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RESOURCES and RECREATION

In The Northern Great Lakes Region



MULTIPLE USE IN ACTION

A Department of Agriculture Task Force Report

**United States
Department of
Agriculture**



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PREFACE

This report is about opportunities for rural area development in the Northern Great Lakes Region. It originated in Secretary Freeman's request for an analysis of the potentials for economic development in this extensive forested and lake-studded region. The need for it is accentuated by the tragic disruption of human welfare and community stability through the continuing closedown of deep iron ore mines in part of the region.

The objective of this study was to analyze and portray the opportunities for development and multiple use of land and water resources in ways that would be helpful to State and local Rural Areas Development Boards and Committees and other groups in developing plans for improved incomes, employment, community betterment, and more effective resource use. Special attention was to be given to land- and water-based recreation uses that can add to the financial income and employment of people who live in this region.

The land and water resources, and recreation values in particular, will always be in increasing demand to meet the needs of people in the growing cities to the south of the Great Lakes.

The report brings together the substance of other studies and information generously provided by agencies of the three State governments, by the universities, and many individuals who have been giving thoughtful consideration for a long time to resource development in this region. The Task Force acknowledges and expresses appreciation for this help.

The scope of the Task Force effort is defined by the objective that was established. The Task Force recognizes that it could not at the same time deal with other important related aspects. The report is designed to be a helpful tool for local planning, but not a complete economic development plan. It highlights outdoor recreation potentials as a basis for expanding income and increasing employment, but it is not a specific plan for local action. Although it does not define local State or Federal agency responsibilities, it offers some suggestions and describes some important potentials that should be useful in the development of programs for action.

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THE NORTHERN GREAT LAKES REGION
RESOURCES and RECREATION
for
A GROWING POPULATION

INTRODUCTION

One of the most opportunity-laden outdoor stages on the American scene is the Northern Great Lakes Region. Here lies a wealth of natural resources and opportunities for incorporating outdoor recreation in multiple use management. These resources are in a way "removed" from a population concentration of nearly 50 million Americans--a population expected to grow to over 90 million by the year 2000. But the region's remoteness is largely relative, and primarily in terms of existing transportation systems. This remoteness tends to preserve its recreational attributes. An arc with a radius of 500 miles from the region's central area encompasses 25 percent of the Nation's people.

The region's land and water area of 56 million acres compares in size to the six New England States and half of New York State. But its 3 million acres of water surface distinguishes it from all other areas. Equally significant is the fact that more than four-fifths of the land is forested and much of it bears mineral deposits. This provides the setting of woods, waters, and mineral wealth which has shaped and molded people's work and their way of life.

Water is the lifeblood of much of the Northern Great Lakes Region. It is the keystone for future economic growth and social development. Its significance extends beyond its value for offsite use. More is involved than the benefits that accrue as a result of its application to the soil for crop production or of its transportation to areas of need for domestic or industrial use. A major water value in this region derives from its tangible and intangible uses and values in place. The places are the thousands of lakes of varying size and the hundreds of miles of streams of wide variety.

The waters of the Northern Great Lakes Region are better distributed, in greater supply, freer from pollution, freer from floods, and have smaller quantities of bothersome chemicals than in any other regional area of comparable size in the United States.

The region is in many ways an "island." Land area exceeds water area, but nonetheless the bodies of water, from the Great Lakes to inland lakes and ponds, provide a water-oriented setting. One effect is to disrupt the region's internal continuity. At the same time, however,

the water-oriented setting is its greatest asset. Nowhere else in mid-America can it be duplicated. Nowhere else is the natural setting so closely alined with the priority demands of people for water-oriented outdoor recreation.

These rapidly expanding outdoor recreation demands in the metropolitan areas south of the Great Lakes open the door to new challenges and opportunities for the region's economy. The relatively undeveloped recreation resources of the region, the untamed forests and lakes of its northern reaches, are rare gems in an era of urban sprawl. They will provide the foundation for an expanded recreation-oriented economy. Urban recreation seekers will rediscover what their parents and grandparents found, and lost, in the railroad- and steamboat-based resort vacations of an earlier time.

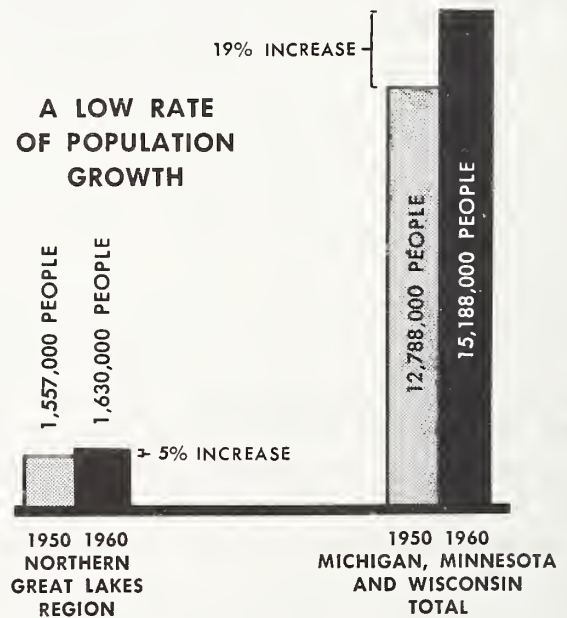
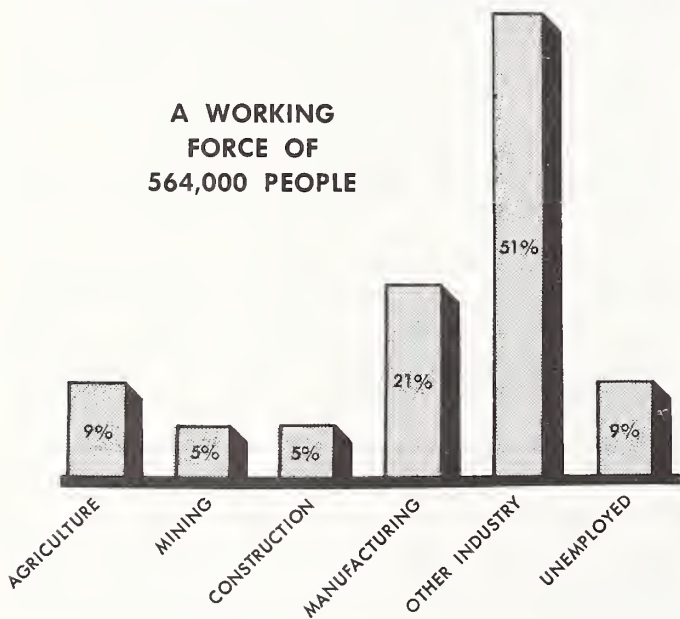
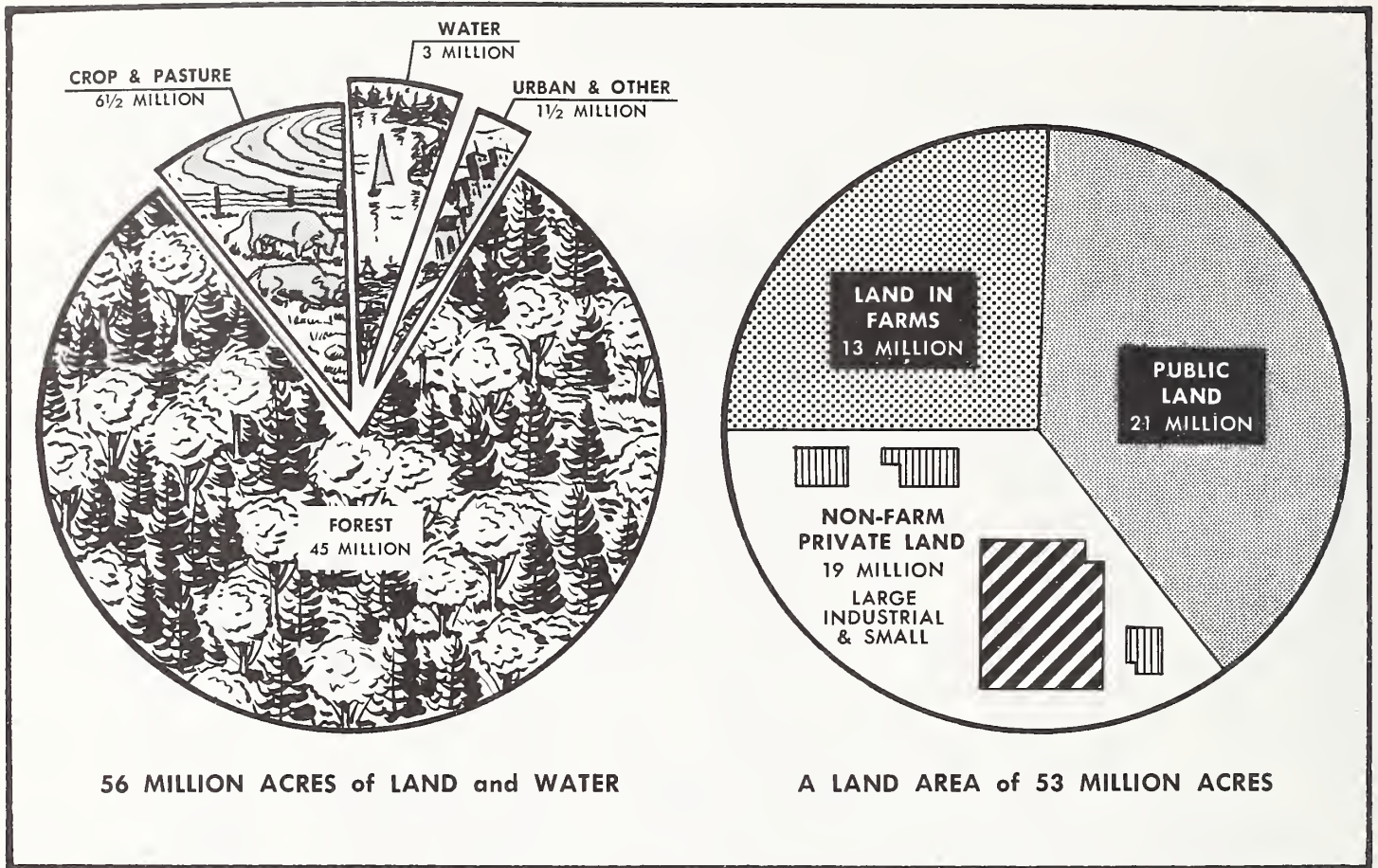
Public ownership is another dominant feature in the region. Nearly 40 percent, some 21 million acres, is public land administered by Federal and State agencies, counties, and other public bodies.

Within a total population of 1,600,000 people is a working force of slightly more than 560,000. Within this, in turn, is an unemployed group representing more than 9 percent of the working force, nearly twice the national average. Productive use of the skills and talents of this group is a major challenge--to these people and to those who can help them gain employment. An equal challenge is represented by the underemployed workers whose annual incomes should be increased, not only for themselves but for the benefit of the whole economic structure of the region.

There are unused resources. Millions of tons of ore to be mined--but mining is curtailed by competition from outside sources. New technologies hold some hope for improvement here.

An annual supply of 150 million cubic feet of small, low-quality trees standing unused in the woods and accumulating each year bear mute testimony to underdevelopment. Markets for this material would put most of the region's unemployed to work.

These are the raw materials, tangible and intangible, which if put to more productive use, and developed on a coordinated multiple use basis, can provide the foundation for growth.



NORTHERN GREAT LAKES REGION HAS THE RECREATION RESOURCES

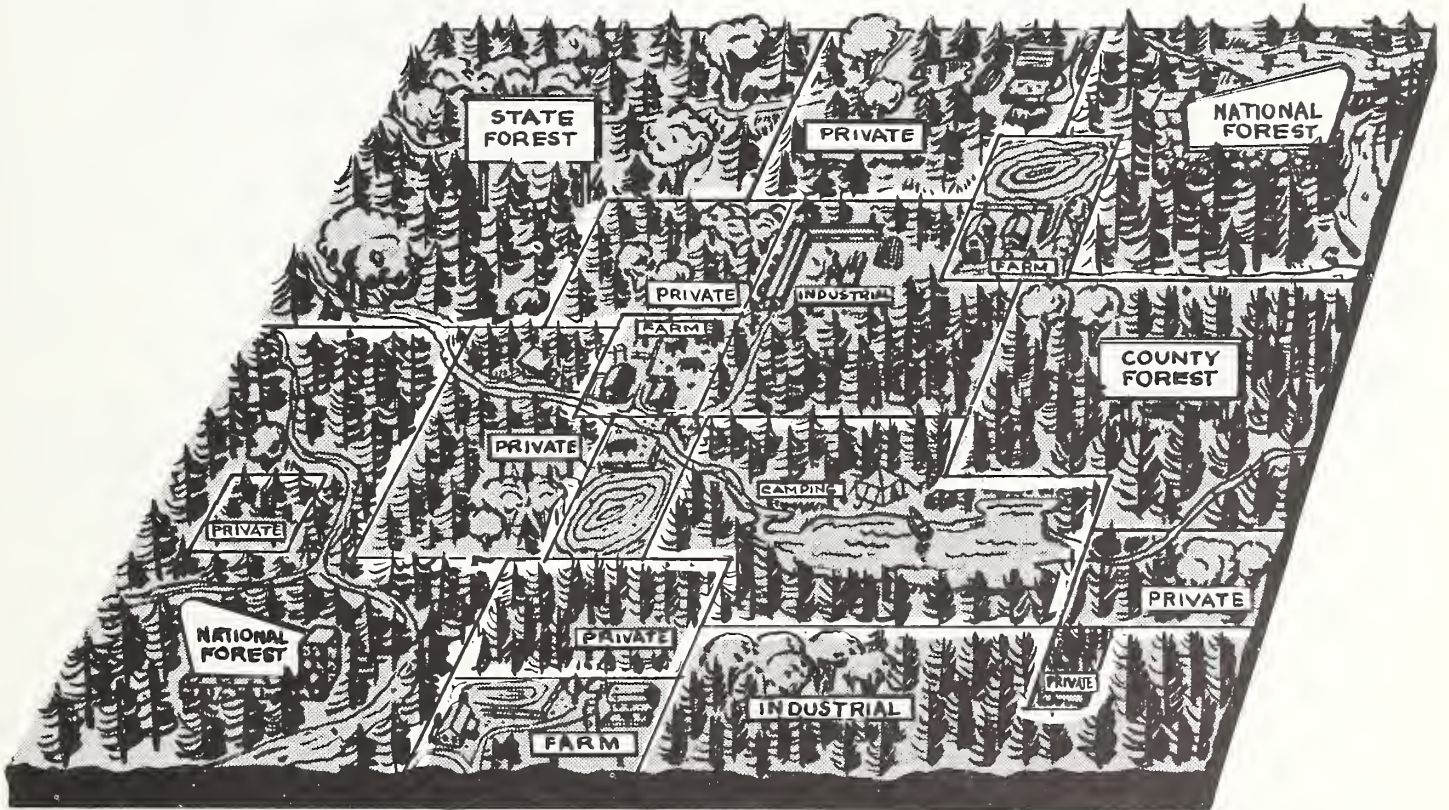


ORRRC Report Shows ...

65% of the people drive for relaxation and sight seeing.

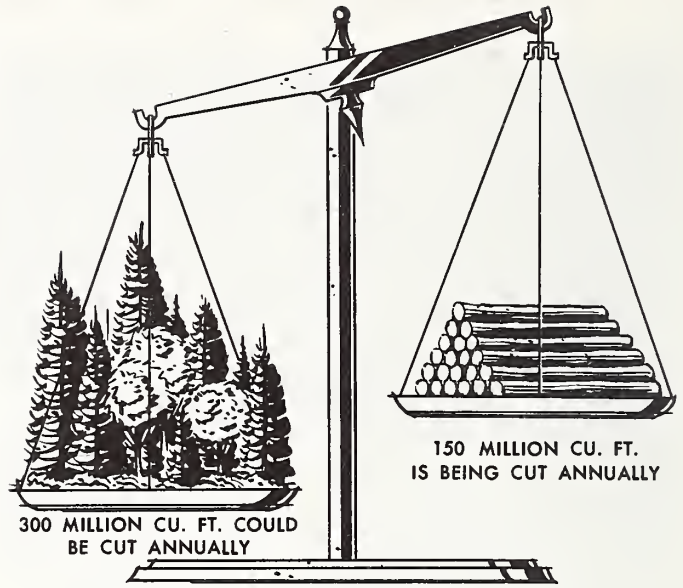
45% go swimming
40% go fishing
30% go boating

FRAGMENTED OWNERSHIP





NEARLY 25% of the NATION'S POPULATION LIVES WITHIN 500 MILES



The yearly harvest of hardwood timber for use in manufacturing cellulose based products can be doubled.



ROAD CLEARING PROJECT NEEDED!

WATER ABUNDANCE



LEGEND
Each dot represents 10,000 surface acres of natural lakes.
— taken from ORRRC STUDY REPORT 7, "SPORT FISHING TODAY and TOMORROW"

Resources from the Northern Great Lakes Region contributed to the Nation's westward expansion. Exploitation of its forests and its minerals provided jobs and homes and a good living for its people over a long period of years. The region, however, refused to be domesticated--many farmers found to their sorrow that over much of the region the climate was unsuitable and soils were not adapted to the plow. But the attempt was made. Local governmental structures and services were premised on success in agriculture. When this did not materialize and, more recently, as the mining industry declined, the economic structure became unbalanced.

In this region, as in others where emphasis is on raw material production, a decline in either the demand for resources or in their supply adversely affects the livelihoods of much of the population. Today the region is in a state of change. Shifts in population and job opportunities are evident within the region in response to changes in the supply-demand relationships.

This land of lakes and forests is a resource storehouse with much useful merchandise on the shelves, tended by industrious storekeepers. Resourceful, energetic people are taking strong, concerted action in many parts of the region. They are organizing themselves into development groups of many kinds. They seek a resurgence of the latent potentials of the region. Specific plans have been developed in many local areas. The need now is for action and implementation--and there are signs of this as well.

To guide the course, realistic goals, based on the needs of people and objective local and

regional planning, are a first essential. Capital and management and labor and natural resources must be blended together to bring forth the kinds of products people want. The raw materials of resources and opportunities for use within the region must be distilled and amalgamated into useful new products and services. Coordination of resource development and management is needed. A viable regional economy will become a reality when each of the industries--forestry, agriculture, mining, manufacturing, recreation and the other services--contributes its portion to the whole. Each segment, whether large or small, is interdependent with all others.

Informed local leadership exists and is moving ahead in almost every community. The Federal Government can bridge State lines and it can, through many of its programs now operating as aids at the State and local level, adjust to regional needs. This report is designed to illuminate those situations and suggest ways to capture the opportunities they present. It highlights ways for people to help themselves; to work with their neighbors; to use services available locally; to draw on State and national services and thus reinforce local efforts.

Many studies have been made and scores of organizations are working to raise the economy of different areas in the region. The many factors involved in regional economic growth are enormously complex and tightly fused. Under these circumstances, independent action, no matter how soundly conceived, cannot provide the long-term economic growth so essential to the region. Thus, real progress will be the result of the combination of local, State, and Federal endeavor into a comprehensive, integrated effort.

HIGHLIGHTS

Several resource and resource-related situations of major importance to the region's social structure and economic development potentials are highlighted in this section. These are the "themes" around which much of the later detailed presentations are centered. They are in effect the essence of the report.

Multiple Use and Coordination

Opportunities for economic growth will be greatest in this region under a resource management and outdoor recreation development program that produces optimum amounts of goods and services through the best combination of all resource uses. Many opportunities for economic development can be realized in the region if owners of resources coordinate their management to capitalize on the benefits of joint effort. This can be attained by:

Orienting Federal, State, and local activities to emphasize multiple use and provide direction in its application.

Emphasizing planning and action by local groups, such as Rural Areas Development committees, county governments, and soil and water conservation districts.

Consolidating ownerships through exchange of lands in many areas to simplify coordination and facilitate resource management.

Water, the Key

The single outstanding characteristic of this region is its bountiful supply of high-quality water. Wise use of this resource is essential to optimum growth of additional outdoor recreation activities, to new industrial development, and to the amenities of living in the region. To insure that these attributes are given maximum emphasis, it will be desirable to accomplish the following:

Complete integrated water inventories and surveys, inventory shorelines, riverbanks, and streamsides, and classify and catalog the water resources of the region as a

basis for decisions on resource use and coordination involving water.

Emphasize multiple use of water as an objective and a management practice.

Establish additional procedures and mechanisms for the protection of the quality and intangible amenity values of the region's waters.

Resources Used Effectively

Land and water and trees and other resources must be used in the most effective way. This refers not only to their values as single resources but to use of their tangible and intangible qualities in combination with other resources. Levels and kinds of use of renewable resources should be limited by their ability to maintain and reproduce themselves. Especially important would be:

Steps for meeting the management needs of absentee forest landowners.

Intensified technical assistance for all landowners to be provided by qualified specialists, including planning and development technicians for recreation activities.

Closing the Time-Distance Gap

The major market for most goods and services of this region lies at a considerable distance in miles and, particularly, travel time. Improved transportation facilities, for moving products to metropolitan markets and for moving people from metropolitan areas to recreation resources, are indispensable if this region is to expand outdoor recreation enterprises and other businesses are to make better use of the resources. It is especially important that:

Fund allocation formulas reflect the resource development needs of the region.

High priority be given to the construction of north-south express-type highways.

Access roads be provided from express-type highway interchanges to recreation facilities throughout the region.

Improvement of marketing services and facilities and intensification of forest and management, including technical assistance and guidance in these activities.

Agriculture Oriented to Regional Situations

People-Resource Relationships

Agriculture has an important place in the regional economy, although the opportunities for success are limited in some subareas. This report suggests that:

Mixed and part-time employment are typical of this region. A further characteristic that bears on the regional situation is the high level of local leadership and effort being devoted to economic development activities in many areas. A wide variety of enterprises--large and small--is needed to support communities and rural areas. Expansion of these will require training and retraining in outdoor recreation management (including resort management), and in farming, forestry, and related resource management. The following measures would be helpful:

Land capability maps and use recommendations are needed to guide farming in those areas likely to continue in agricultural use.

A larger volume of business is needed on many farms to provide adequate bases for farm family incomes.

There is opportunity for using open grazing lands effectively by developing beef cattle production as an additional enterprise on present farms and as the main enterprise on ranch-type farms.

In many situations there are opportunities for nontypical agricultural activities, such as production of native fruits and berries and farm recreation enterprises.

Making venture capital available, as an essential to full realization of the region's employment potentials.

Localized land and people conferences.

Programs for improved public relations with recreation visitors.

Grants, loans, and public works programs to develop and expand private enterprises and generate useful resource developments.

Programs to train and employ young men and women.

Expanding Use of Timber Resource

Recreation Potential

The timber resource is now grossly underused. Opportunities exist for aiding economic growth through additional development in forest products utilization. The following would contribute significantly to meeting this objective:

Emphasis on timber utilization by local planning and action groups.

Intensification and acceleration of the forest inventory program to provide basic data for feasibility studies of forest industry development opportunities in localized areas.

Development of new special forest products enterprises and expansion of existing enterprises.

Outdoor recreation already is a proven enterprise in the region. Its potential is recognized--but not fully. Opportunities exist for expansion in familiar kinds of recreation services and activities. New kinds of recreation activities can be developed. New facilities and attractions designed to encourage tourism and enhance travel and scenic enjoyment are further possibilities. This report suggests that:

Recreation use of water receive high priority when water values--tangible and intangible; consumptive and nonconsumptive--are weighed.

Sound planning, implemented by zoning or other means, is needed to guide recreation development of high-value shoreline areas.

Access to public land and water for recreation use, including hunting and fishing, is important and needs greater emphasis.

Broad-based promotion of recreation is essential for the region's development.

More high-quality lodging accommodations, other facilities, and attractions are needed.

The natural landscape of the region provides opportunity for emphasizing scenic roads, self-guided tours, and information centers.

There is need for regional recreation centers located in towns or cities to provide services for tourists and function as collection and distribution points.

A system of highways designed specifically for scenic enjoyment is needed for regional recreation development and would be an important tourist attraction.

THE RESOURCES OF THE REGION

History

Exploration of the Northern Great Lakes Region began with the fur trade. Intrepid voyagers used the Great Lakes, the river systems, and the major overland trails for roughly a century before intensive settlement was begun. Trappers and traders were followed by soldiers. Soldiers were followed by a few more civilians who clustered closely around the forts and major trading posts. Trade and service were the major occupations. Most of this early activity came south from Canada.

Copper was discovered in northern Michigan before the Revolutionary War. Mineral development, however, occurred only after an organized survey in the 1840's indicated the presence of larger deposits of both copper and iron ores. This development was oriented to the ease of water transport via the Great Lakes. It was unrelated to the flow of settlement and lumbering activity farther south in lower Michigan and Wisconsin that began about the same time.

A minor gold rush in northern Minnesota in 1865 caused widespread prospecting over the area and led to discovery of a rich deposit of iron ore in the Vermilion Lake area. Further explorations during the next several years led eventually to development of the famous Mesabi Range. The first shipment of ore from Minnesota occurred in 1884--about 25 years after iron ore was first shipped from northern Michigan.

The westward wave of settlement from New England, New York, Pennsylvania, and then from Europe began coming around the southern ends of the Great Lakes and into the Northern Great Lakes Region early in the 19th century. At about this same time the eastern lumber industry began looking westward for new sources of pine and other desirable softwoods for the ever-growing construction industry. Sawmill operators moved in a wave from New England through New York and Pennsylvania to the virgin pine stands of Michigan, Wisconsin, and Minnesota. Within the short span of 20 years, millions

of board feet of lumber were moving to the markets annually.

The virgin forests were an obstruction to agricultural development. In other parts of the country hardwoods were piled and burned to make way for fields and cultivated crops. In the Northern Great Lakes Region the organized logging industry and wildfires would remove the trees and make the land available to settlers at low prices. Timber harvest provided jobs for settlers, profits for businessmen, and products needed in a growing national economy. This was the era of exploitation and settlement. Natural resources were abundant relative to foreseeable economic use. Most of the continent remained for taming. Sawmill operators were followed by land agents, as prospectors were followed by speculators. Behind and among all of these people searching for the "quick dollar," the bonanza, were the settlers searching for cheap land to be turned into prosperous farms and communities.

A kind of multiple-purpose use, although unplanned, occurred during this era of exploitation and settlement. Inasmuch as the forests hindered farm development, lumbering aided farmers in their land clearing. Logged-off and burned-off land was sold at bargain prices--it was partially cleared. Work in the woods provided cash income to loggers who wanted to farm, or to settlers until they could develop self-supporting farm units. Likewise the mines, as they developed, provided wage employment to tide settlers over the development period. Each type of enterprise, in turn, helped support developing trade, commerce, and services.

