27 to 34, inclusive.  
 T. 12 N., R. 16 W., all.  
 T. 12 N., R. 17 W., secs. 1 to 5, inclusive, and secs. 8 to 17, inclusive.  
 T. 13 N., R. 10 W., secs. 3 to 10, inclusive, secs. 15 to 22, inclusive, and secs. 27 to 34, inclusive.  
 Tps. 13 N., Rs. 11 and 12 W., all.  
 T. 13 N., R. 13 W., secs. 1 to 3, inclusive, secs. 10 to 15, inclusive, secs. 22 to 27, inclusive, and secs. 34 to 36, inclusive.  
 T. 13 N., R. 15 W., secs. 2 to 11, inclusive, secs. 14 to 23, inclusive, and secs. 26 to 34, inclusive.  
 T. 13 N., R. 16 W., all.  
 T. 13 N., R. 17 W., secs. 24 to 29, inclusive, and secs. 32 to 36, inclusive.  
 T. 14 N., R. 10 W., secs. 5 to 8, inclusive, secs. 16 to 21, inclusive, and secs. 28 to 34, inclusive.  
 Tps. 14 N., Rs. 11, 12 and 13 W., all.  
 T. 14 N., R. 14 W., secs. 1 to 7, inclusive, secs. 10 to 15, inclusive, and secs. 22 to 24, inclusive.

- T. 14 N., R. 15 W., secs. 1 to 22, inclusive, and secs. 27 to 34, inclusive.  
 T. 14 N., R. 16 W., secs. 1 and 2, secs. 11 to 14, inclusive, secs. 23 to 26, inclusive, and secs. 35 and 36.  
 T. 15 N., R. 10 W., secs. 18 and 19; and secs. 29 to 32, inclusive.  
 Tps. 15 N., Rs. 11, 12, 13, 14 and 15 W., all.  
 T. 15 N., R. 16 W., secs. 1 and 2; secs. 11 to 14, inclusive; secs. 23 to 26, inclusive, and secs. 35 and 36.  
 T. 16 N., R. 11 W., secs. 4 to 9, inclusive, secs. 16 to 21, inclusive, and secs. 28 to 36, inclusive.  
 Tps. 16 N., Rs. 12, 13, 14 and 15 W., all.  
 T. 16 N., R. 16 W., secs. 1 to 4, inclusive, secs. 9 to 14, inclusive, N $\frac{1}{2}$  sec. 15, N $\frac{1}{2}$  sec. 16, secs. 23 to 26, inclusive, and secs. 35 and 36.  
 T. 17 N., R. 11 W., secs. 5 to 8, inclusive, secs. 16 to 21, inclusive, and secs. 28 to 33, inclusive.  
 Tps. 17 N., Rs. 12, 13, 14 and 15 W., all.  
 T. 17 N., R. 16 W., secs. 1 and 2; 11 to 14, inclusive, 23 to 26, inclusive, and secs. 33 to 36, inclusive.  
 T. 18 N., R. 11 W., secs. 31 and 32.  
 T. 18 N., R. 12 W., secs. 34 to 36, inclusive.  
 T. 18 N., R. 13 W., secs. 3 to 10, inclusive; W $\frac{1}{2}$  sec. 15; secs. 16 to 21, inclusive; W $\frac{1}{2}$  sec. 22; W $\frac{1}{2}$  sec. 27; secs. 28 to 33, inclusive; and W $\frac{1}{2}$  sec. 34.  
 T. 18 N., R. 14 W., all.  
 T. 18 N., R. 15 W., secs. 1 to 4, inclusive, secs. 7 to 36, inclusive.  
 T. 18 N., R. 16 W., sec. 36.  
 T. 19 N., R. 13 W., secs. 3 to 10, inclusive, secs. 15 to 22, inclusive, and secs. 27 to 34, inclusive.  
 T. 19 N., R. 14 W., all.  
 T. 19 N., R. 15 W., secs. 1 to 16, inclusive, secs. 21 to 28, inclusive, and secs. 33 to 36, inclusive.  
 T. 19 N., R. 16 W., secs. 1 and 2.  
 T. 20 N., R. 11 W., secs. 1 to 23, inclusive, and secs. 28 to 30, inclusive.  
 T. 20 N., R. 12 W., secs. 1 to 6, inclusive.  
 T. 20 N., R. 13 W., secs. 1 to 10, inclusive, secs. 15 to 22, inclusive, and secs. 27 to 34, inclusive.  
 Tps. 20 N., Rs. 14 and 15 W., all.  
 T. 20 N., R. 16 W., secs. 1 to 18, inclusive, secs. 23 to 26, inclusive, and secs. 35 and 36.  
 T. 20 N., R. 17 W., secs. 1 to 23, inclusive, N $\frac{1}{2}$  sec. 26; secs. 27 to 33, inclusive, and W $\frac{1}{2}$  sec. 34.  
 T. 20 N., R. 18 W., all that part East of Lake Michigan.  
 T. 21 N., R. 10 W., secs. 2 to 11, inclusive, secs. 14 to 23, inclusive, and secs. 26 to 35, inclusive.  
 Tps. 21 N., Rs. 11, 12, 13, 14 and 15 W., all.  
 T. 21 N., R. 16 W., sec. 1; sec. 2 except lot 2; sec. 3 except lots 1, 2 and 4; sec. 4 except lot 3; secs. 9 to 16, inclusive; secs. 21 to 28, inclusive; and secs. 33 to 36, inclusive.  
 Tps. 22 N., Rs. 10, 11, 12 and 13 W., all.  
 T. 22 N., R. 14 W., secs. 1 to 5, inclusive, secs. 8 to 17, inclusive, secs. 19 to 36, inclusive.  
 T. 22 N., R. 15 W., secs. 19 to 36, inclusive.



## APPENDIX B

POPULATION OBSERVER DATE

## FARM EQUIP &amp; SER

BUT 8TH

FARM EQ

FD FRT

GRAIN EL

HATCH

PRD ACT

RENDER

STK YO

OTHER

## AUTOMOBILE

CAR USED

CAR NEW

GAR

GAS 6TH

JUNK DLR

NEW PTS

OTHER

## FOOD

BAKERY

CAFE REST

CONFECT

DAIRY PRD

DRIVE IN

FROX FD LKR

GROCERY

LIQ STR

MEAT MKT

SUPER MKT

TAVERN

OTHER

## CLOTHING

DEPT

DRY GDS

MENS

SHOE

SHOE RP

TAILOR

WOM CHLD

OTHER

## HARDWARE

HARDWARE

EL APPL

PAINT PPR

PLB HT

## HOME FURNISHINGS

AWNING

FLOOR COV

FURNITURE

OTHER

## RECREATION

BILLIARDS

BOWLING

MOVIE

MOVIE

ROLL SKATE

OTHER

## VACANT ESTABLISHMENTS

VACANT

## PERSONAL SERVICE

BARBER

BEAUTY

BOOKS

CLEAN (LAN)

DRUG

FLORIST

FUNERAL

GIFT

HOBBY

HOTELS

JEWELRY

MUSIC

MOTEL

NEWS

OPTICIAN

PHOTO

RAD TV RP

REST HOME

SEW MCH

SPORTS

VAR JETV

OTHER

## PROFESSIONAL

ACCTS CPA

ARCH

ATTN

CLIN

CHIROP

CHIRPRAC

DENTIST

INS BROK

OPTOM

OSTEOP

RN SURG

REAL EST

VET

OTHER

## CONSTRUCTION

AIR COND

LUMB

ROOF

SHEET

OTHER

## BANKS AND LEND

BANKS

LOAN CO

OTHER

## UTILITIES

GAS

ELEC POW

TELE

TELEPH

OTHER

## COMMUNITY SERVICES

AMBUL

HOSP

MAG DIST

NEWS DIST

NEWSP WEEK

RADIO

T V

## BUSINESS SERVICES

ADV AG

BUS MACH

CAB AND CARP

CREDIT BUR

OFFICE SUP

PRINTER

STATIONERY

## WHOLESALE (SEPARATE)

BULK OIL

FOOD

METALS

OTHER

## WHOLESALE WITH RETAIL

FOOD

BULK OIL

METALS

OTHERS

## MANUFACTURING

FABRICS

FOODSTUFFS

MET AND MIN

OTHER

## TRANSPORTATION

AIR

AIRPORT

BUS

FRT YD

RAILRDS

DIR

STMSHP BRGE

TAXI

TRUCK LOC

TRCK ISTATE

TRUCK TERM

OTHER

## STOCK EXCHANGES AND HQS

STOCKS

COMMODITY

MFG WHOLE REP

NAT HQ

REG HQ

OTHER

## NOTES

# POLITICAL

SCHOOL DIST

HIGH SCH

ELEM SCH

TOWNSHIP AG

VILL OR CITY AG

PUB LIB

WATER

SWIM POOL

PARKS

OTHER

COUNTY AG

STATE AG

FED AGENCY

INTERNAT AG

FOREIGN NATION AG

## SOCIAL

CHURCHES

SERVICE CLUB

UNIONS

LODGES

COUNTRY CLUBS

OTHER

PAROCHIAL SCHOOL

CONVENTIONS (LAST YEAR)

DIST

STATE

NAT REG

NATIONAL

INTERNATIONAL

## OTHER

RECENT HOUSING DEV

RECENT BUSINESS DEV

RECENT INDUSTRIAL DEV

OTHER RECENT DEV

## NOTES

# TOTALS

Frontage	For	Total	Ec	Pol	Soc
1					
2					
3					
4					
Block					

Frontage 1 2 3 4 Block

Sea and

Term

Auto

Farm

Cloth

Hdwr

Home F

Recr

Pers

Prof

Constr

Banks

Util

Comm. S

Bus. S

Whole

Mfg

Trans

Stock

Vac

Other

APPENDIX C