Up to this stage, the economic development history of the region proceeded along familiar lines. The pattern began breaking apart, however, as the forest harvest began waning. Loss of wage employment in the woods was not offset by increased income from farming. Removal of the timber enterprise resulted in ghost sawmill towns, lost markets for retail and service trades, and frequently in abandoned



communities. The natural resource of trees was removed faster than agricultural settlement developed to take its place. The first major shock to orderly economic development of the region had occurred.

This shock shortly was followed by others. Although some knowledgeable settlers had chosen the better soils, others were less selective. Farms typically were small, inefficient, and relatively unproductive. A process of attrition began in many new farming communities before settlement could be completed. Competition from more favorably located sections in the southern parts of these States, and from newer producing areas farther west, kept market prices too low to balance the relatively high cost of production on small farms in the Northern Great Lakes Region. Evidence was piling up that a new kind of economy based on a combination of forestry and farming was needed. World War I temporarily bolstered the region's agricultural economy, but this reprieve was short-lived. Another apparent reprieve oc-

curred during the 1930's as population backed up on farms and in rural areas generally. The new technologies of the 1940's and 1950's provided opportunities for nonfarm employment, but also created more intensive competition within agriculture.

During all this settlement period, residents in relatively small segments of the region were benefiting from mineral resource developments. Some mines were short-lived. Others were sufficiently rich and sufficiently large to provide single-enterprise support for whole communities. Similarly, smaller sawmills, pulp and paper plants, woodworking plants, and others operating on the remnants of the virgin forests provided localized enterprises to support the wavering economy.

The significant feature of the development history to this point was the almost total dependence on harvest of virgin natural resources. Resource management as it is known today actually would have been inappropriate

during the heyday of settlement. Sustained yield management of the forests would have been unrealistic and uneconomic, as would have been programs for conservation of the irreplaceable mineral resources.

General expectations of settlement started going awry when farming was unable to fill its appointed place. By the time this fact became evident, the rich resource of timber had been harvested. Natural timber replacement would be too slow to provide employment for the stranded population. Much of the new growth was in low-grade species unsuited to lumber production. New uses for the smaller and less valuable timber were needed. Larger capital investments for plant and equipment, and less labor, were needed per unit of raw materials in the new factor mix. To further complicate matters, new wood technology found ways to use hardwoods in pulp and paper manufacture. This, in effect, doubled the supply of raw cellulose material available in the forests. The market was unable to keep pace with this increased supply of raw material.

Recreation as an enterprise in this area undoubtedly had its beginnings in wilderness-type fishing and hunting. As the midwestern cities grew and as transportation facilities were improved, more and more people began taking their vacations in the land of forests and waters. Families could escape summer heat by spending the season at a cabin or resort in the north. The clear cool waters provided fishing, swimming, and boating opportunities in often restful and scenic settings. The woods provided scenery in summer and a variety of game for hunters. Commercial recreation activities until recently have been oriented to the summer vacation and fall hunting seasons. Winter and spring activities were needed to bolster the recreation business.

Natural and Physical Resources

LAND AND SOIL

Throughout the region, the lay of the land and the kind of soil has been greatly influenced by glacial action. The glaciers acted like great leveling planes. They changed the course of rivers and created several thousand lakes.

As they advanced and retreated, they sorted, sifted, mixed, and remixed the soil parent materials, leaving behind a great variety of soils and site conditions.

The kind of soil in any locality, with all of its physical characteristics including site, has an important influence on economic use of the land. This is especially true for single purpose uses, but kind of soil also strongly affects the multiple use potential. The "best" use of land disturbs natural conditions as little as possible. Land use planning, however, is both social and economic planning, and the physical characteristics of the land are only part of the considerations which collectively determine suitability of a specific tract for a given single use or multiple use. In short, the kind of soil and other natural conditions help to set the limits of what is feasible, but alone cannot determine the most efficient use for society.

Originally, most of the land of the Northern Great Lakes Region had a natural forest cover. Agriculture followed the timber harvest and subsequent forest fires. Yet all too often not enough attention was given to the suitability of the land for farming. Since the 1930's much has been learned about the capabilities of the land and its most effective use. Big changes in land use have accompanied this understanding. Soil surveys with the resulting maps and explanations have contributed materially to improvements in land use.

There are some 80 different soil types in the region. Based on kinds of soils, drainage, slope of land, and climate, the region is divided into eight "resource areas" in this report.¹ These are shown in figure 1. Within each of these resource areas, all the different land uses of the region may occur over large continuous areas or in isolated locations. Some uses, however, are more common in one resource area than in another; this is true now and undoubtedly will continue so. For example, Resource Area 8 has agricultural and forestry

¹The eight resource areas defined here fall within "K. Northern Lake States Forest and Forage Region," which is one of the 21 regions delineated on the map, "Land Resource Regions and Major Land Resource Areas of the United States (48 conterminous States)" issued by USDA Soil Conserv. Serv., January 1963.

land use as the major industries. On the other hand, Resource Area 2 has a forestry dominance though it also has some agriculture. An obvious, unqualified example is provided by Resource Area 7, where agriculture is and will be minor in importance. The important differences between these eight resource areas and their distinct attributes should be considered in planning future developments. The order of the numbers assigned to the areas has no significance. Thumbnail descriptions of the several areas follow; they point out the suitability of the areas for different purposes, based chiefly on physical characteristics of the soil, topography, and vegetative responses to management.

Resource Areas of the Northern Great Lakes Region

The Northern Great Lakes Region is divided, for purposes of this report, into eight broad resource areas based on kinds of soils, drainage, slope of land, climate, and related resource potentials.

Resource Area 1 is composed of clayey soils with moderate agricultural potential. Surface drainage, land smoothing, water erosion protection, and addition of fertilizers are management practices needed for agriculture. The well-drained soils are suited for growth of conifer and hardwood forests.

Resource Area 2 is composed of sandy soils with fair to moderate agriculture potential. Wet depressional areas have potential for specialized crops, such as cranberries. Wind and water erosion protection, moisture conservation, and fertilization are management practices needed for agriculture. The better drained soils in this area are well suited to the growth of conifer forests but not for hardwoods.

Resource Area 3 is composed of loamy soils with moderate potential for agriculture. Water erosion protection and fertilization are the principal management practices needed for agriculture. The better drained soils are well suited to growth of both conifers and hardwood forests. Resource Area 3a is the transition zone to higher agricultural potential to the south; more agriculture prevails in this subarea.

Resource Area 4 is composed of silty soils with high potential for agriculture. Surface drainage, land smoothing, erosion control, and fertilization are major management practices needed for agriculture. Good growth of both conifers and hardwood forests is obtained on the better drained soils.

Resource Area 5 is composed of sandy soils well suited for the production of orchard crops and small fruits. Water erosion protection, moisture conservation, and fertilization are management practices needed for agriculture.

Resource Area 6 is composed of sandy to clayey soils with a moderate to low agricultural potential. Water and wind erosion protection, drainage, and fertilization are the principal management practices needed for agriculture. Fair to good growth of conifers and hardwood forest may be expected on the better drained soils; poor growth of conifers, on other soils. Resource Area 6a, although in general like its major counterpart, has a higher potential for agriculture.

Resource Area 7 is composed of sandy and loamy soils with many rock outcrops. The potential for agriculture is extremely low. Fair to good growth of conifers and hardwoods may be expected on the better drained soils.

Resource Area 8 is composed of loamy soils with moderate to high agricultural potential. Surface drainage, water erosion protection, and fertilization are the major management practices needed for agriculture. Good growth of both conifer and hardwood forests may be expected.

WATER

A single characteristic of the Northern Great Lakes Region distinguishes it from most other areas in America. It has an abundance of fresh water, from the vast reaches of Lakes Superior, Michigan, and Huron, to the myriad natural inland lakes--a veritable lakeland. Found too are great areas of bog and swamp, their future--whether to be land or water--still to be decided. Much of the region is a vast sponge; water oozing and flowing, usually within natural

LAND RESOURCE AREA MAP FOR NORTHERN GREAT LAKES REGION

NOTE: THE EIGHT RESOURCE AREAS ARE DESCRIBED
IN ACCOMPANYING TEXT.



RESOURCE AREA	PERCENT OF AREA
1	3.5
2	21.6
3	32.4
3a	
4	5.2
5	3.2
6	12.6
6a	
7	5.1
8	16.4

Figure 1

channels, but sometimes as a rushing flood. On the other hand and in sharp contrast, some of the region is sandy and there water infiltration is rapid.

The abundance of water is too often taken for granted. In general the quality of the water is good for domestic use, recreation, forestry, agriculture, and for industry and transportation.

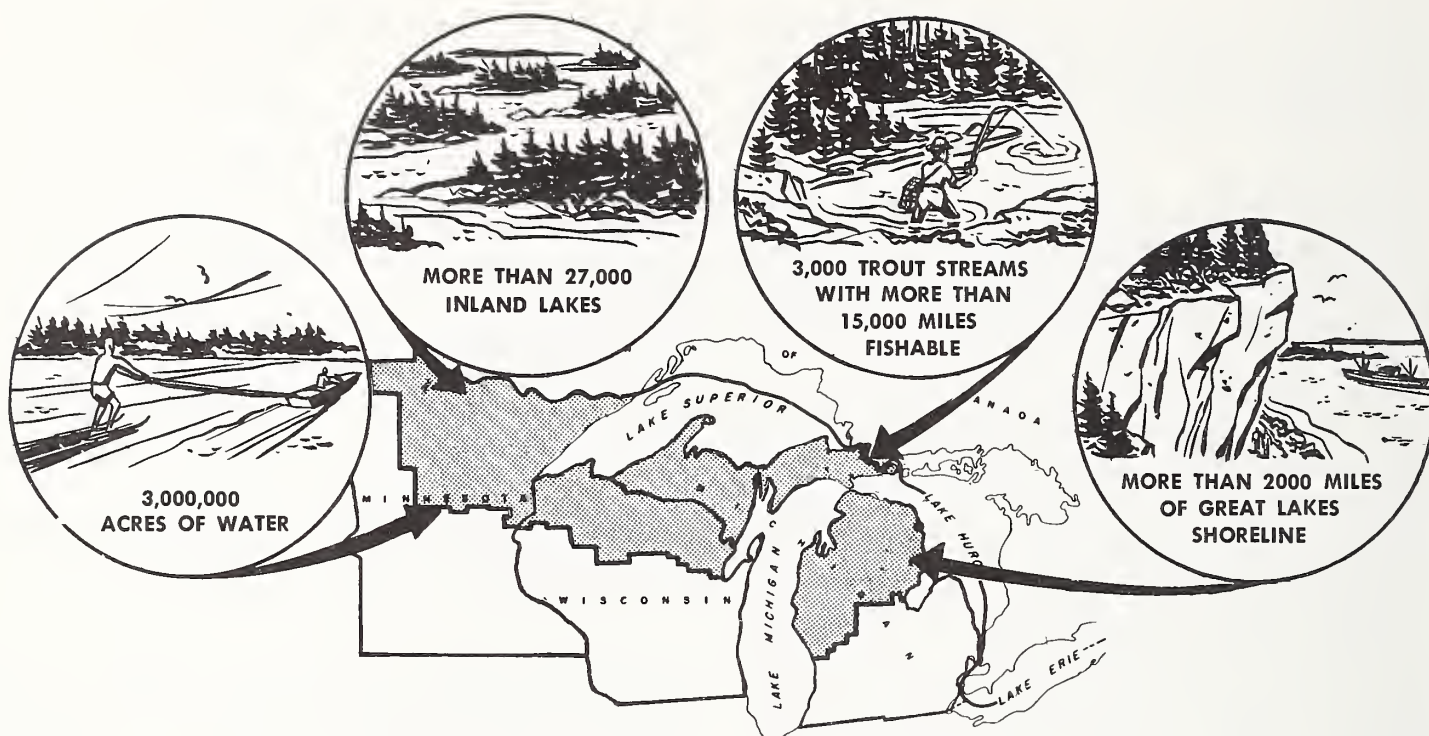
Water characteristics in the Northern Great Lakes Region are less homogeneous than in many other places. The variation in quality presents varying opportunities and requires adjustments in use. Cold, clear water in a stream may be good for trout but poor for swimming. The cold waters of Lake Superior may be good for boating and an excellent source of industrial water, but again not for swimming. Inland bodies of water, generally warmer and often shallow, provide limited opportunity for indus-

trial development that requires much water consumption.

Water resources are classified as surface waters and underground waters. Movement of underground waters into streams, generally through seeps and springs, guarantees at least a minimum low flow. Likewise, ground water helps to maintain the level of lakes, particularly the smaller lakes and ponds that have no outlets. Good vegetative cover and general absence of steep slopes in the region result in a high annual rate of infiltration of rain and snow water. This region not only has a great wealth of surface waters, but it is the funnel for underground water supplies benefiting downstream areas many miles removed.

It is estimated that there are at least 27,000 inland lakes, both named and unnamed, in the region. These lakes have surface areas totaling nearly 3 million acres. The very small





lakes frequently have only 4 to 10 acres of surface water area; and these are generally unnamed. Approximately one-fourth of the lakes range in surface area from 50 acres to 150 acres. Some 10 to 15 percent have more than 200 surface acres. The majority of the largest inland natural lakes have 2,000 to 5,000 surface acres with a few having more than a half million acres. A few flowage and reservoir type lakes cover from 3,000 to 18,000 acres.¹

There are at least 3,000 trout streams with more than 15,000 miles of fishable water in the region. These waters are cool and for no prolonged periods do their temperatures rise higher than 77° F., the limit for trout sur-

vival. The water primarily is fed from springs with 50° F. temperatures; they are a part of watershed conditions which provide instream cover, food supplies, suitable spawning sites, and warm water in the winter--all of which are essential for good trout production.² To the fresh-water fishing fraternity, trout fishing and the environment in which this sport is enjoyed represent the ultimate in recreation satisfaction.

The waters of the region provide the setting for many kinds of water-based recreation. The region's water is used directly for recreation. There is also an indirect relationship. Water adds to the esthetic value. Its depth, its serenity, its movement add variety to the scene. It improves the quality of other recreation such as camping, picnicking, and sightseeing.

By no means, however, does the high-quality water of the region have attributes only for recreation. It serves industry, which requires

¹ Wisconsin Lakes. Wis. Conservation Dept. Publ. 218-58, Madison, 1958.

Water for Michigan. Mich. Water Resources Comm., Lansing, 1960.

Minnesota Vacations publications (various), Minnesota Vacations, St. Paul.

Water--Preliminary Inventory of Michigan's Artificial Surface Water. Dept. of Resource Development, Mich. State Univ., East Lansing, 1962.

² Wisconsin Trout Streams. Wis. Conservation Dept. Publ. 213-57, Madison, 1957.

Fish for More Fishermen. Mich. Conservation Dept., Lansing, (n.d.)



water for processing a wide variety of products.³ Among the most important of these are the chemical industries and those using chemical-base treatments in manufacture. The yearlong evenness of temperature in many lakes, water purity, and high rate of recharge in a great many lakes in the region gives these waters high priority for industrial use purposes compared to water resources of many other regions. Technological developments in industries which need moderate amounts of high-quality water can bring greater recognition of the value of water to this region in the future.

In earlier years a large number of hydroelectric reservoirs were developed on rivers and flowages having suitable storage sites. Recently, as greater efficiencies in power output were attained through construction of steam generating plants, many reservoirs were abandoned as power sources. They became artificial lakes with stabilized levels capable of serving other purposes.⁴

³ *The Resources of the Future*. C. R. Humphrys, Mich. State Univ., East Lansing, 1958.

⁴ Reference 1, preceding.

Though the lakes in the region are abundant, they are not always located strategically for some uses, particularly for agriculture and some recreational uses. At least 4,000 private artificial ponds are estimated to exist in the region. These are waters with no outflow, and under 10 acres in surface area. In total they may cover about 30,000 acres. Practically all of these ponds serve multipurpose uses, such as water for livestock, fire control, small irrigation acreages, swimming, and fishing.⁵ Also, the larger ones provide access to water for those people who cannot obtain it on lakes and streams in the local area of their need and choice. Waterflows in many watersheds are available to permit development of more ponds and small artificial lakes in those localities not now adequately served by natural lakes or other waters. These are in addition to the present estimated 200 artificial lakes in the region with a surface area of approximately 20,000 acres.⁶ These ponds afford a sound basis for multipurpose use of the region's resources.

Waterfowl, furbearers, and other forms of animal life that live near, on, or in water, have definite economic, recreation, and esthetic values; water is the essential of their being. Water for fish hatcheries and research installations is diverted from streams or is supplied by pumps or flowing wells.

There are many cranberry marshes in the region, and the readily available water supply at controlled levels is most important to the success of these enterprises.⁷ Irrigation water is coming into prominent use for production of strawberries and vegetables in some parts of the region.⁸ Availability of low-cost water, either surface or underground, is of outstanding importance.

⁵ *Michigan's Artificial Ponds*. Mich. State Univ., Article 44-36, East Lansing, 1961.

⁶ Reference 1, preceding.

⁷ *Cranberries of Wisconsin*. Federal-State Crop Reporting Serv., Special Bul. No. 70, Dec. 1957.

⁸ *Michigan Statistics on Vegetables, Strawberries, Mint*. Mich. Crop Reporting Serv., Feb. 1962.

Wisconsin Vegetables, for Commercial Processing, Federal-State Crop Reporting Serv., Special Bul. No. 71, Aug. 1958.

Inland waters serve commercial fish hatcheries and fish processors and as fishing ponds.

Water's use for transportation is not new, but the nature of this use has shifted. Historically, Indians and voyageurs used the rivers as transportation routes to cover long distances. An early canoe route from Lake Superior was via the Brule River to its headwaters, then over a short portage into St. Croix Lake, and via the St. Croix River to the Mississippi River.⁹ Today the Brule River, with its scenic beauty, is one of the famous "white-water" canoe routes in the region. Thus, transportation by water has an entirely different purpose than in the frontier days.

The only bodies of water significant for commercial transportation within the region are the Great Lakes. The opening of the St. Lawrence Seaway to ocean-going vessels has greatly magnified the importance of the three Great Lakes to the region as transportation routes. Furthermore, these three lakes are bordered by some 2,000 miles of shoreline within the region. Their blue waters, a background to the dynamic zone along the shores, offer a setting for looking, fishing, boating, resting, romance, and adventure.

The importance of water in swamps and marshes scattered throughout the region could easily be overlooked. The hunter, however, and the fisherman to some extent, depend upon them for waterfowl, game animals, and some species of fish. Some marshes and swamps help hold water temporarily and may assist in providing a source for underground storage and recharge. The marshes, swamps, and wetlands support a great game potential in the region. These wet areas represent a transition zone between highland and water. Here are food and cover plants in great variety and here game concentrates because of the ideal habitat conditions,¹⁰ which are due to the terrain, the cover, and abundance of water. Furthermore, some of these swamps and marshy areas are of significant value for study of ecological

relationships. For this purpose they must be held apart from traditional resource use and the continuation of their natural water supplies must be assured.

FISH AND WILDLIFE

Fish and wildlife are important to the recreational economy in the Northern Great Lakes Region. Hunting and fishing were the objectives of nearly 40 percent of the 6,253,000 annual visits in 1961 to the eight National Forests in the region.

This is the most popular area in the three States for trout fishing, and properly managed, this sport will continue as a prime factor in drawing people into the region.

The following quotation from one of the ORRRC Study Reports¹ has a bearing on this point:

Modern highways and aircraft allow travel to more distant waters in less time; more privately owned boats provide the means for greater numbers of people to fish . . . The inclination of the angler to focus the family vacation around fishing waters . . . has caused heavy concentrations of fishermen on most of the Nation's more accessible waters.

The study report states that in 1960 some 25 million Americans over 12 years of age went fishing. Collectively they spent a total of 463,700,000 days or one and a quarter million years fishing. Current trends indicate that in less than 40 years the figure will rise from 25 million to 63 million Americans partaking in the sport.

Fishing is no longer simply a summertime sport for the men. Increasing numbers of women are fishing, though men still outnumber women about three to one. Moreover, the fishing season is lengthening. In the East North Central States, of which the Northern Great Lakes Region is a part, 30 percent of all fishing is done through the ice.

⁹ The Natural Resources of Wisconsin. The Natural Resources Committee of State Agencies, Dec. 1956.

¹⁰ Reference 3, preceding.

¹ Sport Fishing--Today and Tomorrow. Outdoor Recreation Resources Review Comm. Study Report No. 7, Washington, GPO, 1962.



Another of the ORRRC Study Reports found pursuit of deer to be a major sport of hunters: it is the only hunting that many people do.² The Northern Great Lakes Region has long been a favorite deer hunting area. Data on hunting specific to the region are not available, but some indication of the magnitude of this form of recreation in the region can be gleaned from the number of licenses sold for hunting deer in the three States over the last 5 years. The average for this period has been 975,000, with a slight upward trend shown to a high of 1 million in 1960. What proportion of these represents persons who hunted in the region is not known, but it is undoubtedly high.

Improved transportation, more "leisure" time, and a larger population are contributing factors that tend to increase the number of hunters in the region. On the other hand, several

²Hunting in the United States--Its Present and Future Role: ORRRC Study Report No. 6, Washington, GPO, 1962.

factors work in the opposite direction. One of the most important is the upward trend in the posting of land to exclude public hunting. The following statistics come from a rather intensive study of this situation made in Michigan.

The Michigan portion of the Northern Great Lakes Region includes about 21 million acres. Of this total, roughly 16 million, or 84 percent, are classified as "wildlands" (nonagricultural, nonurban, etc.). In 1954 1,091,000 acres of these lands, or 7 percent, were closed to public hunting. By 1960 this figure had increased to 1,542,000 acres, or 9 percent, of the wildlands. This represents a 41-percent increase in posted land over 6 years. On a county basis the variation in such figures is very large, one county having 63 percent closed to hunting and one having only 0.3 percent posted.³

³Data derived from ORRRC Study Report No. 6 previously cited, and information supplied for that study by the Michigan Dept. of Conservation.



Recognizing the dangers of generalizing for the entire region, it is nevertheless clear that this trend is placing more hunting pressure on less land area. This is particularly so for the public lands, which in almost all cases, with the exception of "parks," are open to the public for hunting. Although no data have been collected on the subject, apparently a similar situation may prevail with respect to access to trout streams.

During the last half of the nineteenth century market hunting was widespread and several wildlife species such as the passenger pigeon disappeared or became rare. Eventually the era of destruction was ended. Extensive areas of burned-over land began to produce trees again as soon as fire was held in check. Populations of deer, grouse, and snowshoe hare "exploded" with the sudden surge in the available food

supply.⁴ Peak deer populations, for example, were reached throughout the region during the 1940's, probably numbering as high as 3 million animals. Soon major species of wildlife outgrew their food supply and extensive starvation occurred, along with damage to the wildlife habitat.

Wildlife, especially big game, has always been an attraction to the public--both those who hunt and those who do not. People like to see game in its natural setting. This desire has led many people to favor an abnormally high game population; a population far too great for the natural food supply, and well above the number determined through painstaking scientific study of habitat carrying capacity. In the long run, such high populations will destroy the habitat and the animals will starve. Although the individual fisherman or hunter frequently believes he recognizes a specific (often local) deficiency, scientific investigation of production and harvest conditions is the only reliable basis for sound fish and game management policy and law.

Despite misunderstandings in some sectors of the region, scientifically based game management is making progress. Realistic measures to utilize surplus wildlife populations began in Michigan and Wisconsin during the 1950's. Minnesota started action a few years earlier and as a result now has a more stable wildlife situation. Habitat conditions are improving throughout the area as wildlife management advances into an era of sustained yield, multiple use objectives.

A larger harvest of most wildlife species is practical and desirable. For example, there are about 1.25 million deer within the region's boundaries. The harvest has fluctuated in previous years but now annually approximates 200,000 animals. Harvest goals for the future, as established by the respective States, will be at least 300,000 animals from a huntable herd of 1 million. Similar increases in the allowable harvest of many small game species can be expected.

⁴Deeryard Management in Michigan. Mich. Dept. of Conservation Cir. No. 92, Lansing, 1958.

Wildlife, People, and the Land. Wis. Conservation Dept., Publ. No. 621, Madison, 1961.

CLIMATE

The entire region has a pleasant and dependable climate. There is adequate rainfall and sunshine for vegetation and recreation enjoyment throughout the spring, summer, and fall seasons. Summers are pleasantly cool. Moderate breezes are rarely absent, and the humidity is rarely oppressive. The vegetation shows responses early in the spring, and the luster and attractiveness of the foliage is sustained throughout the summer. The climate also promotes the magnificence of autumn's nature paintings, the flaming colors of trees and brush contrasting with the deep green of the pines. There is always a freshness about the countryside. Wintertime is no exception when a cloak of crystal white envelops the land.

Prevailing winds in spring, summer, and fall are from the southwest. In winter the strong winds are most often from the north. The range of temperature is great--from 95° to 100° F. on the few warmest days in midsummer to -30° to -35° F. on the coldest days of winter. Average July temperatures for most of the region are in the upper 60-degree range.

Average annual precipitation varies from 22 to 24 inches in the far western part of the region to 36 inches in small segments of the eastern part. Most of the region receives annual precipitation of 24 to 30 inches. There is no significant drought period from May to September. Snowfall in some sections not uncommonly reaches a depth of 55 to 60 inches, with an average of 30 inches or more. Sunshine averages somewhat over 50 percent of the possible yearly amount; the greatest percentage occurs in the summer and the least in the winter. The annual average humidity is about 80 percent in early morning, 65 at noon, and 70 in early evening; it is somewhat higher in winter than in summer.

The last freezing temperature in the spring generally occurs from June 1 to 10 in the northern parts of the region and from May 20 to 31 in the south. Inland from the Great Lakes, the first freezing temperature in the fall can be expected as early as September 1. For some areas near the Lakes, freezing temperatures



are retarded until about October 1. Freezes in mid-September are common in the greater part of the region.

The number of days without killing frost generally ranges from 100 to 130 days. A small proportion of the region lying adjacent to the three Great Lakes, and influenced by them, enjoys growing seasons of 130 to 150 days. Conversely, some small inland areas are limited to 70 to 90 frost-free days.

TIMBER

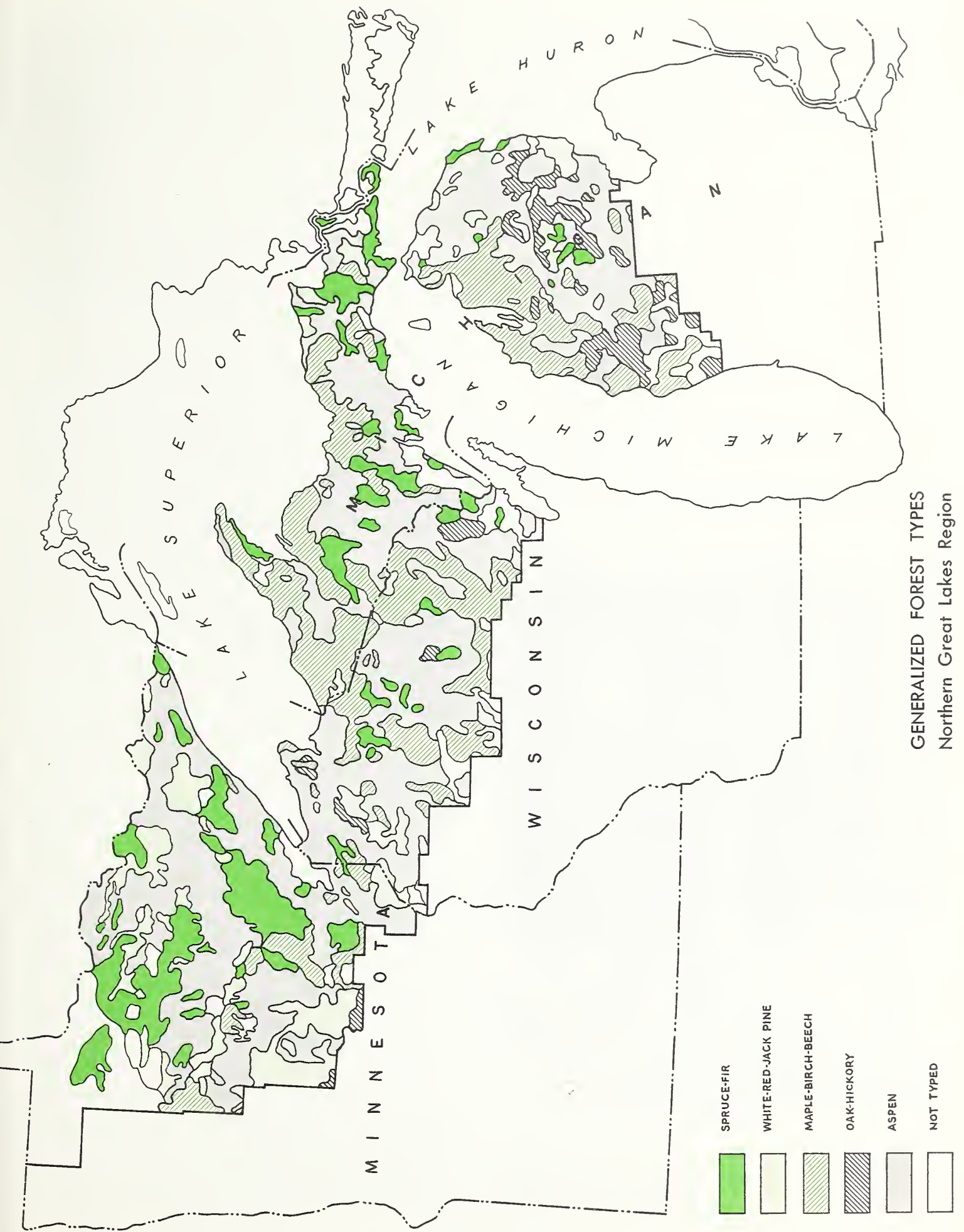
Heavy logging ended in the Northern Great Lakes Region about the second decade of this century. The new forest growth which developed with fire protection and reforestation has created a forested area of high potential and gradually increasing productivity. There are 45 million acres of forested land in the region. This is four-fifths of the total land area. Represented within this acreage is a wide range of forest types; both hardwood and coniferous forests (fig. 2).

Management Characteristics

Nearly 40 percent (21 million acres) of the total land area is in public ownership. Wood-using industrial landholdings account for only 6 percent of the forested acreage.¹

Management of the forests in public and industrial forest holdings has been classified as being of generally good quality with definite management objectives and practices aimed at attaining high-level timber production. The outlook is not as favorable for the forest land in private small holdings. With few exceptions, these small ownerships lack definite management plans and objectives. Their intermingling with managed forest property also constitutes a stumbling block to attainment of timber production goals from the latter. In parts of the region the situation is being aggravated by sale of forest lands in large industrial and public holdings as small tracts.

¹Timber Resources. U. S. Forest Serv., Lake States Forest Expt. Sta., Sta. Paper No. 37, 1956.



GENERALIZED FOREST TYPES
Northern Great Lakes Region

Figure 2

The outlook for good forest management and good production is favorable on somewhat less than half of the forest land area. The management of small private holdings ranges from complete preservation to exploitive commercial timber harvesting.

Condition

Fifteen percent of the commercial forest land area is classified by Forest Survey procedure as needing reforestation. At the current rate of reforestation, over a century may elapse before restocking is complete.

During the first 30 years of the present century, after the liquidation of the white pine, the lumber industry obtained logs from remnant stands and several large blocks of good hardwood sawtimber. Since 1930 a gleaning operation has been harvesting the scattered saw-log trees throughout much of the Northern Great Lakes Region. The forests have been logged not once, but many times. Noteworthy exceptions can be found where forest managers were able to look to the future and make selective improvement cuts in mature hardwood stands, leaving the most promising trees to grow into sawtimber of high value. The same practices were applied on some public forests. These stands are now in good productive condition, growing high-quality timber.

The term "allowable cut" means the quantity of wood that may be cut from forests, in the area supplying a mill or mills, without reducing the capability of the forests to yield equal quantities in future years. Cutting more than that quantity from the forests is like withdrawing some of the principal of an investment, instead of spending only the interest or dividends for current needs. The capacity of sawmills in the region to convert logs into lumber is now almost four times as great as the estimated annual allowable cut of saw-log

material. Naturally, this causes economic pressure to cut more of the good sawtimber than the forest can continue to yield. This situation does not lend itself to improvement of the quality and composition of stands. Cutting of sawtimber now exceeds the annual allowable cut in several areas.³

The objective for many managed public forests is a saw-log stand for the final harvest before growing a new stand, with intermediate cuts for pulpwood and similar products. Thus, the long-range outlook for availability of saw logs is good, at least on these managed public forests.

Although saw-log size stands account for approximately 12 percent of the commercial forest land in the region,⁴ only half of them are satisfactorily stocked. Many of these stands of trees have too little usable material per acre for logging to be profitable.



³ Data from U. S. Forest Service, Lake States Forest Expt. Sta.

⁴ Reference 1, preceding.

¹ Timber Resources. U. S. Forest Serv., Lake States Forest Expt. Sta., Sta. Paper No. 37, 1956.

² This includes the nonstocked, or poorly stocked, forest land on which the establishment or interplanting of forest cover is most desirable and practicable, or where forest regeneration will not occur naturally in desirable density within a reasonable period of time.

The stands of trees smaller than saw-log size present a different supply-demand situation. According to estimates, the amount cut could be increased by two-thirds without lowering the quality of the remaining stands or endangering a future yield. This estimate is conservative; it is expected that new Forest Survey data will show that it can actually be doubled.

Production

Estimates of the percent of the labor force engaged in the production and manufacture of forest products in the Northern Great Lakes Region range from 10 percent in some areas to as high as 80 percent in others.

The advent of the chain saw, the clam and finger lift, the bulldozer, the self-loading haul trucks, the portable debarker, and various other mechanical aids has brought significant changes in the woods. Production per unit man-hour has increased; hence the demand for labor in the woods has decreased.

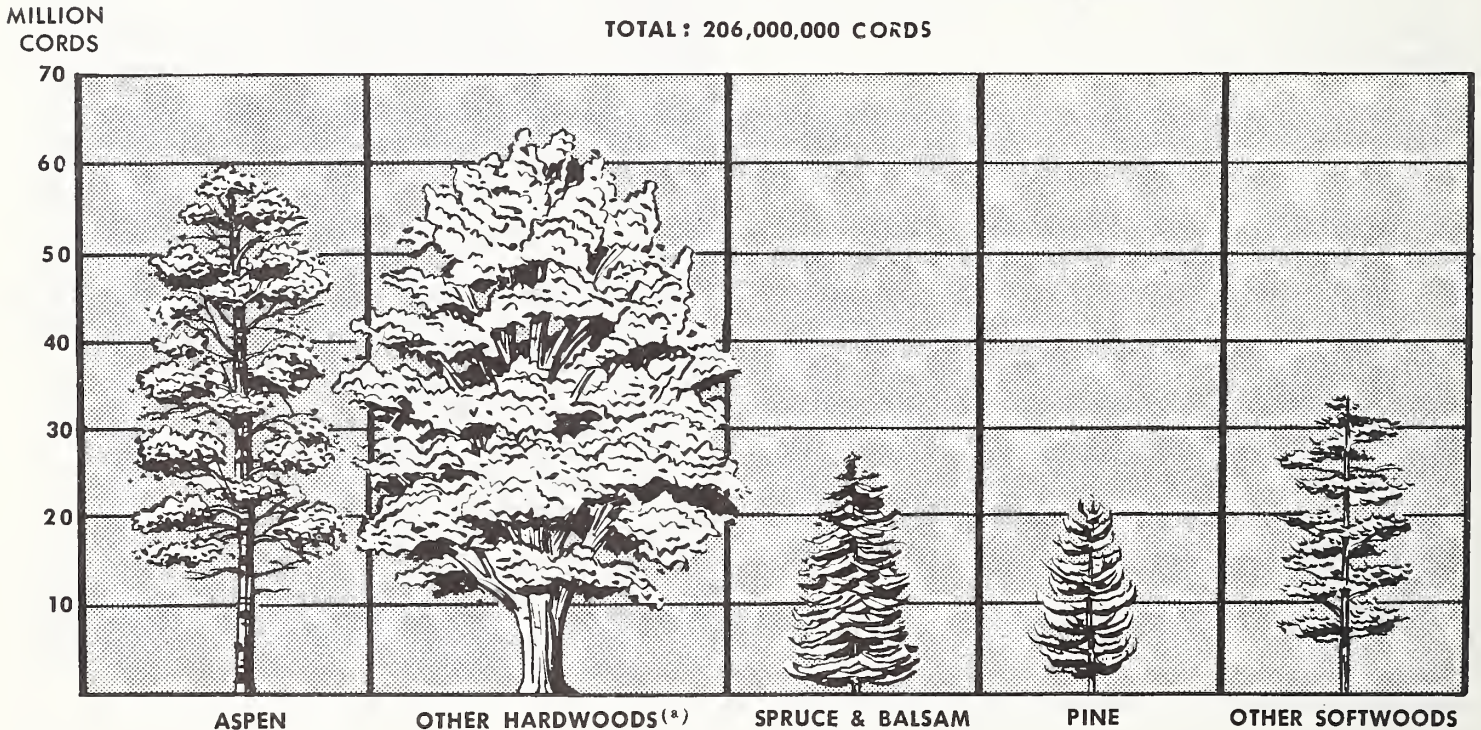
Pulpwood production is characteristically an enterprise requiring only a small capital in-

vestment. With stumpage and pulpwood purchasing contracts in hand, the operator has the first essentials. The pulpwood contract guarantees that a mill or a pulpwood jobber will purchase the product. Stumpage can be obtained by purchase through either an advertised timber sale or a nonadvertised sale contract on public land, or less frequently, by a letter of intent from an absentee landowner. Powersaws can be rented. Trucks can be rented, or the hauling can be put under contract with a third party. Pulpwood buyers frequently and customarily underwrite even the living expenses of the woods worker until the pulpwood he cuts has been paid for by the pulpmill.

In contrast to this, the saw log and veneer log industry, because of the size and weight of the raw material units, requires heavy equipment and a comparably greater initial investment. It also requires a greater understanding of wood quality.

With the changes in the mining industry of the Northern Great Lakes Region, and the resulting readjustment in mining employment opportunities, men in many areas are turning

TIMBER VOLUME . . . NORTHERN GREAT LAKES REGION

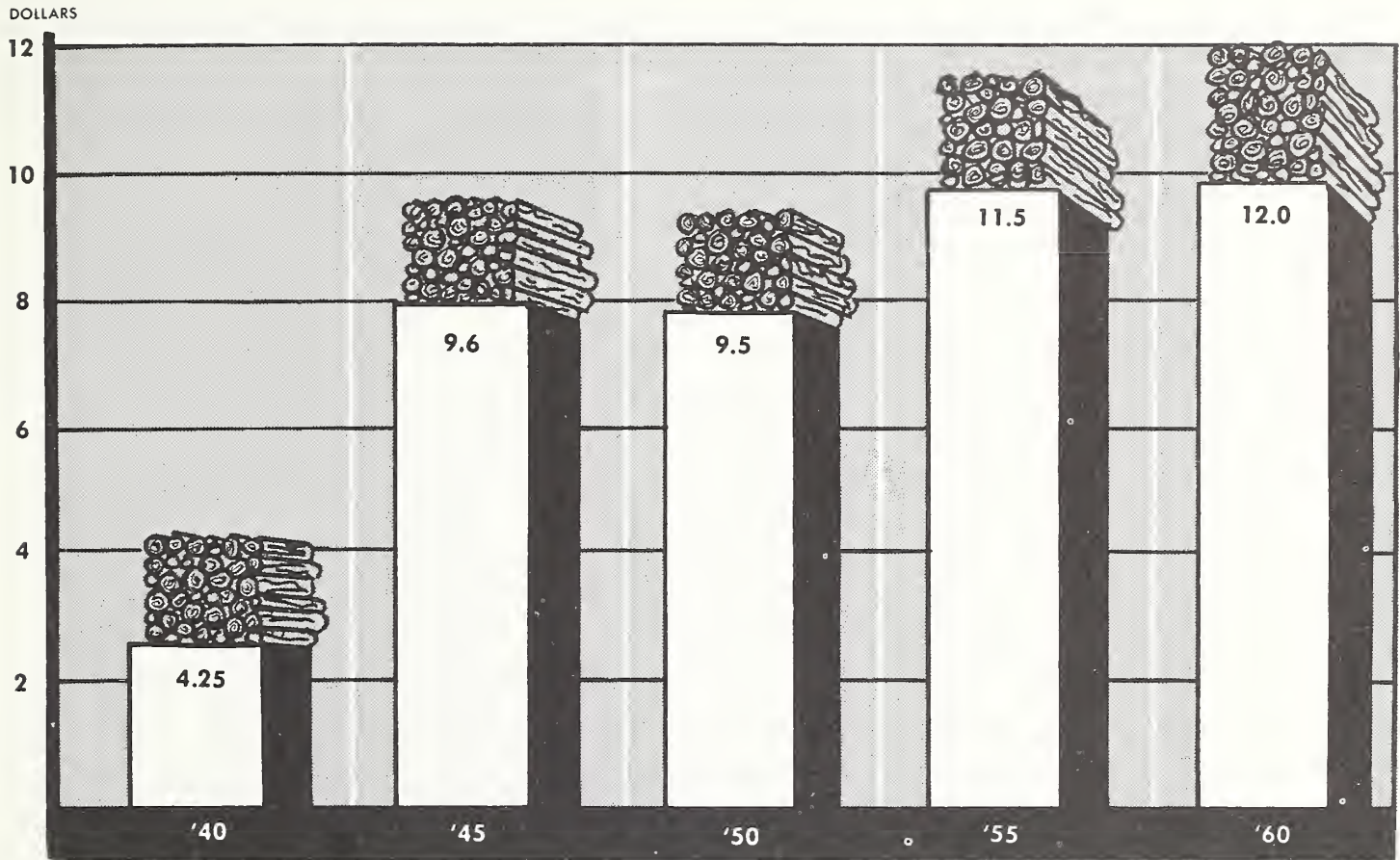


(*) Pole Timber Trees Only.

SOURCE: Forest Service, U. S. Dept. of Agriculture.

WISCONSIN ASPEN PULPWOOD PRICES

[DOLLARS PER ROUGH CORD, F.O.B. CAR]



SOURCE: *Wisconsin Forest Products Price Review*.
Extension Service, University of Wisconsin.

to woods work for a livelihood. The result is a surplus of labor and a shortage of production contracts. Production of pulpwood⁵ accounts for over 30 million dollars annually shared by the hauler (both rail and truck), the producer, and the jobber.

The last decade has seen the establishment of several new manufacturing plants in the region. The expansion of some existing plants has also added to the economic base of the region. The chemical pulp and groundwood manufacturing industry may further expand; on the other hand, a few distillation plants in the three States have recently closed.

⁵ Feasibility of Using Lake States Hardwoods for Newsprint and Other Pulp and Paper Products. U. S. Forest Service, Washington, 1959.

Rapidly rising local taxes in some countries due to loss of other property tax base are causing economic distress to several wood-processing firms. Real property taxes on timber holdings doubled from one year to the next for at least one company, and doubled tax rates were mentioned in other situations. Indications are that these increased costs, along with other factors, may adversely affect the industry.

Forest products other than wood are important to the region's economy. They are now the basis for several successful enterprises and provide opportunity for new ones. Christmas trees and greens, maple sap, ferns, fruits, berries, mushrooms, balsam needles, pine knots, cones, and peat are common and generally available in quantity. Most of these are better adapted to multiple enterprises than to single-product year-round enterprises.

However, peat, though not classed as a forest product, has proved to be an exception and is supporting two large and several smaller single-product operations in the Minnesota portion of the region. By estimates, nearly 10 million acres in the region has a potential for commercial peat production. Most of this acreage is concentrated in northeastern Minnesota; Wisconsin and Michigan also have deposits.

Demand⁶

During the last two decades industrial capacity in the region for pulp and paper production has maintained a growth rate of 5 percent, while the national rate of growth was 8.5 percent. Virtually all of the new pulp and paper mills built in the last 20 years in the United States are located outside this region. However, the development of new processes for the use of dense hardwoods presents an opportunity to mills in the Lake States.

Recent studies indicate that mill capacity will expand and maintain a growth rate equivalent to the expected national average increase of approximately 4 percent (reduced from 8.5 percent) annually until 1975. This trend, if continued, indicates that regional pulpwood consumption will be more than 5 million cords by 1980 and approximating 7.5 million cords by 2000.

No detailed surveys have been made of the trends in the region's lumber industry. Overall

⁶Timber Resources: A Base for Industrial Development in Wisconsin. M. B. Dickerman. Paper presented at Wisconsin Governor's Conference on Industrial Development, Green Lake, Wis., May 21, 1959.

Changing Forests of the Lake and Central States Region. U. S. Forest Service, Lake States Forest Expt. Sta., Misc. Rept. No. 31, Oct. 1954.

Statement presented to the U. S. Congress Select Committee on Small Business. Arlie W. Toole, Lake States Forest Expt. Sta., Nov. 13, 1958.

Chicago and North Western Railway Pulpwood Transportation Conference, 1959.

Pulp and Paper in the Upper Lakes Region. Federal Reserve Bank of Minneapolis, July 1956.

Opportunities for Economic Development in Michigan's Upper Peninsula; U. S. Senate Comm. on Public Works, 1962.

Superior-Douglas County Wood Processing and Marketing Complex, A Forest Industry Feasibility Study, MacDonald Associates, Inc., 1962.

production has shown a slight downward trend in the last decade, and this is expected to continue for the next decade. Nevertheless, the increasing volume and size of Northern Great Lakes Region saw-log timber makes for a better prospect in lumber production by 1980 and a strongly favorable one by 2000.

MINERALS

Interest in mineral deposits of the Northern Great Lakes Region is about 100 years old. Prospecting, speculating, and developing deposits of iron and copper were among the first incentives that brought investment capital and people into this region.

Mining and lumbering, developing almost simultaneously, provided wages for seasonal work, markets for farm products, and raw land for agricultural settlement.

Communities were based on mining as a major enterprise. Public services were largely supported by taxes on the industry. Labor and management frequently were in conflict--neither apparently was able to foresee a time when compromise and teamwork would be needed to bridge a period of adjustment to alternative enterprise opportunities.

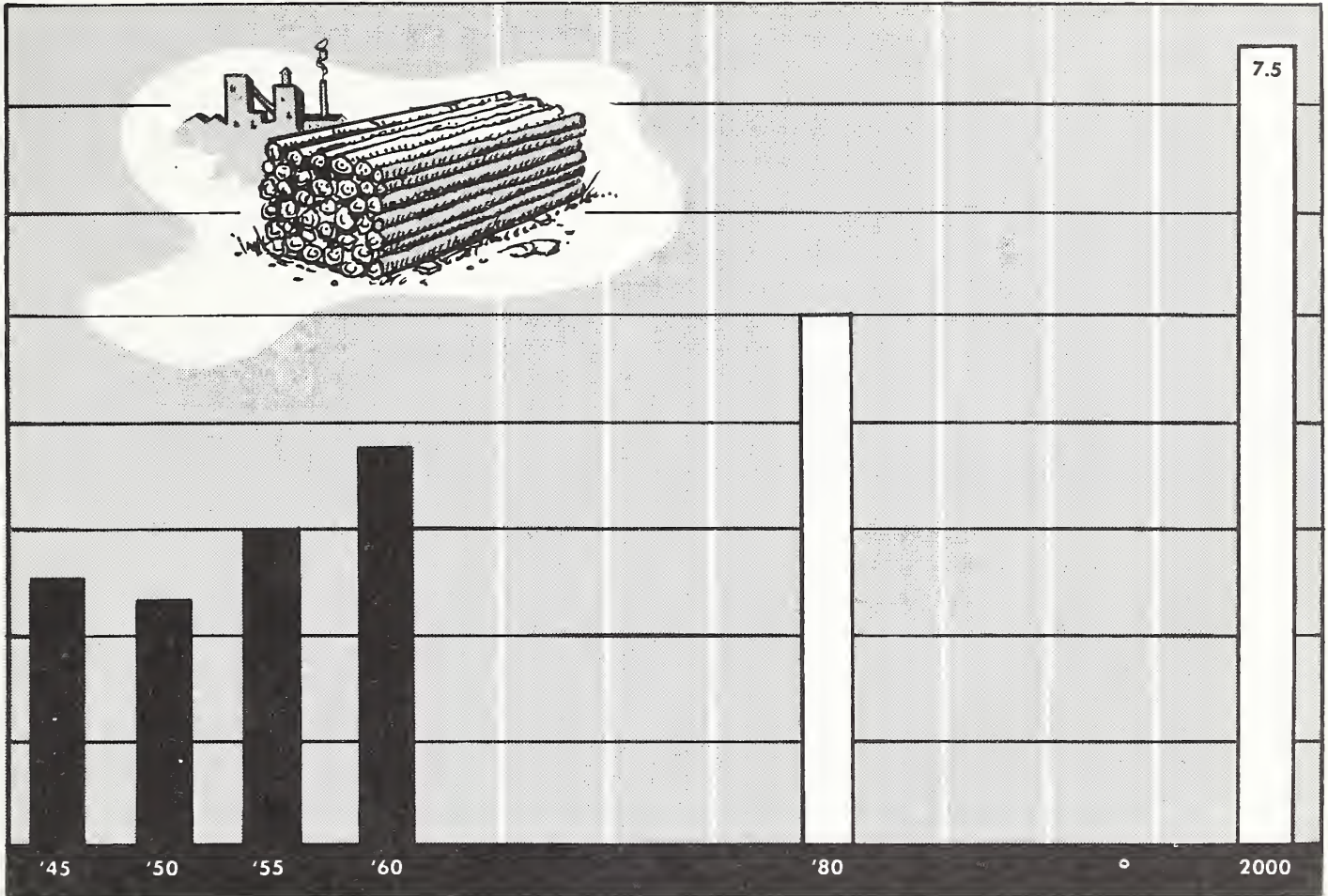
Reports from both Minnesota and Michigan show that mining companies are retrenching. Leases are lapsing, mines are being closed, income to local and State governments from severance and property taxes has dropped drastically. A period of adjustment is underway. The outlook is for major readjustments in scope and financing of local services. The future is bleak for a return to mining as a source of employment for a major part of the labor force in the former mining areas.

Mining of iron and copper ores has been significant in the history of settlement for parts of the study area in all three States. The mining industry is a contributing factor in the economic and social adjustments occurring now. Its potential is of concern for the future.

The Mesabi, Vermilion, and Cuyuna Ranges in Minnesota and the Marquette, Menominee,

PULPWOOD RECEIPTS AT LAKE STATES MILLS and PREDICTED CAPACITY [MILLIONS OF CORDS]

MILLIONS
OF CORDS



PULPWOOD RECEIPTS



PREDICTED CAPACITY

SOURCE: Forest Service, U. S. Dept. of Agriculture.

and Gogebic Ranges in Michigan are familiar names to the iron and steel industry. The Gogebic Range extends into northern Wisconsin where it joins the Penokee Range. Production of iron ore in Wisconsin has declined drastically (last mine shut down in October 1962) from a peak reached in the early part of the century. Actual development was never as great as in Minnesota and Michigan. Consequently, the economic effect of changing minerals development practices will not have the impact in Wisconsin that it will have in Michigan and Minnesota.

Most iron mines of recent years are part of worldwide holdings of major steel companies. Their operation has been keyed to the world demand-supply situation. A combination of rising costs per ton of iron as the richer deposits of the region were exhausted, the discovery of valuable deposits in foreign areas, the reduction in shipping costs from foreign fields resulting from opening the St. Lawrence Seaway, increased demands for higher concentrate ores for the furnaces, and a very unstable market for processed iron ore has caused a rapid decline in ore production from



this region. New processes involving beneficiation of taconite (a non-magnetic ferrous ore) are being utilized in what is hoped to be a regeneration of vigor in iron mining.

This process cannot revitalize the worked-out rich mines nor the less-rich ones "creamed" of their more valuable deposits. Relatively low-grade ores still exist in staggering amounts. Their harvest, however, must wait for a decrease in world supply of cheaper ores, or lower cost processes for concentrating the iron content of ore shipped from this area that will allow competitive pricing at the mills. Whatever the future may hold for iron mining in the region, it is almost inevitable that new developments generally will not be contiguous to the mining towns of the past.

Michigan once led the world in copper production. Its importance in national production now is insignificant. Copper production was concentrated in the Keweenaw Peninsula and the Ontonagon and Houghton areas. Huge quantities of low-grade copper ores remain, but costs make their production uneconomic in competition with copper from some western States.

A new exploration technique may help to locate deposits sufficiently rich to warrant development. Keen interest in copper exploration and development is evident. A recent

discovery near Houghton apparently is to be developed.

In both iron and copper mining, the trend is toward mechanization and away from use of labor. Improved, lower cost techniques in the mining of relatively low-value ores are a necessary first step in meeting competition. Also needed are efficient, economic processes for beneficiation and concentration, and separation of minerals combined in the ores.

Recent geological explorations indicated that the formation producing oil and gas in southern Michigan extends northward, well into the northern part of the Lower Peninsula and under part of Lake Michigan. Major companies have acquired leaseholds and are starting exploratory drilling.

Quarrying of limestone, granite, and other nonmetallics occurs in numerous locations in the region. Production of these intrinsically low-value resources has declined over time as substitutes have been developed for use in industry and the building trade. Most operations are mechanized and require relatively little labor.

It is probable that new techniques in both mining and beneficiation will be developed to approximately stabilize levels of employment. Emphasis will be on mechanization and automation. Different skills in manpower will be required in the process. Many displaced miners can expect employment in mining if they are trained to operate the highly specialized machines and manage the processes used in modern mining.