**QUESTIONS TO BE ASKED OF BUSINESS OPERATORS WITHIN THE FOREST**

Name	Address
Kind of Business	No. of Employees
Owner of the National Forest?	Feelings

## Does the Forest Help or Hinder the Business?

Is the Business Seasonal? \_\_\_\_\_ If So, What Season? \_\_\_\_\_

### Does the Forest Help Influence This Seasonality?

How Long Has This Business Been in Operation? Reasons:

### WHAT ARE THE TEN LEADING PRODUCTS SOLD?

	Area Sold In	Source of the Atom
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

1. The first step in the process of the development of a new product is the identification of a market need. This is often done through market research, which can be conducted in a variety of ways, including surveys, focus groups, and interviews. The goal of market research is to determine what customers want and need, and to identify any gaps in the market.

2. Once a market need has been identified, the next step is to develop a product concept. This involves creating a detailed description of the product, including its features, benefits, and target market. The product concept is then used to develop a business plan, which outlines the company's strategy for developing and marketing the product.

3. The third step in the process is to develop a prototype. This is a physical model of the product that is used to test the design and to demonstrate the product's capabilities. The prototype is typically made from a material that is easy to work with, such as wood or plastic, and is used to test the product's design, functionality, and appearance.

4. Once a prototype has been developed, the next step is to conduct a feasibility study. This involves evaluating the product's potential for success in the market, taking into account factors such as the product's cost, the company's resources, and the competitive environment. The feasibility study is used to determine whether the product is worth developing and to identify any potential risks or challenges.

5. The final step in the process is to develop a marketing plan. This involves creating a strategy for promoting the product and reaching the target market. The marketing plan typically includes details about the product's pricing, distribution, and promotional activities, and is used to guide the company's marketing efforts.



Pocket empty

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