Other Resources and Situations

THE PEOPLE AND THEIR OCCUPATIONS

The Census of Population for 1960 listed 1,630,345 residents for the 81 counties included in the Northern Great Lakes Region. This number is 11 percent of the total population in Michigan, Wisconsin, and Minnesota. It represents an increase of 5 percent from the 1,557,423 counted in 1950, in contrast to an overall increase of 19 percent for the three

States. Rural counties and rural communities almost universally lost populations.

The 1960 civilian labor force was 564,000 people, or 35 percent of the total population for the 81 counties. Of these approximately a half million workers, almost 10 percent were unemployed and many others were underemployed.

Manufacturing, with 21 percent of the labor force, was the major single industrial employment category. Agriculture, forestry, and fishing provided 9 percent of the employment; mining, 5 percent; and construction, 5 percent. Less than 1 percent of the total labor force was recorded in forestry and fisheries. This does not reflect the true significance of these activities because many farm people, construction workers, miners, and others--including some of the unemployed--work in the woods in addition to the major occupations under which they are tabulated. Employment in pulp and paper and other wood-processing plants is recorded in the category of manufacturing. There is considerable variation in the distribution of employment among the several areas.

Basic early orientation to mining, forestry, and farming, together with the timing of active settlement, led to local concentrations of ethnic groups from northern Europe--Finns, Norwegians, Swedes, Lithuanians--with lesser numbers of French, Germans, Poles, Italians, English, Russians, and others. Some settlements still strongly reflect the early ethnic social patterns of their founders' origins, but this is becoming less and less pronounced as the native-born residents increase in proportion of the total population.

Seasonal activity followed by seasonal inactivity in mining and logging long have been an accepted facet of life in this region. Similarly, the north-European settlers who developed farms here found climate, soils, and types of farming to which they had been accustomed. They were familiar with wooded country, rocky soil, and hard work. Unemployment and underemployment in the Northern Great Lakes Region is similar in many respects

to that of great industrial centers like Detroit. Both have technological unemployment.

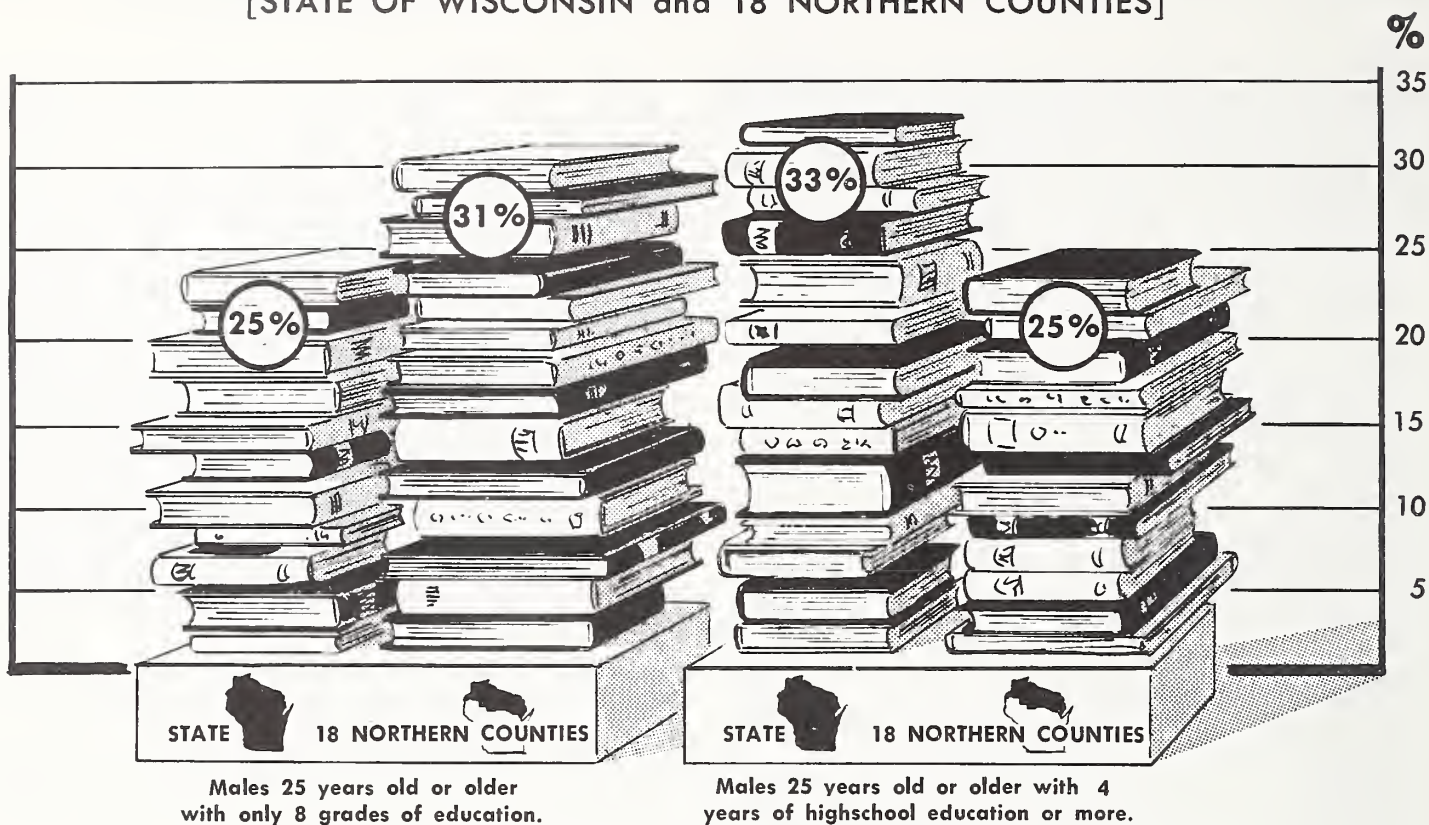
Many communities in this region already have gone through a period of population adjustment to employment opportunities. The total regional growth of 5 percent in population between 1950 and 1960 is significantly less than the national population growth rate. Further, an actual decline of population occurred in rural counties and rural communities. Within the region, growth during the decade usually is shown only in counties with relatively large urban centers or new local employment opportunities.

Educational attainment, age, and acquired technical skills affect the ability of people to adjust to the changing labor market. In the entire State of Wisconsin, for example, 25 percent of all males 25 years old or older in the 1960 census had completed only 8 grades of education; 33 percent had at least a full high school education; and 6.7 percent had completed at least 4 years of college. In the 18 northern counties, by contrast, 31 percent had completed only 8 grades; 25 percent had at least completed high school. Average educational attainment levels of adults in the labor force are significantly lower than in the State as a whole.

Two opposing factors are operating in this educational pattern. The accompanying graph illustrates the age selectivity that is occurring in the northern region. The productive adult age group from 21 to 44 is smaller than the average for the State. The elderly and the very young predominate. Older citizens, generally, completed less formal schooling than has become common in recent years. Therefore, the outmigration of young adults with higher educational training reduces the modal level of education (grade completed by the largest number) for the rest of the population. It also means that the communities are losing the benefits from modern knowledge conveyed through the educational system. Lack of opportunity for adequate employment and poor prospects for future advancement for the young adults encourages many of them to leave the community.

COMPARISON OF EDUCATION LEVELS

[STATE OF WISCONSIN and 18 NORTHERN COUNTIES]

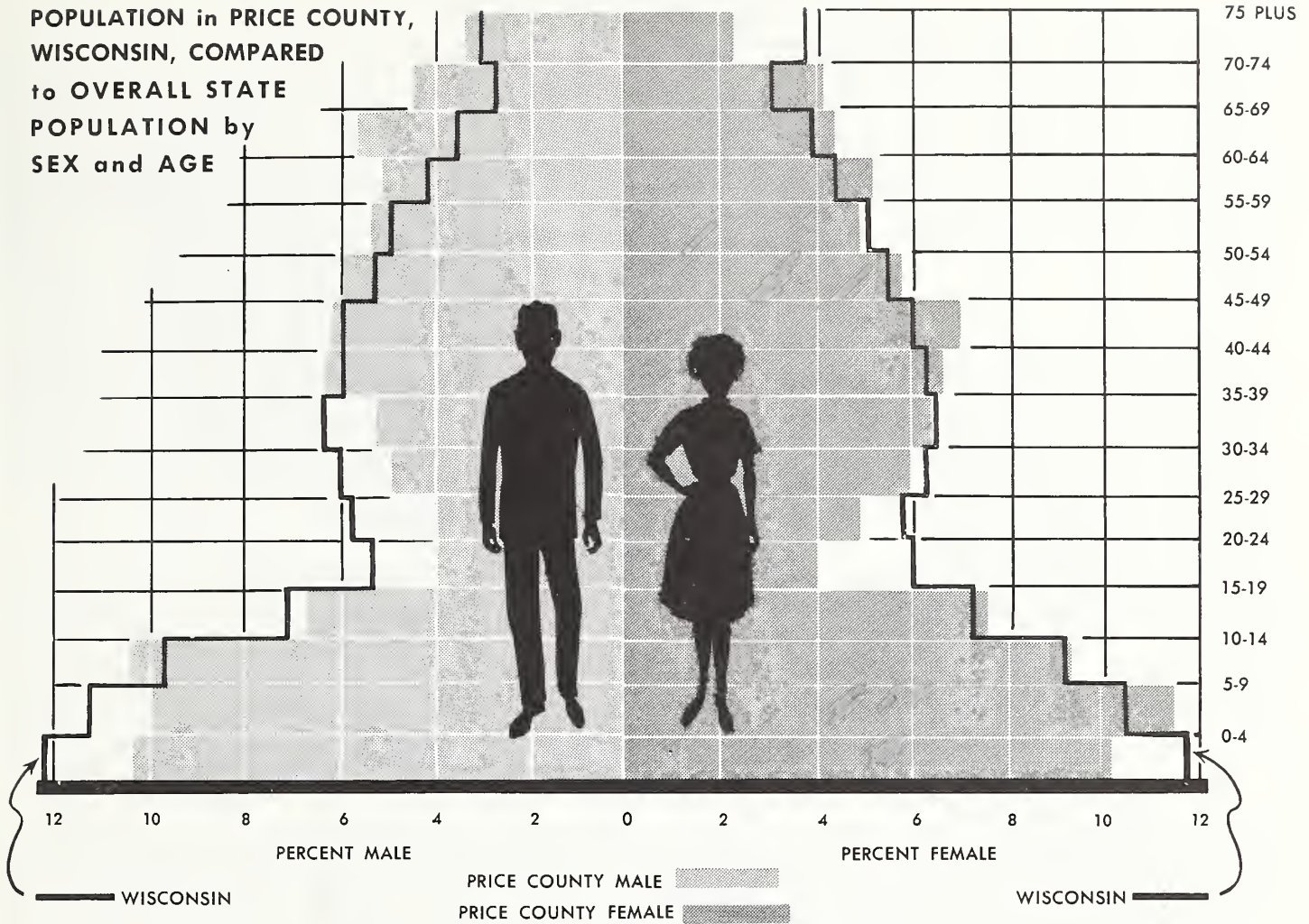


Productivity of agriculture in the United States--measured in bushels and tons grown per acre and in milk or meat per animal unit--has increased 35 percent in the past 15 years. Needs for agricultural products, even including the foreign aid program, have increased possibly by 20 percent during the same period. Adjustments are inevitable among the small, the inefficient, and the higher cost farms of the Nation. Combinations of farms to create more efficient operating units, additional capital investments in machinery, and use of seeds and livestock having higher productive potential can save some marginal farms in all regions--including the Northern Great Lakes Region--but cannot save all of them in any region. Much the same situation (but on a worldwide scale) exists in iron and copper mining. Recreation, also, is affected by many of the same factors. These will be discussed in greater detail later in this report.

The Northern Great Lakes Region is more a victim of technology than most other regions. National productivity has increased more rapidly than our needs for the kinds and quantity of goods that can be produced. This is reflected in the occupations of the people.

Five analyses were made for selected parts of the region to determine the degree of homogeneity in employment. These areas included the Upper Peninsula of Michigan; Manistee County in Michigan's Lower Peninsula; the northern Wisconsin area; St. Louis (except Duluth), Aitkin, Cass, Crow Wing, and Itasca Counties in the Minnesota Iron Range area; and Beltrami, Clearwater, Hubbard, and Roseau Counties in northwestern Minnesota. These analyses showed great variation among areas in the employment and economic viability situations. While the data are significant from a subregional standpoint and for purposes of area

POPULATION in PRICE COUNTY,
WISCONSIN, COMPARED
to OVERALL STATE
POPULATION by
SEX and AGE



planning, they are omitted from this report for the Northern Great Lakes Region because the information cannot be generalized to present a typical regional pattern.

TRANSPORTATION

Existing transportation facilities within the Northern Great Lakes Region and connections with the major market areas to the south and east reflect the earlier economy. The early development of the region's resources was based on the economies of water transportation, clearly the only feasible way to move iron ore, lumber, and grain to the distant cities to the south and east. Railroads and highways, and more recently airports, tended to serve and support the predominant reliance on long-haul movement of raw materials by water. The presence of the Great Lakes and Canada forced trans-continental railroads and highways to loop

either to the south or to the north of the Northern Great Lakes Region. Nothing resembling a grid pattern of local roads and railroads was needed, because of the nature of the exploitable resources and the absence of agricultural lands. Absence of large terminal cities within the region made it uneconomic for major connecting railroads, highways, or air routes to go into it.

Within the region, transportation facilities were developed only to the extent needed to service the primary industries of mining and logging and to connect the communities. Most of the internal roads and railways were designed for short hauls of pulpwood and ore to the water.

Transportation of passengers by water was once a significant feature of the region, but it has been reduced to almost nothing with the

INDUSTRY

advent of more rapid means of travel. The era of huge resort hotels served by scheduled steamers and railroads identified the Northern Great Lakes Region as a renowned summer resort area before 1900. The ravages of fire and the popularity of automobiles and airplanes have completely changed the patterns of resort area development and recreational travel.

Evaluating the Northern Great Lakes Region with a broad perspective, the one resource in which it has a relative advantage is recreation. This product cannot be transported, so people must be brought into the region if the recreational resources are to be more fully developed. Railroads and water transportation cannot be expected to move large numbers of tourists and sportsmen into the region in the future, for nearly nine out of ten recreational travelers come and go by automobile. The use of railroads and boats for passenger travel has steeply declined for years in all parts of the country.

Distance and time enroute are the principal impediments in moving people and goods into or out of the region, and most of the market for the region's resources is quite remote. A number of metropolitan areas are adjacent to the southern boundary of the Northern Great Lakes Region in eastern Minnesota and in Wisconsin and Michigan, but the bulk of the market potential is more than 200 miles from the southern boundary. Roseau, Minnesota, in the extreme northwest corner of the region, for example, is more than 400 miles by road from its nearest metropolitan market (Minneapolis-St. Paul). It is more than 800 miles from Chicago and 1,100 miles from St. Louis.

Nearly 50 million people live in the eight States which lie directly south of the Northern Great Lakes Region. This is the prime market for the region's resources. The southern and central parts of this same eight-State market area are well served by major trunkline highways, railroads, and airlines and aviation facilities. People in the prime market area thus can more conveniently travel to other resort and recreational areas than to the Northern Great Lakes Region.

This region has been known historically for its primary production of raw materials. Mining has dominated the local economy in north-eastern Minnesota and the western Upper Peninsula of Michigan. Loss of employment due to the declining stocks of the richer ores and increasing regional competition have been a major cause of current economic distress in these areas. Copper mining in Upper Michigan has had a small resurgence. The outlook seems to be reasonably favorable that new processes applied to lower grade ores of both iron and copper may again support significant economic activity in these areas.

Processing of forest products has been more widespread across the region and has provided more overall employment than mining in recent years. Production in the pulp and paper industry has demonstrated a slow but steady upward trend. Lumbering and other types of forest products output have fluctuated widely.

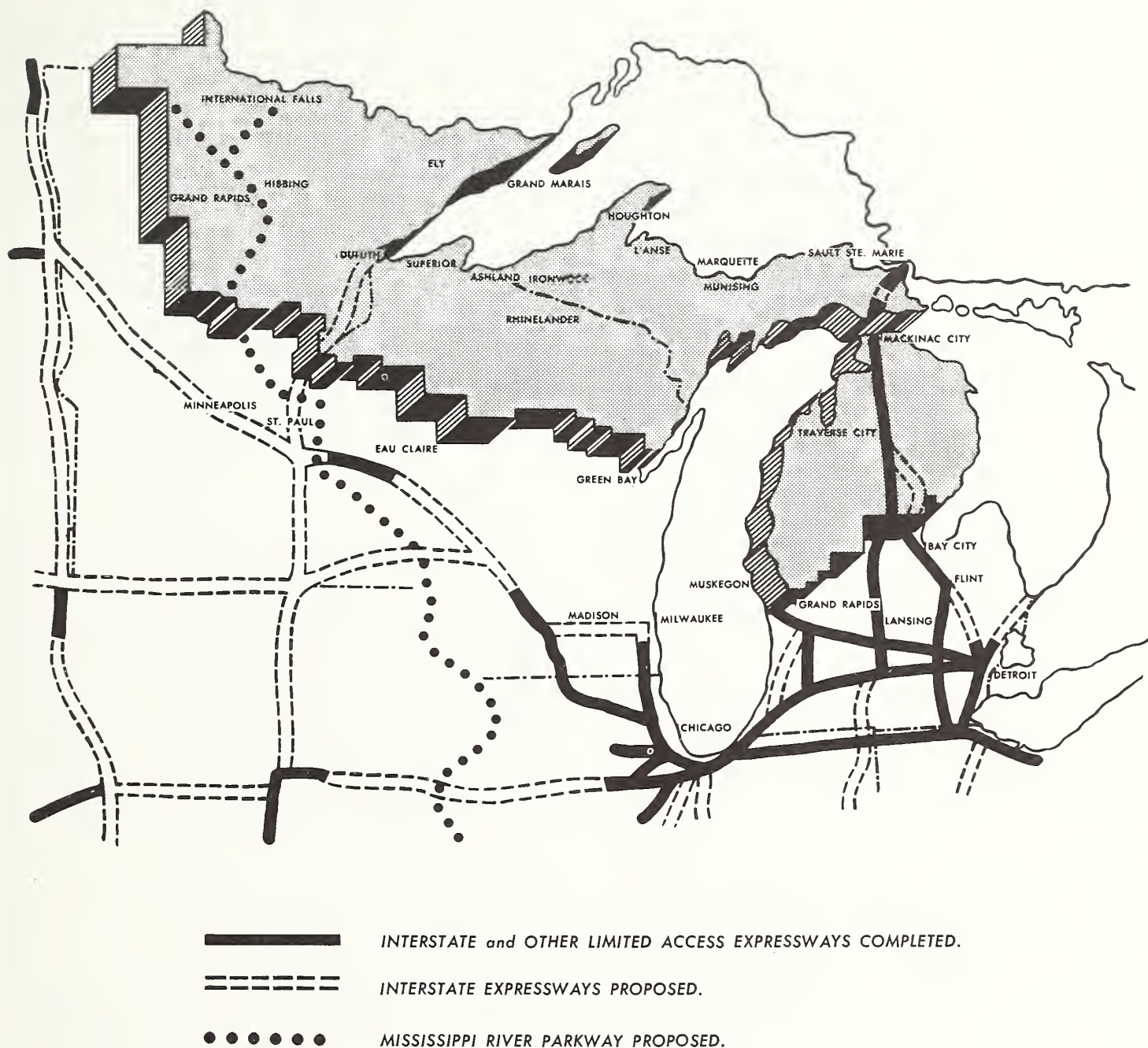
A general shift from primary production to services, transportation, and assembly is evident. Numerous light industries have moved into the region since the early 1950's.

Changes in the industrial pattern cause changes in types of employment opportunities. A recent study of employment and earnings for the "Upper Midwest" included Upper Michigan and northwestern Wisconsin portions of the Northern Great Lakes Region.¹

The economic sectors in Upper Michigan showing 25 percent or more of growth in employment during the 1950-60 decade were machinery (excluding electrical), electrical machinery, Federal Government, trucking and warehousing, construction, and State Government. Increases in retail trade and copper mining were slightly less than 25 percent. Employment declined in transportation equipment, other manufacturing, textiles and apparel, lumber products, other transportation,

¹ Employment and Earnings in the Upper Midwest: 1950-1960. R. S. Rodd and James M. Henderson, Upper Midwest Economic Study, Paper No. 5, Univ. of Minn., November 1962.

LIMITED ACCESS EXPRESSWAYS TO THE NORTHERN GREAT LAKES REGION



railroads, other food, wholesale trade, dairy products, and iron mining.

In northwestern Wisconsin gains of 25 percent or more occurred in machinery (excluding electrical); furniture and fixtures; finance, insurance, and real estate; printing and publishing; Federal Government; and meat products. Comparable declines occurred in primary

metals, transportation equipment, fabricating metal products, railroads, and grain products.

Comparable tabulations are not available for northeastern Minnesota. Generally, however, indications are that the mining of taconite, shipping, other transportation, pulp and paper, Government, fabricated metal products, and services, at least, have grown. Iron mining

other than taconite, agriculture, railroads, self-employment, lumber products, and others have declined.

The above-mentioned industries depend basically on minerals, forests, and farm crops and livestock resources for their existence--or are services to people. The outlook for industrial development, then, depends on prospects for these four categories. Mining probably will recover some of its importance of the recent past although in a different setting. Agriculture probably will continue its slow downward trend in importance within the general regional business-framework. Individual operations probably will trend toward greater intensity of full-time operations by fewer operators. The number and intensity of part-time operations will depend on the health of the business sector.

The outlook for the forest products industry is generally more favorable than for agriculture and possibly for mining, although much depends on developments in the markets for the various cellulose products.

Tourism, outdoor recreation, and related service activities also must be considered in the same context as the other industries mentioned. They are vital parts of the industrial complex for the region.

Service industries, transportation, retail and wholesale, various levels of Government, secondary manufacture and the other types of activities obviously cannot exist by themselves. It must be assumed that changes in these activities will closely approximate the changes in the health of the base industries. Activities of Government including defense programs are a vital factor in the economic health of relatively small communities such as are common in this region. The nature of defense activities, in particular, makes projections of their effect on industrial activity most uncertain.

LEGAL FRAMEWORK

Local Government Units

Local civil government in the Northern Great Lakes Region centers on the county system.

The county when authorized by State law is the governmental unit that puts into effect most local actions for social benefit. When so authorized it has the necessary legal position and leadership influence to bring objectives to fruition and can cooperate with State and Federal bodies in programs of mutual interest. Consequently, many State and Federal statutes, depending on their purpose, are drawn to permit the county to assume its role.

The soil and water conservation district is another prominent unit of local government, having an important role in land use. Established under permissive State laws, it is created and run by elected local people. In the region 68 counties have soil and water conservation districts. Major portions of the other 13 counties are in public landownership, which somewhat lessens the need for such districts.

Soil and water conservation districts develop and carry out programs for management of soil and water resources. Multiple use of the land and water resources is inherent in the district program. These districts cooperate with other local State and Federal agencies in carrying out land use programs, mainly on private lands. They include water and wind erosion prevention and control, watershed protection and flood prevention, and recreation developments.

Special Purpose Districts

In Minnesota and Michigan drainage districts may be created under State statutes. The kind of district organized--judicial ditch, county ditch, or other--depends on the circumstances in the local area to be benefited under the appropriate enabling legislation. Organization and operating policies are specifically covered by the applicable State statutes. In Wisconsin there is a provision for group drainage of land under the supervision of a county-wide board, whose decisions are subject to approval by the county court.

State statutes in Minnesota provide for creation of watershed districts. The usual purpose of these districts is to further watershed improvements for flood prevention and watershed

protection, including necessary stream channel and related work. They deal with all the water in a given watershed. District plans are subject to approval by agents of the State as specified in the State statutes.

Laws, Regulations

Water Laws.--The water laws of the region's three States are largely common laws. Legislation is usually prompted by and developed from, court decisions. In general the laws restrict use of water, surface or underground, without a written permit from a designated agent of the State (conservation commission or other). Exceptions occur, for example, where the water is used for domestic purposes or within the limits of a municipality, or for beneficial uses and under rights previously established.

Public rights in water¹ have an impact on resource development in the region. Generally these public rights include navigation, commercial fishing, and recreation. The list of activities which create demands for public rights is expanding. Examples are enjoying scenic beauty, waterskiing, ice fishing, ice boating, and trapping. The waters on which these public rights may be enjoyed have traditionally been those that are navigable in fact. It is of increasing importance to establish and designate public waters, so that their locations may be known and public access assured. Uses of water, particularly surface waters, that may affect the amount and quality of water remaining at the source will become more significant.

Justice Holmes said, "A river is more than an amenity, it is a treasure"; and "It offers a necessity of life that must be rationed among those who have power over it." The law of water is principally concerned with three factors: power to control its use, the placement or locus of this power within the structure of government or private economy, and the uses to be allowed.² Water uses can involve serious conflicts of

interest. For example, trout fishing is ruined if a stream dries up part of the year because its waters are diverted to industrial or agricultural uses. Again, using a watercourse to dilute and further break down partially treated sewage or industrial waste may be a more consumptive use than irrigation, for the pollutants may contaminate all of the lower watercourse and destroy its recreation and other values. The legal framework must be sound and clear cut to avoid present and potential conflicts in the development of a strong economy and recreation climate.

The difficulty of properly allocating water between competing user groups such as cities, industry, agriculture, and recreation is made more serious by conflicts within each of these groups. Public decisions to provide direction in water use matters and to provide criteria and guides for solution of conflicts can be helpful. The primary concern, however, must be with how the people want to use their water resources and how people with different interests in water can come to a decision on wise use. After these policy decisions have been made, the appropriate legal procedures available under the State law may be applied.³

Fish and Wildlife.--Fishing, hunting, and trapping activities are regulated in part by State license requirements. State Conservation Commissions, by legislative authority, establish fish and game regulations.⁴ Laws and regulations have been essential since the earliest days of fish and game management in the region. They have undergone numerous changes, and undoubtedly will be adjusted to meet future demands and biological requirements.⁵

Zoning.--Zoning regulations are one of the tools available in the region that can aid in community planning.⁶ This device is among

³Michigan Water Use and Development Problems. Agr. Expt. Sta. Cir. Bul. 230, Mich. State Univ., East Lansing, 1961.

⁴Fish for More Fisherman, Mich. Conservation Dept., Lansing. (n.d.)

⁵Some Spatial Aspects of Aquatic Recreation, Wis. Conservation Dept., Misc. Rept. No. 6, Dec. 1, 1961.

⁶The Why and How of Rural Zoning, USDA Agr. Inf. Bul. No. 196, GPO, Dec. 1958.

¹Proceedings of Minnesota Conference on Underground Waters. Minn. Dept. of Conservation, Bul. No. 2, March 1950.

²Study of Legal Aspects of Water Rights in Minnesota, Wisconsin, Indiana, and Ohio. Part VIII, RMA Contract No. 12-14-100-1010 (43) between University of Wisconsin and USDA. Review draft, Rept. No. 23, Aug. 5, 1961.

several useful ones like subdivision control, sanitary codes, building codes, and plumbing codes. Planned zoning can go far in avoiding the haphazard mixture of conflicting land uses that often comes with unguided growth, depresses property values, and causes friction among neighbors.

Zoning powers are granted by State legislative acts, and are not new in the three Great Lakes States.⁷ An act enabling counties to zone the territory outside incorporated cities and villages was passed by the Wisconsin legislature in 1923. Amendment in 1929 gave the counties the right to regulate the use of land for agriculture, forestry, and recreation.⁸ Zoning powers are granted to counties and towns or townships; however, town or township zoning must be put into effect by county ordinance. Town or township government and county government work together on development, enactment, and enforcement of zoning ordinances. Rural zoning is most effective when people in the communities or areas most affected are enlightened and active in developing the plan which will be implemented by such ordinances. In this way the use regulations will be in general conformity with present and long-time needs of the area. In addition, their spirit or intent will be honored with fewer exceptions, and the zoning ordinance enforcement will be less difficult when wide local citizen understanding has existed in preparatory stages. This is possible through widespread public participation in planning, in public hearings, and in referendums.

Regional Planning

In Wisconsin, under section 66.945 of Wisconsin Statutes, regional planning commissions are a permitted form of organization which may embrace an area of several counties or parts of them. They have advisory planning and promotional powers only.⁹ They can charge

⁷ Minnesota Lands. Livingston Publ. Co., 1960.

⁸ Rural Zoning Ordinances in Wisconsin. Univ. of Wis., Cir. 281, Madison, July 1936.

⁹ A Report to the Water Resources Committee of the Wisconsin Legislative Council on the Wolf River Basin. SR-61-6, Legislative Council; Madison, Wis., August 1960.

back the costs of their activities to local units but not to exceed .003 percent of the equalized value of land and buildings for property tax purposes. Commissions are authorized to accept aid in any form from all levels of government to accomplish their objectives.¹⁰

Such commissions with direction from the county board of each county covered may serve as a focal point in leadership for formulating improvement plans and generating understanding by the citizenry they represent. They can coordinate planning and action among units of local government, especially counties, villages, and cities.

Incentives for Growth

Public policy for increasing the recreation business works through various means to generate interest and protect health and welfare. Laws and administrative directives and criteria can further the sound growth of such business. By the same token, however, they can unduly restrict business through regulations, sanitation codes, inspections, special industry taxes, and similar measures. The legal framework, in fact, may need minor changes and improvements only occasionally to keep pace with the needs of progress; but frequently its administrative application poorly reflects the legal intent.

AGRICULTURE

Numbers of farm families engaged in agriculture throughout the Northern Great Lakes Region reached a peak during World War I. Land sales were greatest in the period 1910-20. People wanted land, cheap land, and there were millions of acres for sale in the region. Without any detailed soil surveys, climatic studies, or cropping information, and often without money, equipment, livestock, or experience, people came and bought land for farming. They were in a hurry to try farming,

¹⁰ Regional Planning Program Prospectus. Southeastern Wisconsin Regional Planning Comm., April 1962.

and too many agricultural authorities of the period were misleading these inexperienced "would-be farmers" by proclaiming great expectations for the region. Through this period there were still emigration agents, colonization agents, and committees of the States and counties energetically inviting and helping people to come to the region and start farming. These were to be added to the sprinkling of farm-minded settlers who had followed early in the steps of the woodsmen to till the soil "between the stumps." For their major cash income, however, most of them had depended upon seasonal employment in the mills, mines, and lumber camps.¹⁻⁵

During the 1920's, literally thousands of farms were abandoned and the families moved away from the region. Young people of remaining farm families migrated out of the north. There was, however, a kind of revival of agriculture and farming during the early 1930's because employment was difficult to obtain in the cities. This was short lived.

Present Improvements and Situation

From agricultural research, hard experiences, and guidance information and technical assistance from State and Federal agencies, the farmers of the region have made major adjustments in the past 20 years. The agricultural industry accounts for 9 percent of employment in the region. Farmers are adjusting to the more suitable lands for farming, to operating larger farm units, to growing the crop varieties better adapted to the climate and land, to specializing in the farm enterprises most apt to prove successful, and to recognizing when nonagricultural employment part time is essential to their financial and management circumstances.

¹ Man in the Cut-Over. Univ. of Wis. Agr. Expt. Sta. Research Bul. 139, Madison, April 1941.

² New Laws for New Forests. Erling D. Solberg, Univ. Wis. Press, Madison, 1961.

³ Farms or Forest. Vernon Carstensen, Univ. of Wis., July 1958.

⁴ Minnesota Lands. Samuel T. Dana, Ed., Livingston Publ. Co., 1960.

⁵ Economic Growth in Northern Michigan. W. Paul Strassman, Mich. State Univ., East Lansing, 1958.



About two-thirds of the approximately 56,000 farms in the region are commercial farms, with annual gross incomes under \$5,000 on more than half of them. Nearly one-third of all farms are operated by part-time farmers. These farms may net \$1,000 less than for full-time farmers, but the nonfarm income of double this amount more than makes up the difference. Income, therefore, is around \$1,000 more on the part-time than on full-time farms of comparable size.

There are now roughly 533,000 dairy cows in the region. On the majority of full-time farms, dairying is still the major source of income. On such farms 13 milk cows is the average number, a herd size too small for a satisfactory farm family income. In the better herds the number of cows is usually larger than on the average farm. Where physical conditions, managerial abilities, and size of business are satisfactory, an acceptable farm family income is realized. Milk production records per cow for some herds in the region are just as high as in the southern parts of the three States. A high percentage of all farms, however, have production records far below the State averages. Competition from areas outside the region will continue as a severe economic marketing pressure on dairy farmers in the north.

Number of milk cows in the region decreased nearly 20 percent from 1954 to 1959. This was more than twice the percentage of decrease in the other parts of the three States, as shown by the following table.

Area	Milk cows			
	Number (000) by year		Decrease, 1954 to 1959	
	1954	1959	Number (000)	Percent
N. Lake States Region--81 counties	602	484	118	19.7
N. Michigan--46 counties	211	152	59	28.0
N. Minnesota--16 counties	155	121	34	22.0
N. Wisconsin--19 counties	236	211	25	11.0
Southern parts of three States	3,744	3,440	304	8.1
Southern Michigan	577	460	107	18.8
Southern Minnesota	1,189	1,095	94	7.9
Southern Wisconsin	1,988	1,885	103	5.2
Total three States	4,346	3,924	422	9.7

Indications are that further decrease in number of milk cows in the region in 1961 was less than 1 percent. Also, total milk production in the region has accorded with changes in milk cow numbers, but it, too, has not changed appreciably in the last 2 years. Increases in herd size on some farms in the region probably will be balanced by decreases on other farms. Long-term trends in milk production in the region will not be influenced by these changes.

Farms in the region have an average of only about 50 acres of cropland and 100 acres of woodland. On the typical farm three-fourths of the cropland is used for hay and pastures, with oats as the main grain crop on the remainder. Some barley and some corn for silage are grown in the southern part of the region.

Specialized farm crop production occurs in some climatically favored locations with suitable soils. The more prominent crops are: Potatoes, fruit, snap beans, cabbage, cucumbers for pickles, sweet corn, cranberries, strawberries, and flax. These specialized crop areas are mainly in the southern and eastern parts of the region near Lake Michigan. However, strawberry production is widely distributed throughout the region, flax is found only in the

northwest corner, and cranberries in the central parts.

Agriculture is better adapted in some parts of the region than in others. Physical resource areas, based mainly on the type and characteristics of the soils and vegetative responses to management, are delineated in figure 1. Those more suited for agriculture are areas 1, 3a, 4, 5, 6a, and 8, and some parts of area 3. In contrast, those areas having far less opportunity for successful cultivated crop production, except for isolated parts with unusually favorable situations, are areas 2, 6, and 7. By and large, the existing agriculture verifies these interpretations of resource area potentialities.

Future Demands⁶

Demand for agricultural products, as projected to future years about 1980 and the year 2000, will have influence on land requirements. The bases for appraising demand and the conclusions about impacts on the region are summarized in the following paragraphs.

⁶ Based on a report by the Economic Research Service, U.S. Department of Agriculture, Washington, D.C., Dec. 1962, prepared specifically for this study of the Northern Lake States Region.

Estimates of land requirements for agriculture by 1980 and 2000 generally indicate a continued decline in acreage needed for agriculture within the 81-county Northern Great Lakes Region. This decline is estimated to be about 593,000 acres of cropland by 1980 and 597,000 acres by the year 2000.

The national need for agricultural production in 1980 and 2000 will be affected by a growing population, rising consumer incomes, and other economic factors. With the projected increase in personal incomes by 1980, an upgrading of the diet and some shifts in consumer preference among foodstuffs are expected. Taking into account the population growth, changes in per capita consumption of foods, nonfood uses, and exports, the projected requirements for agricultural products by 1980 will be about 30 percent greater than the 1959-61 estimated requirements.

An allocation of projected national requirements was made to the Lake States area on the basis of production trends and available knowledge of likely shifts of production between regions. The production estimates for the Lake States were projected to 1980 as being about 15.5 percent of total U. S. requirements, representing an increase of about 5 percent over the 1959-61 average. Significant increases were projected for milk, turkeys, and dry edible beans; and slight increases for red meats, soybeans, and wheat.

Assuming that new technology will be adopted at a rate comparable to that of the past 10 years, the estimated production requirements for the Lake States could be met with about 1.4 million fewer acres of land than was used in 1959-61.

For the 81-county study area, the estimated needs for the nonfeed crops in 1980 could be produced on 2 percent more land than was used in 1959-61. In 2000, the nonfeed crop requirements could be met with about 1 percent more land than was devoted to production of these crops in 1959-61. The feed crop requirements in 1980 and in the year 2000 could be met with about 600,000 fewer acres than were used in 1959-61.

These indicated reductions of farmed acreage in the Lake States and the 81-county area are in general agreement with the conclusion reached by the USDA Land and Water Policy Committee. The basis for these conclusions regarding demand for agricultural products in the future was worked out crop by crop and commodity by commodity.

OWNERSHIP PATTERN

The great bulk of the land area in the Northern Great Lakes Region passed into private ownership solely for the purpose of extracting its wealth of timber or minerals. Only the dregs were left unclaimed and remained in Federal ownership to form the nucleus for the now existing 6 million acres of National Forests. Almost as rapidly as the timber was cut, some lands were abandoned by their purchasers or sold as potential farming areas. Except on the few isolated zones of better soil, however, farming proved unprofitable. Consequently these lands also were soon abandoned.

By the late 1920's, great blocks of tax-delinquent land areas existed throughout the region. In Michigan, this abandoned land reverted to the State and became the basis for State forests and State parks. Throughout the three States, the Federal Government purchased abandoned properties for National Forest purposes from private owners, who most often were facing immediate loss of their property, and from the State and local governments. In Wisconsin, with appropriate state legislation, counties began the establishment of commercial forest areas, from which timber could be sold. These have remained as commercial county forests and have a great potential for multiple use. In Minnesota, both State and county forests were formed. At present there are approximately 21 million acres of land in public (local, State, or Federal) ownership. This is 40 percent of the gross land area.

Farm enterprises have involved an estimated 40 percent of the regional land area of 53 million acres since 1860. This area was once or is at present in agriculture.¹ Currently, 13 million

¹ Basic Statistics of the National Inventory of Soil and Water Conservation Needs. USDA Stat. Bul. 317, August 1962.

acres is in farm ownership with 6.5 million acres in cropland and pasture.

Recent studies indicate a further shrinkage of acreage devoted to agricultural use.² In the decade ending in 1959, approximately 20 percent of the agricultural acreage was converted to other uses.

During the period from about 1900 to 1930, many landholdings were broken up into smaller parcels ranging from 40 to 200 acres each and change of ownership was frequent. Many of these parcels were later bought by nonresidents for hunting lands. Some reconsolidation occurred between 1930 and 1950 in the establishment of hunting club properties and some other large holdings for other purposes.

In the 1920's the paper manufacturers in the three States, together with a number of the hardwood sawmill owners, began to see the advantages of company ownership of timberland and management on a permanent basis. The trend was begun in Wisconsin (Goodman Lumber Co.) in the late 1920's. This trend continued until currently there are a number of major commercial private forest holdings ranging in size from 10,000 to more than 200,000 acres each.³ Like the pattern of ownership in the public forest, however, the commercial forest properties are not in solid blocks of land, but are intermingled with properties belonging to many people. A single township (36 square miles or 23,040 acres) may have four or five families or occasionally none living on the land. Yet the list of owners for such a land area may total 200 to 300 different names. The purchase price of such "wild land" property is low by national standards, averaging \$10 an acre but ranging from \$5 to rarely over \$50. Taxes are comparatively low (also by national standards) and absentee ownership involves little risk and small capital investment.

² U.S. Forest Service, Lake States Forest Expt. Sta., Sta. Note No. 600, 1961.

Minnesota Lands. Samuel T. Dana, Ed., Livingston Publ. Co., 1960.

³ Reference 1, preceding.

The Recreation Resource ¹

Outdoor recreation includes a wide variety of activities. This report refers to those kinds of recreation activities taking place outside cities or communities, such as camping, sight-seeing, hunting, boating, and skiing--those which require a more or less natural setting. Recreation is treated as a form of resource use comparable to forestry and agriculture. Outdoor recreation is also considered as a product resulting from either direct or indirect single or multiple use of natural resources.

The Northern Great Lakes Region has a high potential for the development of outdoor recreation. Outdoor recreation covers so many kinds of activities, depending on so many kinds of resources, that almost every region has a good potential for its development. Since every part of the country has some favorable qualities for outdoor recreation, the region is in competition to some degree with all other regions in the business of attracting and serving recreationists. This competition tends to sharpen as rapid modes of transportation become more generally available.

It is therefore important to recognize the kinds of outdoor recreation that are most suitable for the region. What are the resources, in both quantitative and qualitative senses, which are most unique to the region, and lend themselves best to recreation use and development? What can the region offer in outdoor recreation activities better than other regions? In short, what kinds of recreation opportunities should the region promote and develop so as to gain a competitive advantage in the recreation market place?

Government people and private landowners need to think in specific and competitive terms

¹ Recreation development potentials are appraised here without reference to supply-demand relationships between this and other regions. It was recognized that planned developments in one region must ultimately be considered in relation to those for other regions. However, an analysis of these elements must await accumulation of more definitive data in a national frame of reference. For the present, the gap between demand and satisfaction is great enough to justify expansion in all of the recreation facilities and development opportunities in the Northern Great Lakes Region.

in any realistic effort to stimulate or expand outdoor recreation use. If the region is to draw more people from neighboring or more distant States, as it must do, then it must provide recreation opportunities either better than, or different from those in adjoining regions.

THE AMENITIES AND THE INTANGIBLES

A small lake fringed by conifers rather than cottages, a twisting country road arched by trees instead of electric wires and stoplights, grass instead of cement, woods instead of walls; these are some of the region's recreation amenities. These are the assets, the vital base, prerequisite to the establishment of a flourishing recreation and tourist business. Visitors will remember these kinds of subtle things seen and enjoyed, consciously or unconsciously, while in the region. The intangible impressions, formed by the amenities, give the region its flavor and cause people to return again and again.

In today's society we are accustomed to working under the assumption that things only



have value when they have a price tag. The fact of the matter is that the amenities have value, but there is no way to set exact prices. The esthetic qualities of the region's forests are as much a "product" of the forest as the corporeal or more tangible products.

Since multiple use land management includes outdoor recreation as one of several forms of resource use, the intangible values and amenities become part of the management objectives. In outdoor recreation there are both lookers and doers. Those who simply look receive their enjoyment, for the most part, from the amenities. Of the five most popular forms of outdoor recreation, three are activities of lookers; i.e., driving and walking for pleasure, and sightseeing.

These facts should be recognized by local planners and entrepreneurs. For the indirect resource uses, it is relatively simple to identify the recreational "feature attraction," such as a waterfall or a virgin stand of trees. It is more difficult, but equally important to recognize the secondary features or intangible attractions. These enhance the overall appreciation of the central attraction. If these less spectacular aspects are ignored and destroyed or greatly altered by too much man-made development, the feature attraction, while itself unchanged, will lose much of its aggregate recreational value.

The region has great appeal to urban dwellers because of its rural characteristics, its many lakes, its expansive forests, and its atmosphere of remoteness from the headlong rush of everyday mid-20th century life. These are the amenities. They constitute a basis for building an outdoor recreation economy.

WATER AS A RECREATION RESOURCE

Water is here the main recreation resource. With 27,000 lakes, 2,000 miles of Great Lakes shoreline, and some 15,000 miles of streams suitable for trout, the region is in a most favorable competitive position in regard to water.

A family on a camping trip seldom just pitches a tent and then sits inside. Living out-of-doors,

sleeping in a tent, being close to nature-- these are the purposes of the trip. "Camping" in the family's mind involves a cluster of activities and impressions. Fishing, swimming, picture taking, chopping wood, wind in the trees, water splashing in a stream or lapping a lake shore, an owl hooting at night; this is "camping." All these things are parts of the camping experience. The more variety there is, the more enjoyment. Camping is best when it is near water which provides more activities and more sounds. Though not essential for camping, water in a stream, pond, or lake surely enhances the family's camping trip.

Water is used for recreation both directly for swimming, boating, and fishing, and indirectly for photography, sightseeing, and as a setting for a camp or picnic ground. Thus, it serves recreation in a variety of ways. Here lies its importance as an asset to the region. As long as people prefer water-oriented recreation, water will remain the single most important natural resource for recreation use.

It is virtually impossible to overstress the importance of good water management in the region. As the years go by, it will be under increasing demands for a variety of different uses. Not all these will be compatible, for the most part, with outdoor recreation. Under these foreseeable circumstances, proper allocation and regulation of water use and access to it can forestall the occurrence of serious limitations to the region's economic growth. Effective planned conservation of water values for recreation is essential.

THE IMPORTANCE OF CHANGE

Leisure time, greater mobility, and more disposable income are often cited to explain the tremendous increase in outdoor recreation since World War II. But other influences are important and perhaps more basic. Possibly the psychology of following a fad has had some influence. The growing concentration and increased proportion of the population living in urban areas intensifies the desire of people to get out-of-doors. Technological advances

leading to the marketing of new laborsaving, convenient, and pleasurable outdoor recreation equipment at low cost has been a factor.

One cause of people seeking outdoor recreation is man's effort to satisfy his desire for change. The Northern Great Lakes Region offers the visitor a substantial change from his everyday urban environment. Its evergreen forests of spruce, fir, pine, and hemlock are in strong contrast to the oak woodlots in the southern portion of the three States. The many lakes provide a pleasant change and variety in the landscape. The hills and high bluffs offer something different from the flat country where the visitor may live. All of these changes, along with changes of the seasons, are important to the recreation seeker. They are among the region's drawing powers.

There is yet a different type of change which warrants recognition. This relates to the kinds and number of recreation activities available in the region. The visiting tourist is more apt to stay longer, have a better time, and return another season if he has an opportunity to choose what he does and where.

Within the region there now are many public areas dedicated in part or wholly to outdoor recreation use. The State parks total 77, the State forests 52. There is one National Park, Isle Royale, in Lake Superior. There are eight National Forests; one includes the nationally known Quetico-Superior canoe country (Boundary Waters Canoe Area), a wilderness area with special qualities unequalled anywhere in the country. Also there are many county and community parks.

There are many overnight lodging places offered by private enterprise. In 1962 a Wisconsin survey shows in that State's part of the region 3,600 establishments having overnight accommodations--almost one-half of the total number in the entire State. Nearly 85 percent of these establishments, however, are closed during the winter.²

² Wisconsin Vacation-Recreation Paper, Vol. II, No. 1. I. V. Fine, Univ. Wis. School of Commerce, Madison, 1962.



Change and variety are important. They will hold the recreationist and his family in the region, and will attract a broader segment of the population. If, for example, the recreation opportunities in the region are limited strictly to skiing, then the thousands of families interested in camping will go elsewhere. This is an obvious fact, but it has many ramifications.

Diversifying the outdoor recreation opportunities can extend the recreation season. This further increases the proportion of the population which may be attracted. Diversity of activities calls for diversity in the resource base and its management. In many cases this lends itself well to the principles of multiple use, and fuller utilization of the region's resources.

Selective cutting for wood products can be appropriate in a forest campground. Cutting opens the forest canopy and lets in more sunlight--highly desirable in the relatively cool summer climate of the region. Creating open-

ings in the forest will also permit growth of brushy plants supplying browse for deer and food and cover for small game and birds. The wildlife species that will be attracted will, in turn, appeal to campers who like photography and nature study.

QUALITY OF OUTDOOR RECREATION

Quality of recreation is largely a matter of personal preference. Therefore, scientific evaluation and standardization of criteria are difficult. Any two people will seldom attach the same qualitative value to the same recreation experience. A "crowded" campground, for example, does not reduce the quality of the camping experience for some users. To them some degree of "crowdedness," or high density of users, is either desirable or unimportant. Quick access to a swimming beach near their tent may be more important. Another person may consider solitude, not swimming, the prime factor in camping. He would prefer to remain home rather than place his tent a few feet

from another. Finally, the campground manager may base his quality judgment on still different standards. He may take a longer view and measure "crowdedness" by the ability of the area's soil, vegetation, swimming facilities, parking places, and drinking water to sustain the use load.

Quality is capricious and often beyond the control of either the resource manager or the user. A man fishing in a lake with the right bait may have extremely good luck when fish are biting. He will by all odds rate this a high-quality fishing lake. On the same lake at a different time another man may have no luck at all. He will give the lake an extremely low rating. The quality of enjoyment in other situations is equally capricious and unpredictable.

It is much easier to measure the quality of a tourist lodge or general vacation facility, for here at least a few standards have been established and accepted.

A 1958 survey in the Arrowhead Region of Minnesota covered 2,700 establishments offering overnight accommodations. One of the significant findings of this study related to the quality of these accommodations. Almost half of the establishments did not have inside flush toilets, 65 percent did not have private baths and showers, and a like proportion did not provide patrons with hot and cold running water.

In the same survey, visitors were asked to rate the quality of various aspects of the region's tourist attractions and accommodations. Only about a quarter of the visitors rated the beds and furnishings as "excellent." Nearly 85 percent were dissatisfied with food purchased at places other than the overnight lodging establishments. On the other hand, a little over three quarters of the visitors rated the scenery "excellent." However, only 10 percent of the people listed "sightseeing" as their main purpose in coming into the region. Over 40 percent came to the area to fish and hunt, yet nearly 80 percent were not satisfied with the fishing they found.³

³Vacation Travel Survey. Minnesota Arrowhead Assn., 1958-59.

The Minnesota study shows that in spite of the apparent poor quality of the accommodations, slightly over 60 percent of the visitors stayed in the region for 1 to 2 weeks. Why, if the positive attributes did not more than offset the low quality of accommodations? Perhaps the extremely high rating given the scenery is more significant than has been generally realized.

RECREATION DEMAND

"Americans are seeking the out-of-doors as never before," according to the ORRRC report.⁴ Evidence of growing demand for outdoor recreation is to be seen on every hand. In Wisconsin's Northern Highland State Forest, the number of camper days increased 26 percent between 1958 and 1960. Camper days on the Upper Michigan National Forest increased 74 percent during the same period. During 1961 alone there were 216,500 recreation visits to the remote wilderness canoe area of northern Minnesota. Such examples of increased use are being recorded each year by County, State, and Federal agencies throughout the region.

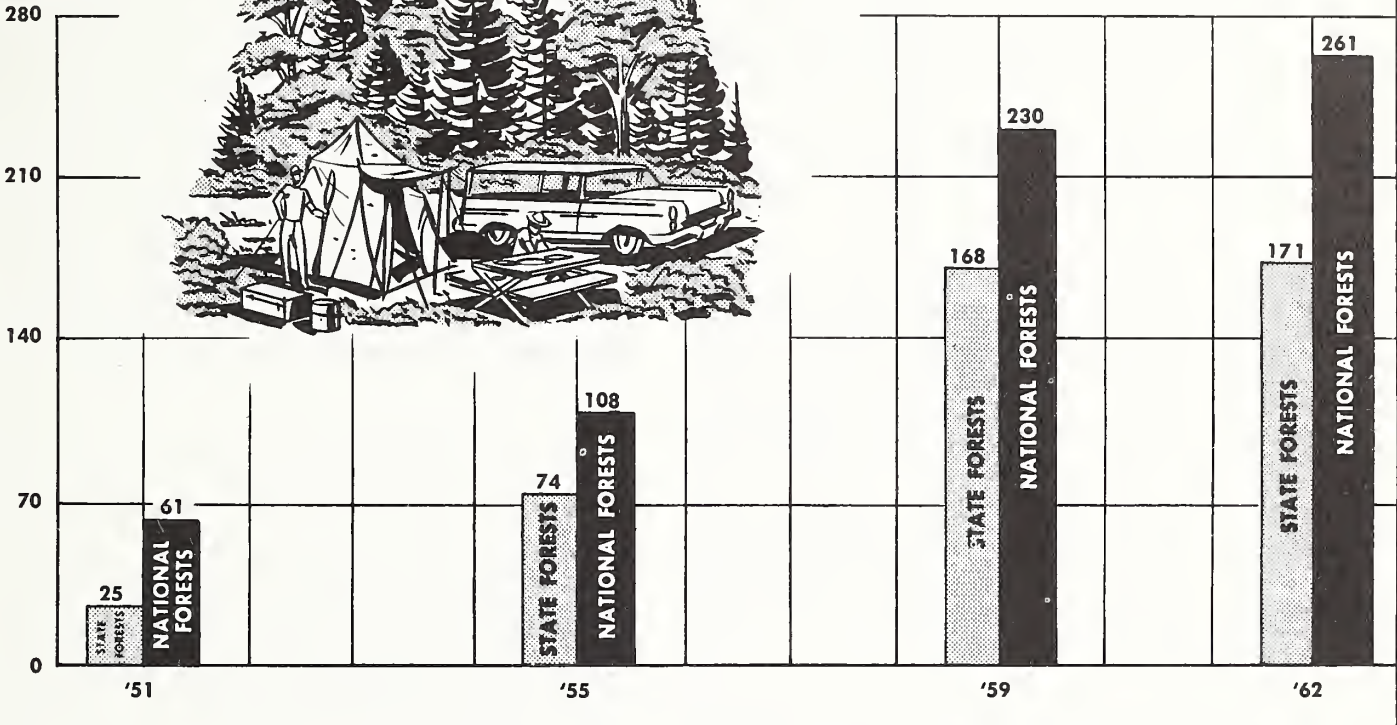
According to the ORRRC report the six most popular kinds of outdoor recreation activities are: Driving for pleasure, swimming, walking, playing outdoor games, sightseeing, and picnicking. All of these are "simple pleasures." People engage most commonly in those activities that can be done casually and with minimum preparation. Activities that require special-purpose equipment or facilities, or great physical effort, attract the fewest people. In strenuous exercise and activity the participants are usually the younger people, as would be expected. Activities that require relatively large capital outlays tend to be dominated by older people, and, of course, people in the higher income brackets. Exceptions to this generality, however, are recreation "status symbols" such as high-powered motorboats.

Considerable variation occurs, however, in actual recreation participation because of differences in age, income, education, place of residence, sex, race, availability of leisure time, and many other factors less well

⁴Outdoor Recreation for America. Outdoor Recreation Resources Review Comm., GPO, Washington, 1962.

CAMPER DAYS USE STATE & NATIONAL FORESTS WISCONSIN

THOUSANDS OF
CAMPER DAYS
PER YEAR



understood. There are substantial differences also based on regional patterns.

The Chicago Metropolitan Study noted that:⁵

While the recreation behavior of residents of large midwestern metropolitan areas is similar to overall interests in highly urbanized America . . . somewhat greater participation takes place . . . in those forms of outdoor recreation that require less strenuous effort. One of the differences also noted is that proportionately more people in these metropolitan areas engage in outdoor sports or watch such events, suggesting per-

haps that more outdoor activity takes place in areas that provide more supervised and group-participation types of facilities . . .

Most of the time available for outdoor recreation during the year consists of short periods of 1 day or less and on weekends. It follows that a predominance of the recreation demand will be concentrated within commuting distance of the user's home.

Several studies agree that the limits of travel distance for day outings is about 100 miles with 40 to 70 miles (2 hours driving time) being the more common distance. Most two-day recreation outings are within 150 to 200 miles from the participant's place of residence. Beyond this distance the belief seems to be, "It takes too long to get there," and thus some closer recreation area is generally selected. Expressways and tollways have extended the

⁵ Outdoor Recreation: Needs and Preferences of the People of the Chicago Area. Northeastern Illinois Metropolitan Area Planning Comm. (Draft Aug. 1961 for ORRRC Study No. 21)

distance people are now willing to travel for a day or overnight trip, for time rather than distance is the controlling factor. In the recent past, this time factor pretty much ruled out use of the Northern Great Lakes Region as a prime recreation area for persons from the large metropolitan centers to the south seeking a quick recreation trip. Day and weekend outings were taken much closer to home. Vacation use and long weekends plus local use constituted virtually all of the recreation activity in the region.

Several studies substantiate this. Between 40 and 60 percent of Chicago residents take one or more overnight vacation trips annually. The Chicago area study found that 24 percent of vacationing householders visited Wisconsin, 8 percent went to Michigan, and 5 percent to Minnesota. No indication was given as to the destination within these States, although other sources indicate that most of the visits were concentrated outside the study region in southern Wisconsin and Michigan.

A survey of the origin of recreation visitors to the Minnesota portion of the Northern Great Lakes Region in 1958-59 showed that more than 90 percent of the visitors in the region were city residents.⁶ Minnesota provided almost 30 percent of the total visits, Illinois 20 percent, Iowa 18 percent, Indiana 6 percent, Missouri 5 percent, and Nebraska 4 percent. No other State provided more than 3 percent of the visitors.

A study made in 1959-60 of the people in the Twin Cities showed that 38 percent took their vacation within the State of Minnesota, 6 percent went to Wisconsin, and 3½ percent to Michigan.

Michigan draws about 20 percent of its non-resident campers from the State of Illinois. Slightly more than half of these Illinois visitors apparently prefer camping in the Upper Peninsula to the rest of the State. No explanation is given for this, but it may well be because access to the area is relatively easy via Wisconsin. Undoubtedly, a much greater pro-

portion and number of visitors to Michigan's Upper Peninsula come from the heavily urbanized areas down-state in Michigan and from Indiana and Ohio.

A paper dealing with the situation in Michigan's Upper Peninsula stated, "While being enthusiastic about tourism and winter skiing, it is well to also consider the matter of distance to the Upper Peninsula. The Upper Peninsula for the most part is considerably distant from down-state population centers in Michigan and there are also many ski hills and resorts to pass before arriving in the Upper Peninsula. This same observation is true for the large population centers in Wisconsin and Minnesota."⁷

If in the years ahead this situation is to be materially changed, the time-distance ratio must be further reduced. Even if this is accomplished, most day and much of the weekend recreation activity generated by the large population centers in the midwestern metropolitan complexes will continue to be in areas much closer to home than the Northern Great Lakes Region.

It is apparent from all these studies that the factors of distance and ease of access from major population centers into the Northern Great Lakes Region have established three general patterns of recreation travel flow. Northern Minnesota draws a predominance of its visitors from Minnesota, Illinois, and Iowa. Northern Wisconsin depends heavily upon southern Wisconsin and Illinois, including Chicago. The flow into northern Michigan is from southern Michigan, Indiana, Ohio, and to a lesser extent from Wisconsin and the Chicago area.

Clearly the region is still too far away, in travel time, from the major urban centers to the south to receive heavy day use or short overnight recreation and tourist visits. Therefore, aggressive and sustained local action to attract and hold visitors in the region is

⁷The Upper Peninsula--A Brief Economic Review. R. T. Hartwig, Dept. of Agr. Economics, Mich. State Univ., East Lansing, Aug. 23, 1961.

⁶ Reference 3, preceding.

imperative if the region is to overcome its time-distance handicap. Continuing efforts to speed travel through better highways and air terminals undoubtedly will increase the number of people going into the region for recreation. Better accommodations, diversified activities, and a major promotion effort appear to be necessary if the region is to compete successfully with other areas in attracting the recreation seeker and the tourist's dollar.

There is no indication that the Northern Great Lakes Region can depend on the development of a captive recreation market as a result of population growth and saturation of the recreation areas adjacent to the population centers. The converse is more likely to occur with the development of many new recreation areas in the southern parts of the three States as well as in Illinois, Indiana, and Ohio.

If the needed effort within the region is put forth, the recreation industry, however, could be increased several fold above the present levels of activity for almost every type of enterprise. But let there be no mistake! Competition will be greater than ever before. Services and satisfaction will be a major key to future success. The ORRRC report projects a doubling of the national population and a tripling in the demand for outdoor recreation between 1960 and the year 2000. The Nation now has a great reservoir of unmet demand. New enterprises and new areas are being developed to satisfy the more insistent needs. Impetus gained in the very near future--a head-start--will be invaluable as future needs appear. Other regions will tempt the prospective tourist and recreation seeker to go elsewhere than the Northern Great Lakes Region. The less selective, the less critical, the less adventurous, and those unwilling to travel longer distances will eventually find their recreation satisfactions nearer home. Recreation areas farther afield will be competing more strongly for the long-distance segment of the recreation and tourist traffic.

The demand for outdoor recreation in the Northern Great Lakes Region could have been analyzed 10 years ago with scarcely any mention of skiing. The situation today is vastly different. A decade ago there were perhaps a dozen skiing areas in northern Wisconsin, Michigan's Upper Peninsula, and the Minnesota portion of the region. Today there are close to 30. In 1950 approximately 40,000 tickets were sold for use on ski lifts and tows. During 1962 the figure jumped to a third of a million in northern Wisconsin and Michigan's Upper Peninsula. A few years ago none of the skiing areas had lights; now there are 11 areas equipped for night use. Snow-making machines are now used in 6 areas, and there is a combined total of 118 T-bar lifts, chair lifts, and rope tows in the region.

With the growth rate of such proportions it is difficult to estimate when it will level off. Certainly, the top of the growth curve has not yet been reached. But new areas opening today will find a far more competitive situation than that existing 4 or 5 years ago. The investment required to meet today's competitive market is much higher, and the selection of a new area is much more critical than in the recent past. There is, of course, a fixed number of really good ski sites in the region, and many of the better ones have been developed.

Some of the experts on this subject think that much of the future effort in the region for the development of a strong skiing trade would best be made in existing locations by improving present facilities, rather than a wholesale rush to find and develop new areas.

There appears to be justification for optimism regarding the region's recreation tourist future. The region's location is, in one sense, a handicap. On the other hand, many of the region's natural resource attractions, both tangible and intangible, cannot be duplicated within 200, 500, or even 1,000 miles from the populous metropolitan centers directly to the south.

MULTIPLE USE

A Definition

Multiple use is both a concept and a management system.

A specific definition of multiple use was provided in the Multiple Use and Sustained Yield Act of June 12, 1960, passed by the 86th Congress (Public Law 86-517) as a directive for the administration of National Forests, as follows:

"Multiple use" means: The management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources . . .

This legislation establishes a policy of multiple use for National Forests. It goes farther and defines a corollary criterion--sustained yield. The law reads, "Sustained yield of the several products and services means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forests without impairment of the productivity of the land."

The definition of multiple use clarifies the concept even though it relates specifically to the management of these particular public properties--the National Forests. It could be applied as well to all other public lands in the Northern Great Lakes Region except for those, such as the State Parks, where limitation of use is required to meet the objectives for which the areas were established.

Multiple use is equally applicable to resources in private ownership. It is only necessary to recognize the interests of the individual or corporate landowners which prompt decisions on resource use. This of course requires a re-direction of emphasis from public interest to private interest. The distinction, however, in no way reduces the opportunities to apply the concept and system of multiple use.

For either public or private ownership, the concept of multiple use requires the combination of uses that will best meet the management objectives of that ownership. Of equal importance is the coordination of multiple uses among different owners to obtain the maximum benefits from the resources of a local area. This is the community of interests. This extension or expansion of the concept of multiple use, and the complex coordination required to effect it, have yet to be successfully applied to mixed landholdings on an area basis. The opportunities to accomplish this in the region are great but unrealized. The need for effective multiple use is paramount for long-term economic growth.

In the Northern Great Lakes Region the nature of the resources--the intermixture, the variety in quantity, quality, and type of ownership--puts in sharp focus the opportunity for a multiplicity of uses. The successful harmonizing and balancing of the use of these resources is basic to maximum development opportunity and area economic growth.

The first step in establishing multiple use management in the region is to agree on objectives and relate the needs of people to resource use. It is then necessary to gain community acceptance of the basic principles and concept of multiple use coordination. Out of this will grow broad policies, management direction, and coordination helps for the large private industrial and public landholdings. Similar broad direction is needed for other landholdings, the farms and small forest areas of the region. This will be more difficult to achieve and will require the assistance and participation of local, State, and Federal agency

people who have the skills to include this kind of help in their program activities.

The next step requires the translation of policy to application on an area basis. This calls for the designation of those areas where general treatment and broad use-integration is applicable. It demands, further, the specific designation of those portions of land areas where multiple use coordination must recognize special situations. These would include situations where unguided uses lead to conflicts among multiple use objectives. Reconciliation of these potentially noncompatible uses requires adjustment in priorities and more careful balancing of uses. Such specific planning and ensuing action will bring the concept to reality, convert the principle to practices. Without it, multiple use cannot be developed to its full potential. With it, the various resources of the Northern Great Lakes Region can be managed and the uses coordinated for the optimum yield of goods and tangible and intangible services.

A CONTRAST--SINGLE AND MULTIPLE USE

A clear-cut example of a single use of forest land is the tree nursery dedicated solely to the production of seedlings for reforestation. In terms of land use dedication, such areas compare to the use of cropland to grow vegetables.

At the other extreme, in the final harvest of a crop of trees, multiple use opportunities and the scope of such opportunities will vary depending on the nature and growth characteristics of the forest type. In the spruce forests of the region, clear cutting is the only silviculturally desirable and economically practical forest practice. Moreover, clear cutting in blocks and patches creates openings that improve wildlife habitat for both game and non-game species. Contrariwise, in many situations where recreation and scenic values are primary, forest stands must be preserved uncut in areas of heavy recreational use and along roads and water travel routes. Planning for multiple use in these situations must recognize this, and the manager of each landholding must not only establish policy, but also clearly delineate

the specific locations where special treatment is required. The land managers' policies will need to be keyed to multiple resource use.

Where hardwoods comprise the forest types, especially the northern hardwood type, there are opportunities through selective cutting and harvesting to provide a closer integration between recreational use, timber harvesting, and wildlife habitat development. Here also, the intensity and patterns of cutting and the location of roads must be prescribed by specific area planning. And the planner must be guided by multiple use rather than single (product) use criteria.

The extent to which a multiple use program can be adopted for industrial and restricted-use public ownerships will depend, of course, on the management direction established for the particular ownership.

In agriculture, at the other end of the scale from the single use of land to grow vegetables are the multiple use opportunities presented by extensive grazing land on the beef cattle farm or ranch. Beef cattle production can be combined with a recreation enterprise including a stable of horses and the use of the grazed lands and adjacent woodlands for riding trails.

In outdoor recreation, an essentially single use situation is illustrated by the swimming beach and the boat ramp. While there may be multiple use of the water, the site is dedicated to these exclusive types of recreation use.

Again, in a multiple use setting, is the general recreation area which provides for camping, picnicking, and general enjoyment of the outdoor scene. Here careful and selective timber harvesting provides a valuable raw material for market and improves the site by reducing shade and providing a dryer, more desirable site for the recreation use.

THE DIFFICULTIES--THE OPPORTUNITIES

A balanced multiple use program on an inter- and intra-ownership basis is hard to achieve. Some hindrances are especially significant for this region. The concept itself is complex and difficult to understand. Single-interest or

limited-interest objectives have generally prevailed. Multiple use has been defined variously by different people and different agencies. These differences often can be attributed to efforts to interpret the principle in the light of existing agency authorities and management approaches. A successful effort to meet multiple use objectives on a broad basis will require an understanding by all interested people.

The complexities of inter-ownership use coordination are real and difficult to resolve. To illustrate coordination opportunities among different ownerships it is helpful first to describe the situation in a single resource category, namely, outdoor recreation. In any area, the total recreation development, including facilities, attractions, and accommodations, should be on a coordinated basis regardless of land-ownership. (This must be subject, of course, to individual private ownership objectives and land-managing agency policies.) One class of ownership may be better able to provide certain kinds of facilities for recreation than another. Developments on all landholdings should complement one another. It should be recognized that certain facilities are best provided by the private sector and certain others by the public sector. There should be no competition between these sectors.

In view of what is involved in coordination for recreation--a single use, though in many forms--it is immediately apparent how much more difficult coordination can be for multiple use. Coordination involves intermixes between resources and resource uses--agricultural crops, wood, water, and recreation--beyond this, a further intermix of various combinations of resource bases and management objectives on many landholdings.

In the Northern Great Lakes Region, the problem of fragmented ownership has complicated management coordination and development. This is characteristic of the public lands. Fifty percent private ownership within the proclaimed boundaries of State and National Forests is common. Fractional public landholdings, accumulated largely as a result of tax delinquency and resettlement programs,

are common in Minnesota and Wisconsin. Small private woodlands and small farms are the rule. All of these characteristics tend to complicate the development of multiple resource use. They also provide outstanding opportunities. Consolidations through exchange and acquisition should move ahead promptly. Wholesale consolidation and transfers of private land to public ownership, however, are not proposed here. Rather, action--leading to consolidation--is suggested only after careful study and analysis, area by area.

Where the total multiple use purposes for a locality are best served by individual or corporate ownership within established public land areas, ownership should be left in the status quo. Examples might be private land for recreation facilities and accommodations, for industrial development, for summer home construction.

Inadequate access has hampered full development of multiple use resources. The planning and construction of roads for limited or single resource development is an example of service facility construction that does not fully meet resource needs. Inadequate financing has sometimes been responsible. On public lands road construction usually depends on legislative appropriations; on private lands inadequate roads result from the pattern of small landholdings and reluctance by large landholders to make capital investments to meet long-term requirements.

Inadequate long-range planning and over-emphasis on immediate goals and profits, on both private and public lands, have also been retarding factors. The need for annual income returns on investments to provide stabilized profit levels and meet fixed charges such as taxes, interest, and loan repayments has led to the short-range view and the utilization, even liquidation, of resources on a single use basis.

Finally, there are no established procedures or techniques to stimulate the overall multiple use approach to management. There are no systems, no clear-cut authorities, and no assignment of responsibilities for this essential coordination job. The principal landowners,

public or private, in a given geographical area should assume greater leadership. But coordination requires a team effort--by landowners, land managers, and local community leaders. Another section will deal more specifically with this premise, and the ways the need might be met.

Multiple Use Complexes

In the search for a system to facilitate the development of multiple use principles and their application to the lands of the Northern Great Lakes Region, the Task Force early determined that a new approach in portrayal of resource combinations was needed. We wanted a system that would be simple, easily illustrated, and readily understandable, yet span the range of the renewable natural resources of the region. This was the genesis of the final decision to portray the multiple use opportunity areas of the Northern Great Lakes Region in three complexes.

The physical features of the landscape stratify naturally into three groupings or complexes comprising land areas of varying shapes and sizes. Their boundaries are indefinite, but their general characteristics are pronounced. In most cases they encompass more than one county, but this need not necessarily be so, especially for the larger counties. We have made no attempt to map them; to sharply delimit them; or to describe the topographic and soil characteristics that have created them. Acreage in various categories has not been measured. Rather, the groupings are in the full sense "portrayals"; presentations by picturization and description. They are useful devices, we believe, to illustrate coordination characteristics as a basis for developing multiple use action programs at the local level.

Since forests predominate in the landscape over most of the region, "forest" is used as a part of the description for each of the three complexes. Water has been used as another descriptive word and is a major feature in two of the complexes. The primary purpose in using the word "water" was to highlight areas where water-based recreation is a predominant opportunity. This is true throughout much of the

region. The term "farmland," to encompass crop and open grazing land in farms, has been used as the third keyword in describing the resource situation. Thus for the purpose of portraying multiple use opportunities, and the coordination aspect inherent in the principle, we have described the following complexes:

- Forest - water
- Forest - farmland
- Forest - farmland - water

THE FOREST-WATER COMPLEX

The Forest-Water complex (fig. 3), viewed from the air, presents a mosaic of forested lands and small interspersed lakes. This is a familiar scene in the Northern Great Lakes Region, especially in northeastern Minnesota and east central Wisconsin. This complex also includes forest areas of varying width in two situations: first, along major streams and second, along the forested shoreline and adjacent shallows of the Great Lakes.

Crop and pasturelands are few, scattered, and frequently marginal. Public ownership predominates. Resource use and development ranges from the primitive wild lands of the "voyageur country," where use restrictions to protect wilderness values have been established, to the lakelands where intensive recreation use and development are major features.

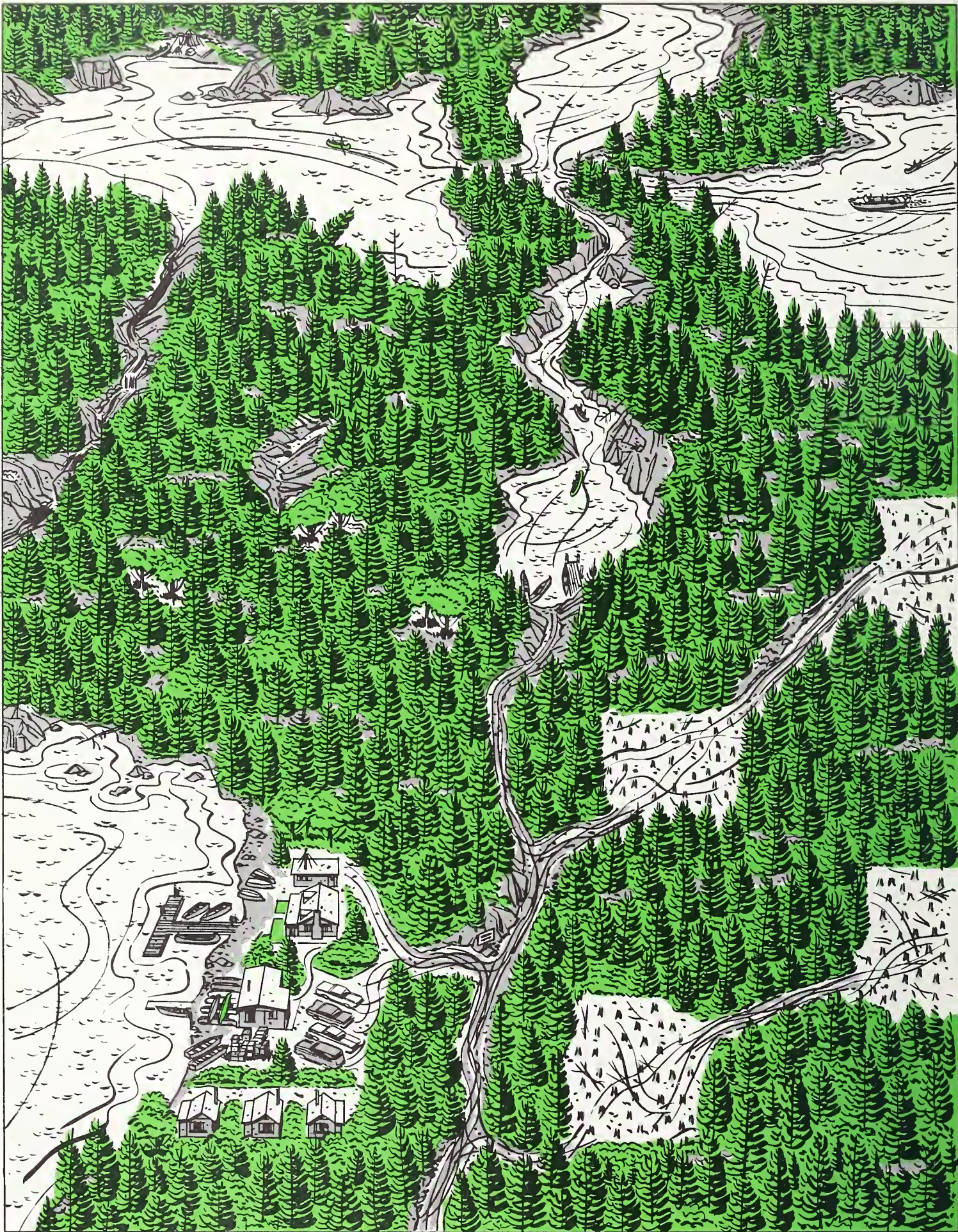
Protection of water quality and scenic values is of first importance in this complex. Any degrading of these characteristics through pollution, incompatible encroachments, or single-use-oriented heavy cutting of forest lands along streams and lakeshores tends to destroy the basic resource values of the Forest-Water complex. Optimum development of recreation values and utilization of the timber resource is possible without this sacrifice. The key is coordinated and carefully planned multiple use, which permits maximum recreation use and at the same time provides yields of forest products.

The portrayal of multiple use opportunities in the Forest-Water complex illustrates the resource interrelationships on publicly owned

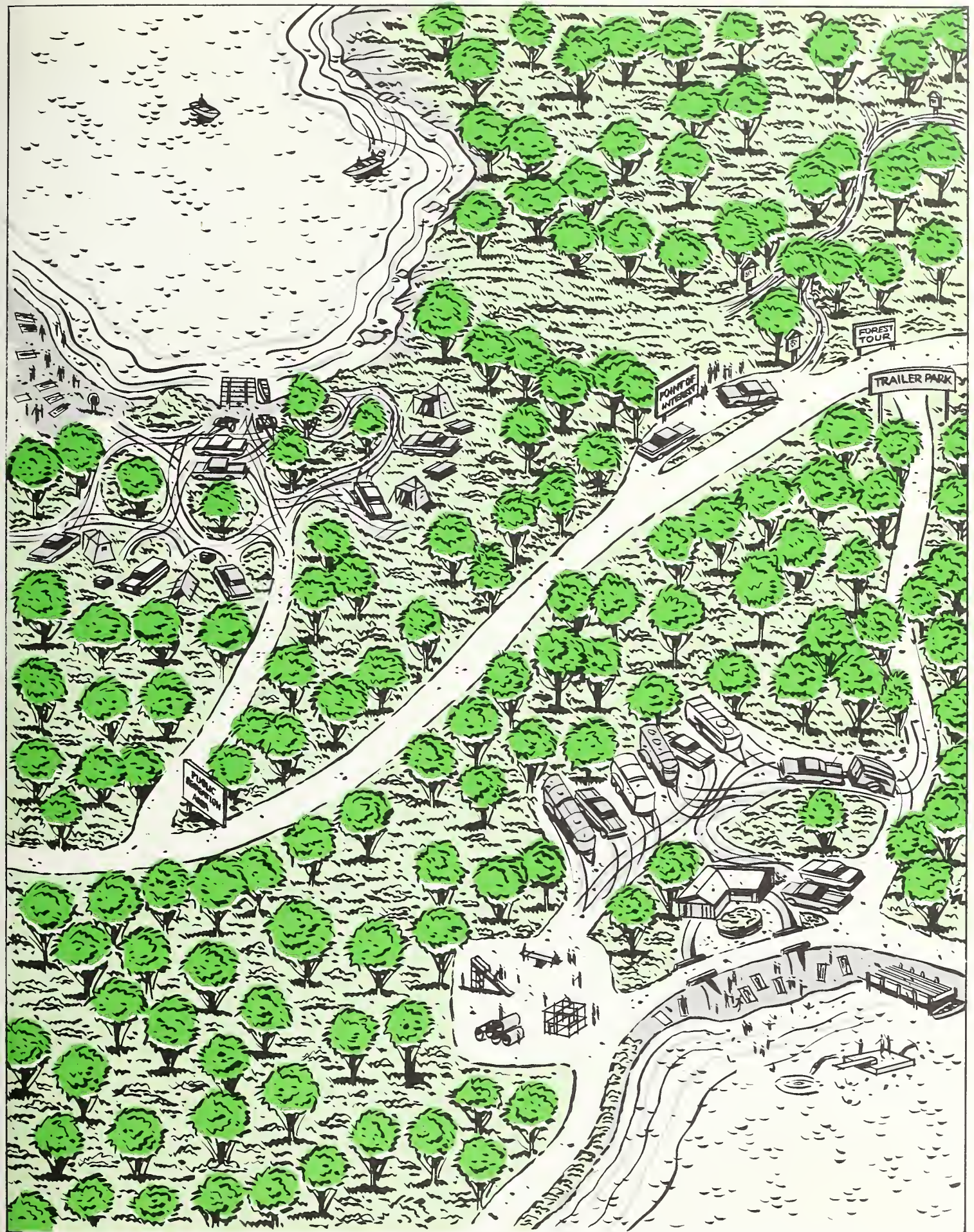


Figure 3.--The forest - water complex. A mosaic of lakes and forest lands.





Multiple Use in the
FOREST -- WATER COMPLEX



Multiple Use in the
FOREST -- WATER COMPLEX

forest land. Figure 4 shows the interownership opportunities afforded by a resort owner's land. His land, facilities, recreation attractions, and accommodations fill an important public service need in this resource situation. The opportunities for varied forms of recreation provided by the public lands are important to his guests. At the same time his enterprise opportunities on the public land, when added to those on his own land, provide a yearlong livelihood. Portrayed here are the combinations in this situation, in a setting where the hinterland is undeveloped. Other combinations within the Forest-Water complex will vary in different places. But the same basic principles apply. They generally correspond with the class III--Natural Environment areas described in the Outdoor Recreation Resources Review Commission report to the President. Recreation development areas within them would fall in the class II category of areas in that report.

The resort enterprise provides the principal source of income for the owner. It is earned during a short summer season. Successful operation has required the development of high-quality facilities, a wide range of activities, advertising, and high occupancy rates.

The resort owner has the concession for operating the canoe and outfitting camp on public land at the road's end. During the past season this concession produced a net income of \$2,000. On his own land he maintains a blueberry field of 20 acres (not shown in the illustration). This has involved much trial and error manipulation of the vegetation. He has found that periodic prescribed burning is the answer. The crop varies greatly from year to year. In years of heavy yield he markets berries commercially. Every year he gets a small return by permitting tourists to pick berries at 10 cents a quart.

He has an assured market for Christmas greenery and cones each year. This involves making wreaths and sprays, and a variety of decorative uses of native materials. He makes direct delivery to the Chicago market and often arranges to include a pre-Christmas vacation trip as part of the venture. The net income last year was \$800.

The resort owner and his employees produce pulpwood during periods when they are less busy with the recreation enterprise. The truck used for this work is also used to haul canoes and for work around the resort. He had planned for this when he bought a multipurpose vehicle. His net income from pulpwood was \$1,200 last year.

The full potential of the land and water in each ownership is used to best advantage to provide enterprise opportunity, round out employment, and permit maximum use of resources.

All of the uses contribute toward justifying the cost of a good primary access road. Together they make an all-weather road feasible in this situation.

The second illustration (fig. 5) of multiple use in the Forest-Water complex portrays the resource situation in a heavily used recreation area. This illustration is designed primarily to show resource coordination. However, enterprise opportunity is depicted as an integral part of the portrayal.

The scenic highway has been fitted into the terrain and its roadside values protected. It was located to provide scenic vistas. Timber cuttings along the right-of-way have been light and designed to enhance the scene, and in places to open up vistas. The same type of cutting took place within the recreation sites and along the entrance roads.

The high-value hardwood stands in the illustration are a major resource. An improvement cutting for sawlogs resulted in removal of an average of about 2,000 board feet per acre. The cut was very light in the timber adjacent to the heavy recreation use areas. For the 300 acres in the illustration, this partial harvest returned \$8,000 in stumpage price on the public lands and \$4,000 on the resort operator's lands. The final product, fabricated locally, had a value of \$50,000. Twelve hundred man-days employment were created.

The resort owner is fortunate in this location. He has a relatively long season, extended by a

winter sports facility nearby. He is in a heavy demand area and has modernized his facilities: he found that his guests desired and would pay for better facilities. He is on the County Rural Areas Development Committee and has fitted this operation into the Overall Economic Development Plan. His concession operation of the publicly owned facilities across the highway is profitable (his net was \$3,500 during the preceding summer). These facilities do not compete with those at his resort. The public facilities are quite primitive, whereas he has provided water, flush toilets, and electricity at his trailer site.

Last year he and his wife took a short vacation trip to Florida. While there he picked up several new ideas for the management of his resort and arranged to exchange promotion brochures. The recreation enterprise, with its many facets, is a successful venture. Resource use coordination has been attained. Land, resources, and man are in balance in this portrayal.

THE FOREST-FARMLAND COMPLEX

The Forest-Farmland complex (fig. 6) presents a pattern of forests and farms. The farmlands fit together in groups of holdings where the better agricultural soils are found. Water is not as important a feature of this scene as in other complexes. An occasional lake or stream provides additional recreation assets. Swamps and potholes are found in parts of the complex. The water-land relationships are less a factor in this complex than in the other two complexes, where water is the key to recreation use. Multiple use coordination in the Forest-Farmland complex must recognize this difference. Coordinated planning will relate farm and forest uses to nonwater-based recreation attractions and activities.

Water can still have a place in this setting. In fact, manmade impoundments, from farm ponds to artificial lakes, may be especially important in this otherwise water-deficient complex. These will not create a scenic water complex in the broad sense, but the opportunities to create sites for intensive water-based recreation will be good.

Vacation farms should have an important place in the land use framework of the forest-farmland complex. The accommodations and attractions these can provide combine well with recreation opportunities inherent in adjacent and nearby forested areas.

Off-farm employment opportunities should become increasingly significant when they are related to improving and utilizing the resources on nearby public and private lands. These activities would include harvesting timber products, construction and maintenance of roads and other facilities, and timber stand improvement work. In these enterprises the rural worker may function sometimes as an employee and sometimes as an entrepreneur.

Farms provide an important base in this complex. Although the land area devoted to farming rarely will exceed 25 percent of the total area, its relative importance will be greater. Dairying is now the principal farm enterprise. The more extensive agricultural uses, such as grazing, will become more significant. This will in turn open new opportunities for increased emphasis on multiple use and mixed employment.

Full use can be made of other recreation opportunities off the immediate premises. Scenic and self-guided motor tours, various attractions and "things to do" can serve as partial substitutes for water-oriented recreation activities. These would supplement the things to see and do on the farm, and provide visitors the change of scene they invariably seek. The mutually supporting interrelationships are thus a major feature.

Figures 7 and 8 portray several aspects of multiple use development opportunities in the Forest-Farmland complex. They also show conversion from an intensive to an extensive farm operation, though this conversion is not needed in all situations. The comparative illustrations are deliberately oversimplified as to spatial relationships and slightly exaggerated as to multiplicity of opportunities.

The original land use pattern (fig. 7) was three small dairy farms. One already has been abandoned by the resident farmer. Its lands



Figure 6.--The forest - farmland complex. A pattern of forests and farms.

have been added to farm A at the lower left-hand corner of the illustration. The second remaining farm (B) is an uneconomic business. The farm income was the owner's total income. He has been offered other employment and wants to sell. Farmer A has already been considering a shift to a beef cattle operation. He had in fact purchased a few cattle which he was grazing on the land of the abandoned farm. He will buy farm B too, utilizing Department of Agriculture loan facilities. Using all the available counsel and resources of Department and State agencies, he is planning a multiple use operation.

Figure 8 shows changes that might occur over about 5 years. It is the end result of cooperative efforts brought about through the ingenuity and industry of one farmer in one resource situation in the Forest-Farmland complex. These changes are described below as if they had already been carried out.

The income base supporting this farmer and his family is primarily the cow-calf beef cattle operation. It amounts to about 40 percent of his net income. To earn this income he uses the area of open land formerly in three farms and rents additional grazing land. The best fields are used for hay and some small grain crops. All the other fields are converted to range grazing. Two smaller areas are now fenced and devoted to wildlife production.

The buildings on the adjacent purchased farm B are converted to house farm vacationists. Buildings on the other purchased farm have been removed. The key attraction is a Western-style operating ranch. The adjacent public forest lands are used by his guests for travel on horse and foot. The general public also uses these lands, although they come onto the trail system through a public recreation area to the east. Old fruit trees, bushes, and shrubs remain around the abandoned farmstead. A few additional wildlife food plantings and protection from grazing help convert this old farmstead area into a tangle for game and song birds. Now and then visitors can see deer and other wild animals here, and occasionally a rare bird thrills the bird enthusiasts. Colored bird cutouts and name tags on a series

of posts in the tourist residence area help stimulate the "dude's" interest in birds and their identification. The farmer's place has already earned a reputation for home-cooked food, family style, and several customers come back regularly for summer vacations. He makes a point of sending his guests Christmas cards. His daughters make spending money by baby-sitting with clients' children.

The wet areas at the far corner of his property are now protected from grazing and improved to provide better waterfowl habitat. One small dam was built to develop the flowage. Several broods of ducks are raised here each year. They are of great interest to the city visitors, who watch the ducklings from a distance. Conservation payments helped on the cost of development and construction of these waterfowl improvements. Small annual payments for producing ducks for the flyway take care of maintenance costs and taxes on this segment of the property.

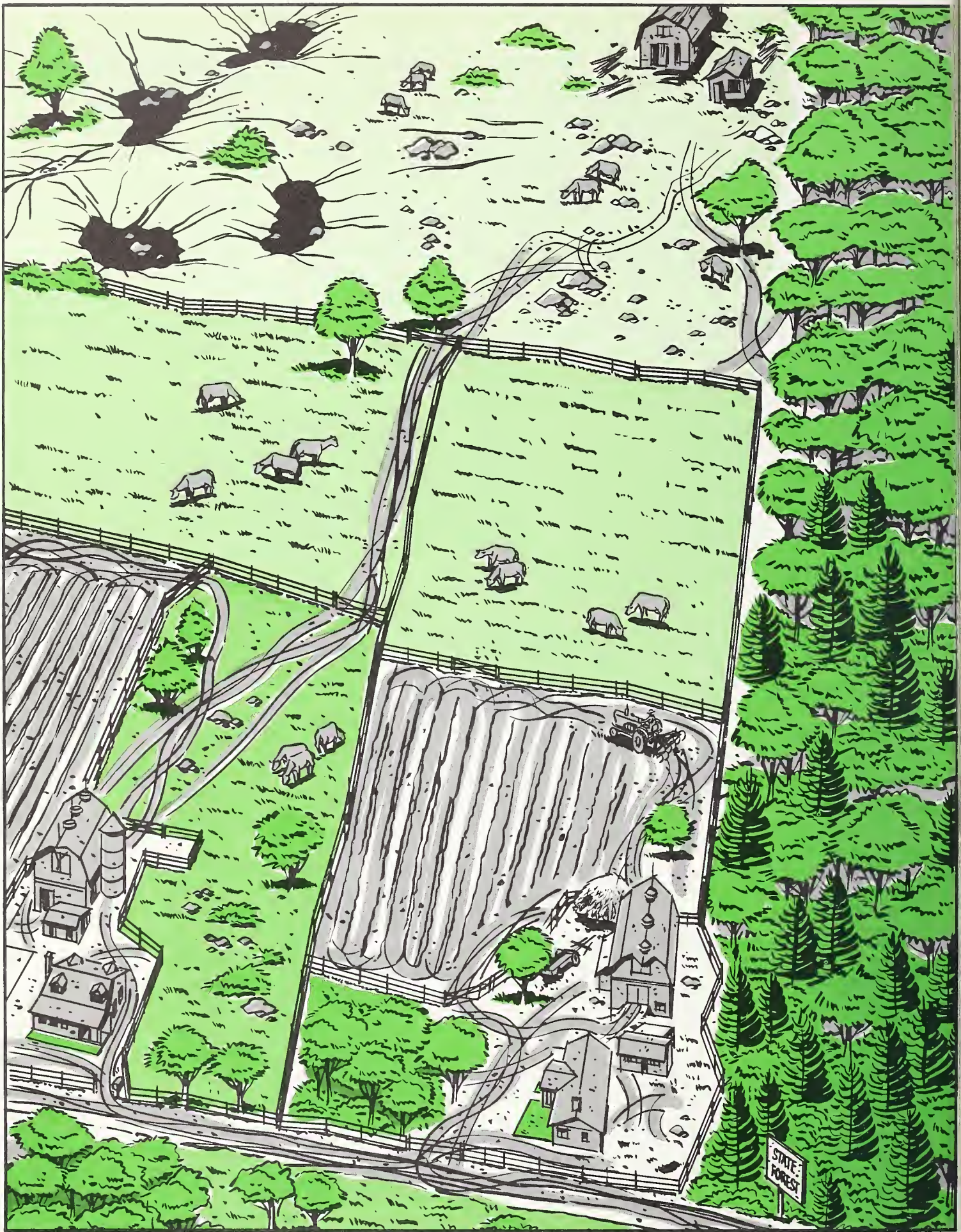
Things get pretty slack in the winter; he isn't close enough to a ski area to attract winter guests. However, he cuts pulpwood on his lands and nearby public lands. Care of his cattle and horses, repairs and improvements of his recreation properties, and repair and maintenance of his buildings and equipment fill the gap. This farm family has a well-rounded income derived from many sources: last year the farmer and his son produced \$2,000 worth of pulpwood, and his cattle sales grossed \$4,200.

His farm in combination with rented land and the nearby public forest makes up an integrated segment of a multiple use program in the Forest-Farmland complex.

THE FOREST-FARMLAND-WATER COMPLEX

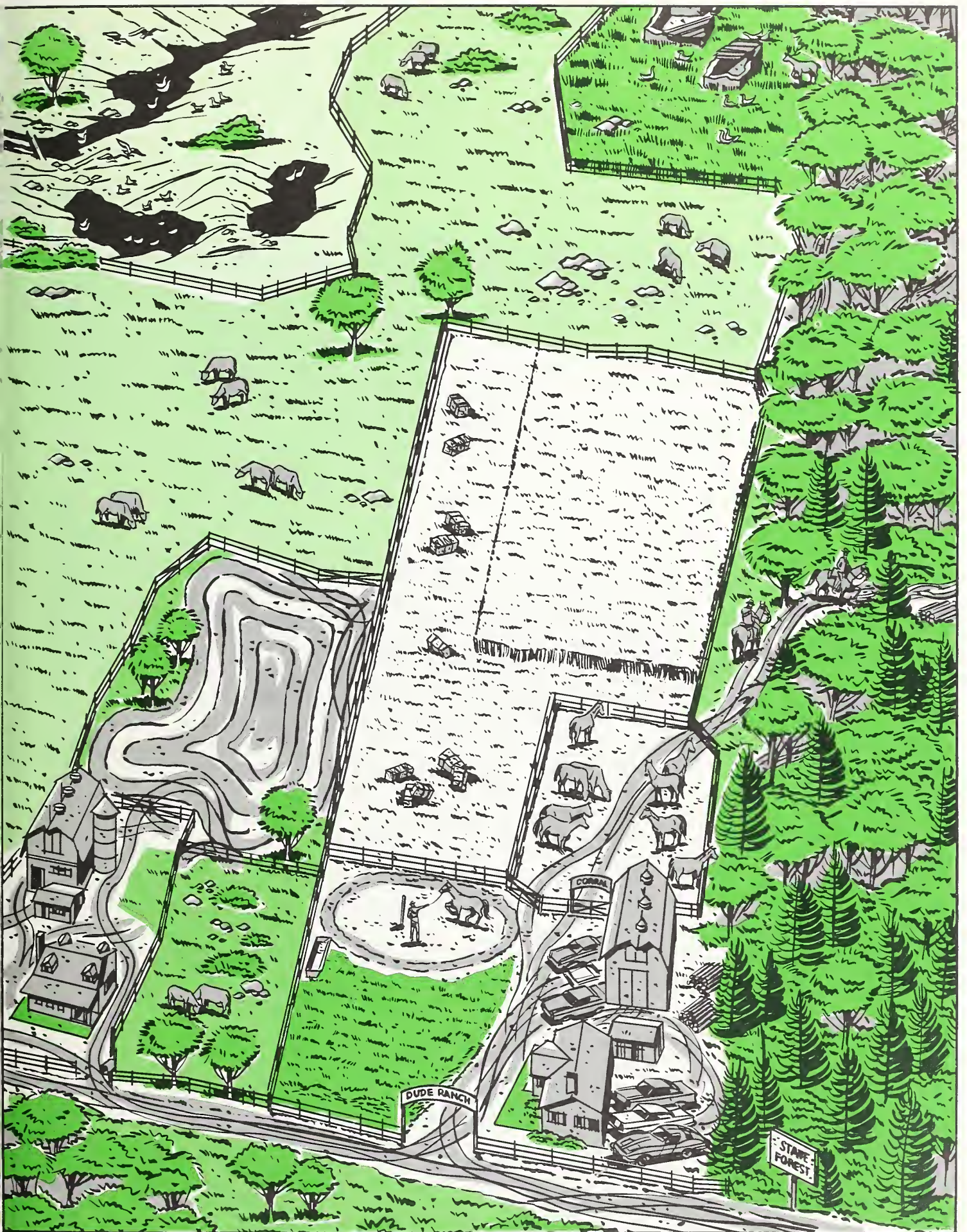
The Forest-Farmland-Water complex (fig. 9) combines three major landscape features. Here exist the maximum opportunities for coordinated multiple use. But here also exist the complicated and fragmented ownership patterns and varied resource situations that make achievement of this objective most difficult.





A Typical Resource Situation
in the
FOREST -- FARMLAND COMPLEX
in 1963

Figure 7



Multiple Use Development
in the
FOREST -- FARMLAND COMPLEX
in 1968

Figure 8



Figure 9.--The forest - farmland - water complex. A kaleidoscope of land and water features.

Farms may constitute as much as 20 percent of the land area in some places where this complex is found.

In this complex, resorts are common. Summer homes abound. There are many unmanaged and unused small properties held for future development and subdivision if demand grows. Rural communities have motels and some tourist facilities. Portions are intensively developed and heavily used. Other areas are underdeveloped and await the spark of local initiative and investment capital. Varied enterprise and employment opportunities characterize the complex. These features will be accentuated as recreation visits increase and thus provide more sources of income to rural people.

Within the complex are extensive shoreline landholdings in varying degrees of development. Some remain in farm holdings. Long-range planning for ultimate integrated recreation use of these key areas assumes major significance in this complex.

The portrayal of multiple use opportunities in the Forest-Farmland-Water complex shows a complicated mixture of resources and land and water features. No single resource use will provide full-time employment year round. There will be no single great resource use idea that will be the master key to full economic development. Instead, the combination of the resource bits and pieces will accomplish it.

Figure 10 emphasizes multiple use coordination between ownerships, in this case the farm and public forest land. It exaggerates the factor of proximity, but nonetheless portrays a typical resource situation in the complex.

The dairy enterprise is the primary source of income among the multiple farm activities. The remodeling of the farm home, here again made possible through Department of Agriculture loan facilities, provides accommodations for visitors as well as the farm family. A farm pond has been built and offers good fishing, free to the farmer's guests and for a fee to others. There are a few saddle horses for hire, though this is not a major feature as it is in the Forest-Farmland illustration. The setting is an

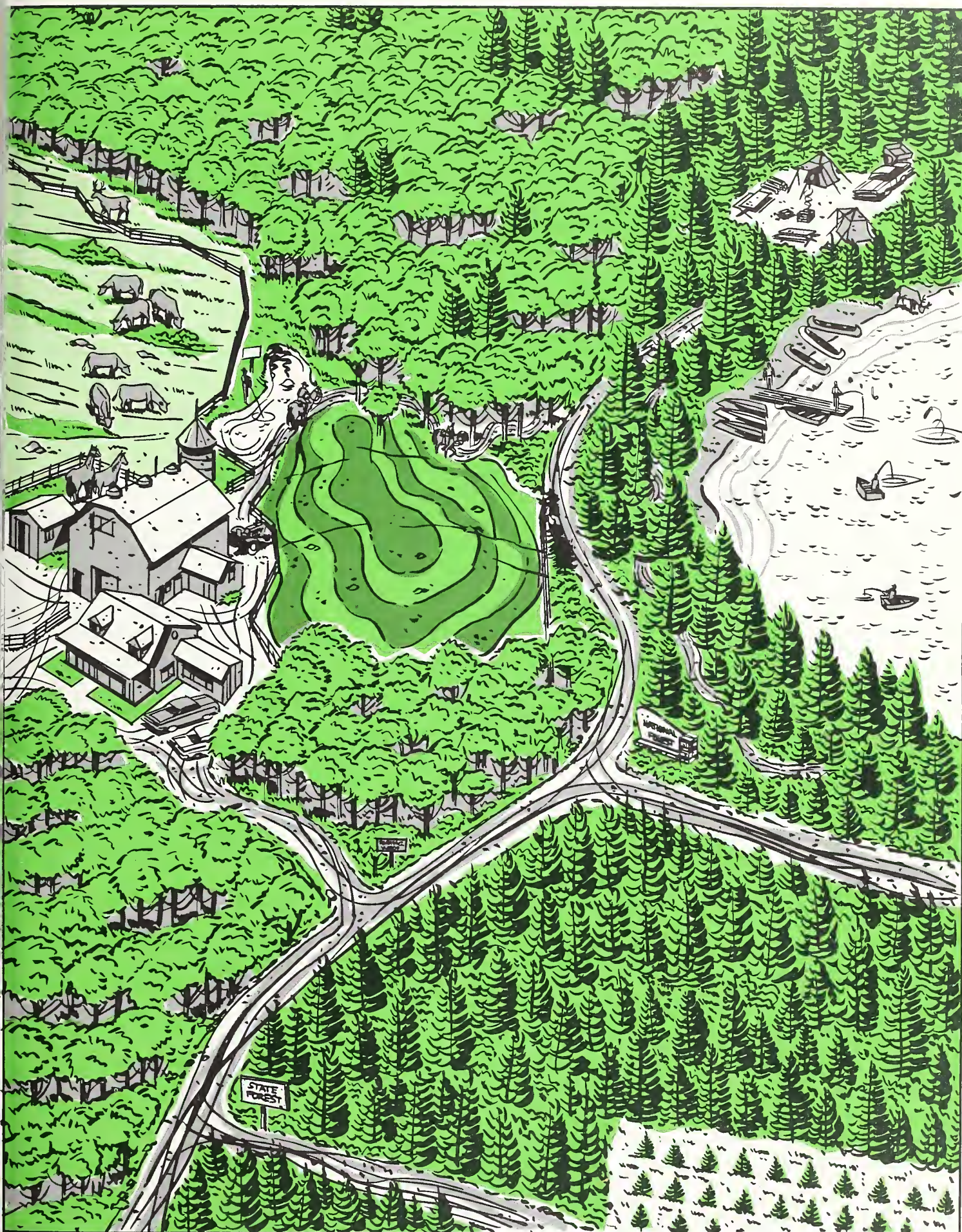
"operating farm." The vacationing families enjoy this feature, especially at milking time, and the milking isn't completely mechanized. The farmer's daughter finds a source of income in babysitting while the adults attend a movie in a modern, though small, theater in a nearby recreation-oriented town. This gives them a welcome change from "family activities." Self-guided motor tours add further diversity.

These off-the-farm "things to do" are an important part of the farmer's recreation resource. Scenic towns, good berry picking in nearby areas, and access to the Great Lakes only 30 miles distant add to outdoor recreation diversity.

Community attractions such as a summer stock theater, a reconstructed frontier fort and village, and a new zoo and playground all add interest and variety. An interesting activity is rock collecting along the Great Lakes beaches. The guests' interest is stimulated by the family's rock collection.

The illustration (fig. 10) shows the inter-ownership aspects of multiple resource use. The public land adjacent to the farm is used by guests traveling the trails horseback or afoot. The public facilities for recreation at the lake are, of course, available for use by guests staying at this and other nearby farms. These facilities, constructed quite recently, are an outgrowth of coordinated planning to provide maximum recreation opportunity in this resource situation. Multiple use planning on an area basis had involved all landowners. As a result, the need for these facilities in the complex was highlighted. Use of public funds at this location not only provided a recreation site on these public lands, but also made available a complement to other recreation resources and facilities in the area.

These multiple opportunities provide the enterprise base for this farmer. He has the many income-producing activities of the farm for his primary livelihood. He also has to contract for maintenance and cleanup of the public recreation area and owns and operates the boat concession. Down the road a bit is a highway rest area. Last summer he kept this in shape too.



Multiple Use in the
FOREST -- FARMLAND -- WATER COMPLEX

Figure 10

Each winter he cuts pulpwood to thin and improve his woodlot with the advice of the local Service Forester, a State employee. He applies multiple use principles as part of the job, being especially careful to protect recreation and wildlife values. If the farmer weren't so busy he could have taken a contract and cut and hauled pulpwood from the nearby public forest lands.

This is the "package"--the varied enterprises and activities which provide a solid base for the segment of the rural economy illustrated here.

Multiple Use on Private and Public Lands

The Northern Great Lakes Region is unique, at least in the Midwest, in having a large proportion of forest land and water compared to land in farms. As previously noted, only a little over 10 percent of the area is crop and open grazing land. This uniqueness results in coordination aspects and agency interrelationships that are different from those experienced in predominantly agricultural regions. Not only does this fact have special importance for Department of Agriculture agencies, but it is significant also for the Rural Area Development structures and functions at the county level.

Guidance and assistance is needed to encourage public and private landholders to incorporate the multiple use principle in land management.

PRIVATE LANDS

Multiple use on farms can apply the concept and emphasize recreation. The channels for assistance and leadership by Department of Agriculture agencies are open and are more a matter of implementation than of authority. Cooperative procedures are well established and sufficiently broad for assisting State and local agencies and rural people.

Department of Agriculture personnel engaged in farm financing, conservation program practices, education, and technical services have an opportunity and a responsibility to advocate multiple use principles and to emphasize outdoor recreation as a part of their assistance.

This will, however, require understanding of, and orientation to, the broad aspects of multiple resource use.

Nonfarm ownerships, both large industrial and small holdings, have not generally been managed for multiple use. There are, however, encouraging signs of reorientation. A large landowner in northern Michigan, for example, is currently analyzing recreation development opportunities on sparsely forested timberlands. The objective is new income sources, a diversified income base rather than one based solely on forest products.

Extensive industrial holdings and small intermingled ownerships create a more complex setting, within which Department of Agriculture agencies and local Rural Areas Development Committee operate. For these lands, Service Foresters have long been providing technical forestry services. However, reorientation is needed to fully implement the multiple use concept under the provisions of the Cooperative Forest Management Act, which refers to "management of forest land." Guidance and assistance to the industrial and nonfarm landowners should emphasize multiple use including outdoor recreation, rather than solely the production of tree crops. Evidence exists that this is gradually coming about through recognition of the need by some local landowners and Service Foresters. It must be speeded in the Northern Great Lakes Region by stimulus, emphasis, leadership, and training emanating from Federal and State agencies.

Service Foresters in the Conservation Departments, like other technicians working with local groups and individuals, must be qualified and oriented to provide the multiple use emphasis required on these privately owned wild lands. There is opportunity to strengthen and redirect cooperative programs to give multiple-use-oriented assistance to the State Foresters. Adequate manpower is essential to meet these needs at the field level.

Industrial and consulting foresters have an opportunity to direct emphasis and attention to multiple resource use coordination.

PUBLIC LANDS

The National Forests are now managed under the multiple use principle by legislative mandate. Only recently has clear-cut management direction to insure multiple use, area by area, been established. In no other way is it possible to convert principle into practice. The system involves the establishment of management policies for areas of land and water, and the mapping of their areas of application. This system, in principle, has been adapted for the Michigan State Forests by the Michigan Conservation Department. It will also be furthered by the Conservation Departments in Wisconsin and Minnesota. The same approach is needed for all other public lands (other than park lands) in the region. At present, no adequate services are available to this group of public land managers to aid them either in developing policies or in planning and carrying out multiple-use-oriented programs. These services are badly needed.

Available Aids

Legislative authorities are adequate for Department of Agriculture agencies to provide effective dynamic leadership in multiple use coordination. Some of this authority is of long standing. Other authorities are new, and policies and procedures are still in the process of development. In both cases, the key is implementation of the multiple use principle through individual land managers or owners in each of the ownership categories. The result can be the effective establishment of coordinated resource use on most of the public and private lands of the region.

The unique feature of this region is its preponderance of forests, forest-bordered lakes and streams, and interspersed farmlands. It is therefore in this setting that multiple use will find its place. All agencies, and especially those concerned with forest management, have a major responsibility to provide leadership in the establishment of a more effective program for multiple use on these lands. Strong multiple use orientation should be introduced on the farms, which though small in proportionate area, are important in the regional situation.

The effectiveness with which the several programs of all Department of Agriculture agencies are integrated and carried forward in their respective areas of assigned responsibility will be of major significance in determining whether rural area multiple use coordination in this region is successful. The moving force must be the dynamic action of rural area leaders, with agency programs providing the necessary technical assistance and the catalyst.

Basic to ultimate success, of course, is the development of specialists in all the agencies, including the State Departments of Conservation, who are fully qualified in each of the fields involved. There is a special need in the field of outdoor recreation. Even more important is the development of competence in, and understanding of, multiple use management by all personnel.

Agency and landowner opportunities for multiple use management on different types of landholdings have been treated in the previous section. Difficult as this is, it does not compare with the complexity and need for action in the uncharted field of multiple use coordination and development among different landowners.

In many places there is need to facilitate coordination within the boundaries of established public land areas by consolidation of holdings. Consolidations are not suggested in other instances. Locations with mixed public ownership, public and private ownership, and predominantly private ownership all involve intermixed relationships.

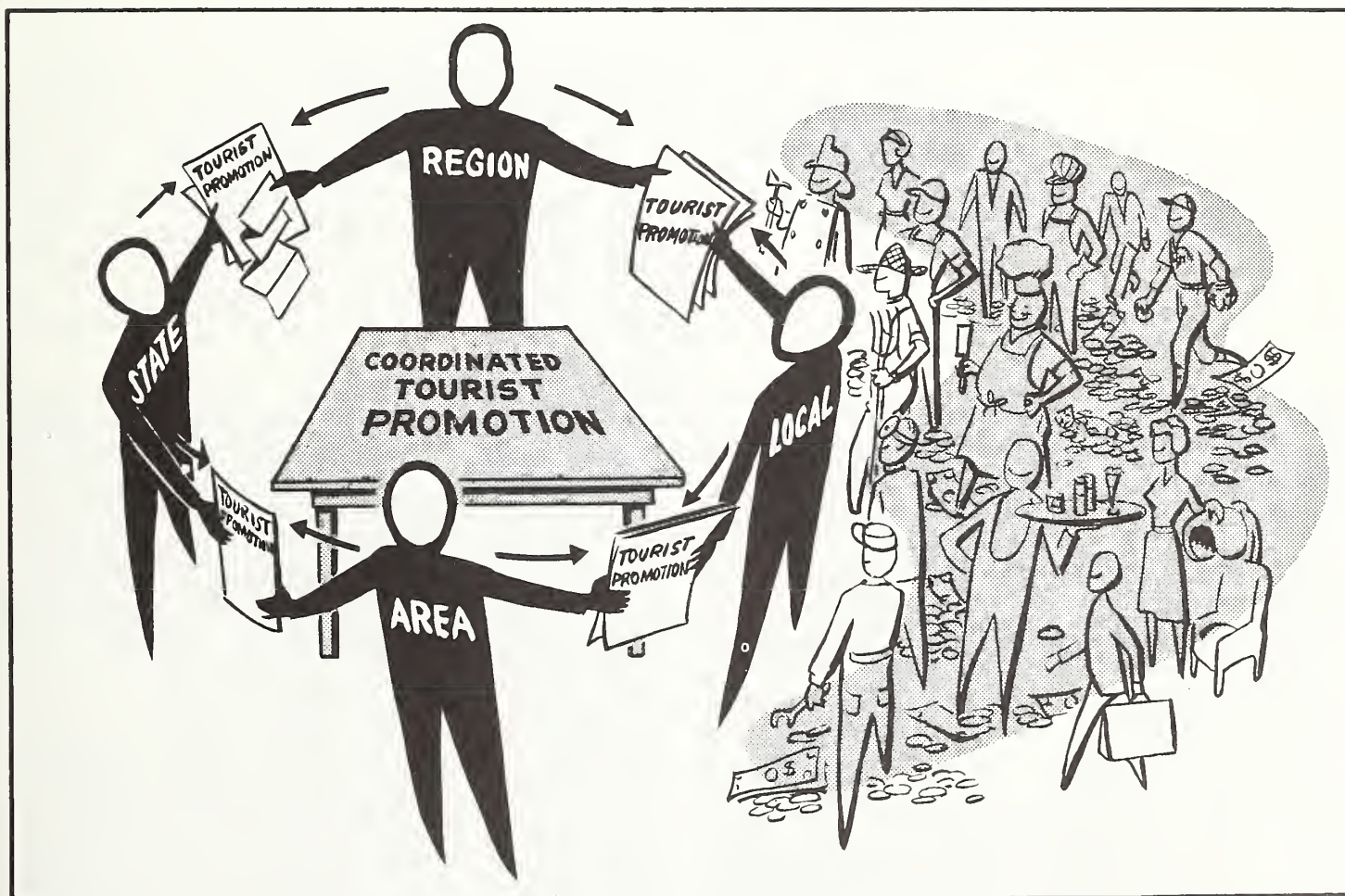
A relatively new and potentially valuable structure is now available in the county Rural Areas Development committees and their supporting technical action panels. For effectiveness, however, the committees should include representatives of the major industrial resource ownerships of the locality. In turn, the technical action panels should include industry representatives plus the local management representatives for the Federal, State, and county landholdings.

In this region, Technical Action Panel membership limited to Department of Agriculture agencies does not fully meet the need for coordination of resource development. It is especially important that forest management, or better, forest multiple use management, be represented by a local Service Forester (employed by the State Forester) in counties where a U.S. Forest Service employee is not available to perform this function.

Since resource complexes will in most cases include more than a single county, there must be intercounty coordination so that planning and action programs will be cohesive for the entire area within the complex. Further, the State Departments of Conservation should become active in this coordination effort, especially where there are major landholdings under their juris-

dition. Similarly, where National Forest lands predominate, as in the Forest-Water complex in northeastern Minnesota, local National Forest administrators should share responsibility for leadership with State agencies.

State Rural Areas Development boards and technical panels are in an especially advantageous position to provide leadership and stimulate intercounty coordination in the Northern Great Lakes Region. Published directives have already helped to broaden county Rural Areas Development committee and technical action panel membership. This will tend to encourage representation of landownership groups in the composition of the committees and technical panels. Continuing emphasis on multiple resource use coordination will provide a needed service.



TOURIST PROMOTION

RESOURCE DEVELOPMENT OPPORTUNITIES

Recreation

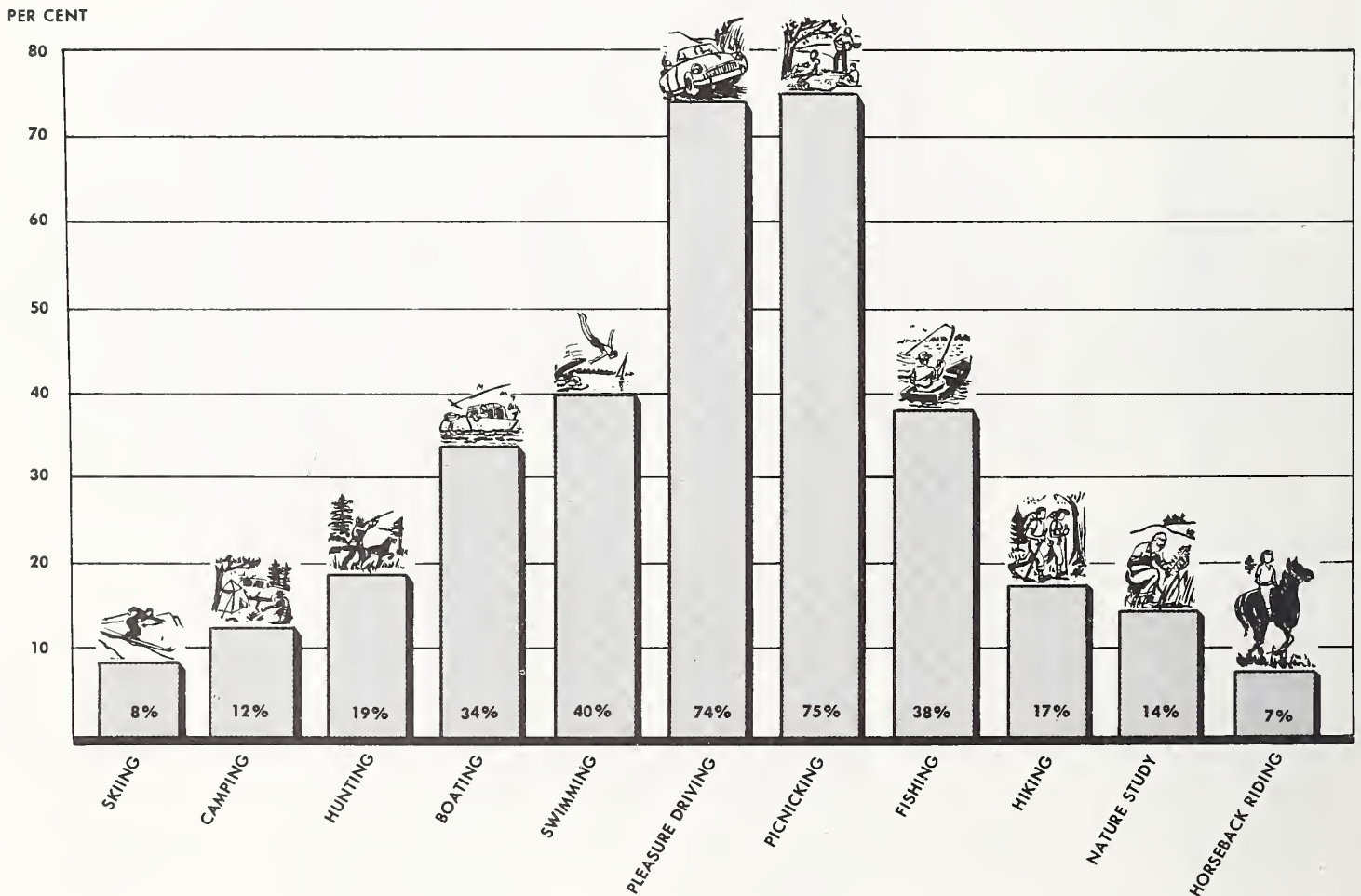
Resource development for outdoor recreation requires a primary orientation to people rather than to the physical resources per se. The wants of people, their needs, and their abilities to utilize resources for outdoor recreation must be the focal point of outdoor recreation developments. The kinds and amounts of natural resources available in particular situations obviously fix the boundaries of possible recreation activities to a large extent, but the goods and services produced by these resources, in the final analysis, must be measured by individual

and personal enjoyment. This, then, must become the basic objective in resource management.

It is important that a wide array of different kinds of recreational activities be made available for the public, if the people of the Northern Great Lakes Region are to fully develop the outdoor recreation resource potential and benefit from it. This not only makes possible a more complete utilization of the resource base, but also provides appeal to a greater number of people by supplying a broad range of activities.

**PARTICIPATION IN OUTDOOR RECREATION ACTIVITIES
BY RESIDENT ADULTS OF 12 NORTH CENTRAL STATES**

(ORRRC STUDY REPORT 20, Washington, D.C. 1962)



Of equal importance to the variety of recreation opportunities is the interdependence and integration of one kind of activity with another. Through careful planning, this can be accomplished. This "mix" leads to both an efficient development of the recreation resources and an increase of the value of their product--enjoyment.

In the following description of recreation development opportunities, different kinds of recreation facilities and resources are elaborated under separate headings. However, in the application of the suggestions offered, full advantage should be taken of the multiple use and integration potentialities so that the value of each individual resource is increased, and total recreation economy is expanded.

WATER-RECREATION RELATIONSHIPS

The waters found in the region, ranging from the Great Lakes to thousands of inland lakes and ponds, from small streams to major rivers, present a complex and expensive job of inventory and classification. Efforts to accomplish this task vary greatly among the three States of the region. Criteria, standards, and emphasis have also varied.

Current inventories, in general, reflect the interests and professional backgrounds of leaders, agencies, and individuals more than a coordinated and integrated objective. Strong impetus through legislative action has recently been given to recreational use of water. Wisconsin, for example, authorized the Conservation Commission to set up a system for classification of lakes. Contour maps have been made for approximately a fourth of the lakes in the State. All the trout streams in the Wisconsin portion of the region have been inventoried and data are available on numbers, mileage, and trout species. In the Michigan portion of the region, shoretype classification has been completed for the Great Lakes shoreline. A classification to be based on various criteria has been suggested for the inland lakes. In Minnesota, detailed inland water surveys have been completed for the principal named lakes in each county within the region. These data are still to be summarized and published.

The foregoing is but a cross section of the many intensive and extensive studies that have been undertaken. It indicates the specialized nature and scope of some of the work.

Recreational use of water has not received the effective attention in the Northern Great



Lakes Region that its importance warrants. Shoreline residential and resort owners have exerted strong efforts to maintain stabilized water levels in inland lakes and impoundments. In fact, it is largely this group which has provided the counterbalance against consumptive use demands, since tangible and intangible recreation resource values are at stake. High waters flood property and septic tanks. Low waters can destroy fish, bare unsightly shoreline areas, and isolate boat docks and piers.

The three States have regulatory agencies to control water use and abuse. Public agencies have acted to arbitrate conflicts in water use. Michigan law, for example, requires a permit from the local County Board of Supervisors for construction of dams in navigable streams. This is subject, of course, to the right of the United States to control navigable streams. This legislation, however, was designed to protect streams for navigation. It provides no guide for solving conflicts over consumptive use in those cases where withdrawals are not returned to the stream. Also in Michigan, legislation passed in 1939 provides for determination and maintenance of the normal level of inland lakes. Where this determination has not been made and where, as a result, water use and rights are in question, the Michigan Water Resources Commission has no specific authority to settle lake use conflicts or issue permits. It can, however, alleviate conflicts by providing information on the exact consequences of various uses.¹

Flowing water knows no territorial limits. Upstream use (this region is generally "upstream") affects downstream uses and potentials. This fact indicates a need for controls, management, and protection on an intercounty, interstate, and even interregional basis. This need is especially great with respect to pollution, although pollution is not generally critical in the Northern Great Lakes Region. There are exceptions, however, in local areas, especially where community sewage treatment is inadequate and

lakeshore properties have inadequate septic systems. There is also pollution at some sites where heavy water-consuming industrial developments are located.

There is opportunity and need for complete inventory and analysis of waters with respect to pollution. This would not be confined to measurement and control of existing pollution, since in large part controls are already in effect on the basis of available data. It would emphasize prevention of future pollution.

Such a complete inventory and analysis would provide a measure of present pollution levels for all waters. It would establish a base against which the extent and rate of future pollution could be judged. It would provide water quantity and quality data to indicate capacity to tolerate pollution. These are the needs, if area development to improve the economy of the region is not to jeopardize the future for total resource development.

Where water management has received attention in the region, the emphasis has been on quantity. A redirection of emphasis to the recreation uses and values of water creates the need to consider use based on kind and quality. This is a different concept; there are no established standards or specific criteria, certainly none that are uniform for the whole region.

The need to give high priority to nonconsumptive recreation uses has not been emphasized in the region. There has been some, often reluctant, recognition of the need to prevent diversions and use to the point of danger or destruction to fish. The use of water to improve wildlife habitat has not received adequate consideration in the face of strong demands for other uses. Where water has been used to benefit wildlife, it has been more commonly due to wildlife agency action than to strong local public demand.

The intangible and amenity value of water as a public recreation resource has not been properly recognized, especially where demand for other water uses has been strong. Such recognition is greatly needed if the region's recreation resource potential in the overall multiple use framework is to contribute fully to the region's economy.

¹Michigan Water Use and Development Problems. A. Allan Schmid, Agr. Expt. Sta. Cir. Bul. 230-1961, Dept. of Agr. Economics, Mich. State Univ., East Lansing, 1961.

Some areas within the region have few natural lakes and ponds. In these situations there are often opportunities to create impoundments that will provide multiple purpose benefits, especially for recreation developments. Planning and action groups, landowners, and local, State, and Federal agency representatives should be alert to these opportunities.

SHORELINES AND LAKES

If present use trends continue, it is practically certain that severely reduced public access to water will be a major obstacle to further growth of outdoor recreation in the region. Unplanned and uncontrolled developments near lakes and rivers destroy the very values that created demand for development in the first place. If the natural environment is grossly altered through wholesale subdivision and construction, the amenities are lost and the entire atmosphere is changed. This has happened in many areas of the country. Thoreau's Walden Pond is a classic example. Once this happens, the area loses its popular appeal. Deterioration sets in and economic growth stops. How long this process takes depends on the intensity of initial growth. But the outcome is almost certain from the start.

Here and there throughout the region this situation is being met. Many groups are at work. Rural community leaders have organized county RAD Committees, have developed overall economic development plans, and are starting



to move forward. Still lacking in several areas, however, is sufficient attention to the shoreline. Several of the scenic lakes on the region's southern fringes have already been closed to public access by subdivisions. On one lake, the entire shoreline was subdivided into lots of less than a quarter-acre, and what was once a choice recreation area is now bordered, three rows deep, by cheap, ill-maintained summer homes.

Much farther north, at least 500 miles from the nearest large metropolitan center, one large landholder will under existing policy destroy the tourist and scenic attraction of several prominent lakes. Short-term leases of shoreline property, completely void of either a plan for development or regulation of the kinds and locations of cottages, reduce the recreation potential of these attractive lakes. The southern end of one of these lakes is skirted by what was once a scenic road. In the short span of 3 years the scenic values of the road have disappeared; pine trees were replaced by pine shacks.

With the exception of the Boundary Waters Canoe Area, publicly managed high-quality recreation lake and stream shoreline is comparatively scarce. Therefore, as long as unplanned and unzoned development of private shorelines continues, it is imperative that such publicly owned areas remain open for public use--unrestricted by lease or by special use permit. If this policy is not enforced, and current private development continues in the manner of the past decade, it is likely that public access and enjoyment of the region's water resources will be seriously restricted.

All is not gloom, however. One company is taking an opposite approach to development planning. This corporation is selling long-term renewable leases on its choice lake front property. Building regulations, setting minimum standards and location and general design criteria, are included in each lease. The entire shoreline has been carefully platted. Access to the water for company and public use has been assured. The edge of the lake was ringed with a typical mixed forest. As each new lease was signed, and lot development plans were

approved, the company carried out careful selective tree cutting on the leased property. The lake now is clearly seen from the homes, which by agreement are placed several hundred feet back from the lake. This maintains the effect of an undisturbed natural shoreline.

With large lot sizes (from 2 to 11 acres), the low density of use will prevent pollution of the lake from domestic waste. Careful planning and zoning assure that high-value shoreline will be maintained, atmosphere will be preserved, and the scenic quality of the lake perpetuated for the recreation benefit of the region.

The contrasting figures 11 and 12 portray in simple graphic form the planning opportunities for lakeshore lands.

These contrasting examples illustrate the importance of including in local planning efforts more than simple zoning of lakes for residential, public, or industrial use. They show the values of quantitative and qualitative inventories of shoreline and water resources. Such inventories might indicate that, with a large number of good lakes in the county, several might be zones for highly restricted private use. In other situations, where lakes are few or the quality of most of them is low, planning enforced by zoning should provide public shoreline access and use of most lakes.

The layman's impression of an abundance of rivers, lakes, and streams in the Northern Great Lakes Region is important and an asset to regional economic growth. But planning for the best use of these resources must rest on a foundation of facts, not impressions. Several isolated studies of the Great Lakes shoreline show that the number of miles of good recreation shoreline is surprisingly small. In the northern part of Michigan's Lower Peninsula a study found that on a 50-mile stretch of shore, less than 6 miles were suitable for picnicking, swimming, or boating. Local planners may determine that this amount of shoreline is ample for existing and projected demands but if so, it must be held for that use--because that is all there is.

The peculiar requirements for good swimming beaches are so restrictive and the sport is so

popular that potential swimming sites merit special consideration. In this region many bodies of water with high-quality indirect recreational values are deficient for swimming. Large rocks, weeds, mud bottoms, or deep holes may detract from site values for swimming. The water itself may be polluted or too cold to be generally acceptable for swimming.

Several of the types of water recreation are compatible; other are not. The rivalry between waterskiers and fishermen in some places is reaching the explosive point. In many locations of the Northern Great Lakes Region equitable rules for use are clearly needed for each of these sports. One large resort owner in Minnesota alternates the days of weekend use for each sport on "his" lake. This works well for him because he controls the lake approaches. Several communities are considering ordinances which restrict motorboats and waterskiing to certain lakes, and swimming and fishing to others. Combinations of these types of zoning may be the answer in some situations. Parts of lakes could be zoned and dedicated separately to the incompatible recreation uses, leaving the remainder for compatible ones. A similar scheme is possible on a "time of day" basis. Some form of control is needed now before incompatible patterns of use become more firmly set.

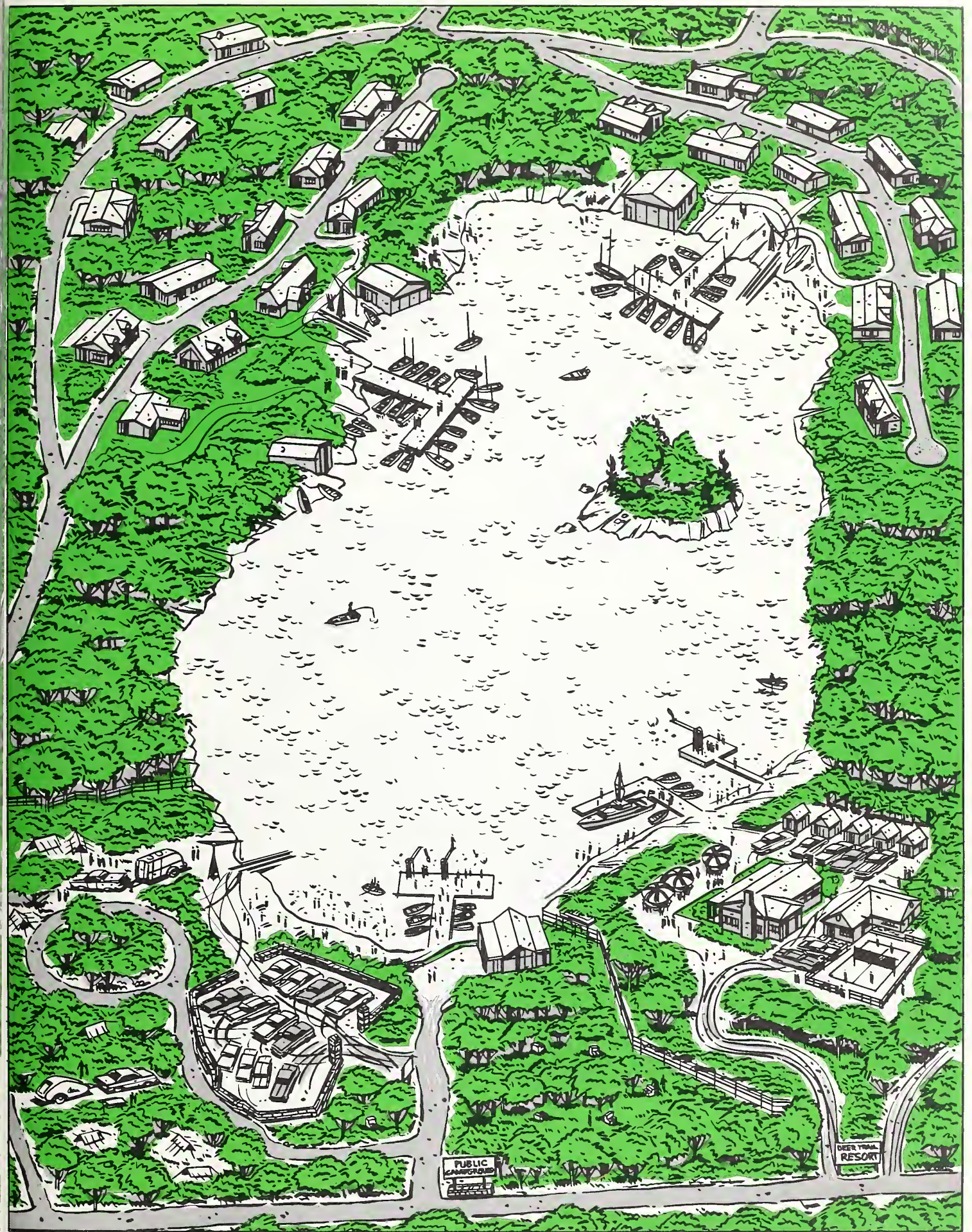
The foregoing statements relate to situations where individual owners or single units of government make the decisions and carry out the plans. When more owners and more jurisdictions are involved, the need for coordinated objectives, plans, and methods becomes critical if the essential resource values are to be preserved and opportunities for multiple uses realized.

Thus, again, as in other situations, sound planning for resource uses of the region requires action on a broader than county level. This is especially true in cases where the waters form the boundary lines between jurisdictions and where streams carry the water from one jurisdiction to another.

All that has been said here about planning to preserve recreation values of lake shorelines



LAKE and LAKESHORE DEVELOPMENT
for
Summer Homes



LAKE and LAKESHORE DEVELOPMENT
Combining
All Recreation Uses



applies equally to shorelines of creeks and rivers. Public access must be maintained and the natural features preserved insofar as possible.

DRIVING FOR PLEASURE

Throughout most of the Northern Great Lakes Region there is a high potential for scenic roads. The main purpose of such roads is to

provide pleasure from the outstanding natural scenery of the region. Other kinds of roads speed traffic from one point to another.

Highway economics and public works policy based on the traditional use of roads are not geared to enjoyment of scenery as a primary

use, nor in some situations are they amenable to basic principles of multiple use management. Present policy with some few exceptions provides that construction costs be no greater than are required to meet traffic volume, safety, and speed criteria.

Borrow pits preferably should be located out of view of scenic highways. Current construction policies may require that they be established alongside the right-of-way. Excessive cuts and fills that change the natural setting may occur because balancing of material is an important principle of accepted highway economics and design. Conventional standards for wide road shoulders may negate the pleasant effect created by trees growing close to the pavement's edge.

Major modifications of the landscape in road-building can destroy the very values for which scenic roads were intended. Properly designed and located scenic roads, on the other hand, can add a new dimension and a new "use" to many of the region's resources. This intangible and esthetic product becomes a part of the multiple use complex and management objective because those products are vital to regional recreation environment. These roads require conscious management to get and keep them in balance with other uses.

Interest is growing throughout the Northern Great Lakes Region for construction of a "shoreline drive," skirting the southern and western rim of Lake Superior. When this road is built, it will attract a share of the tourist traffic now concentrating on the Canadian shore route. A scenic tour of this type will have economic benefits to the region. However, if the right-of-way appropriates all the existing nonurban shoreline, fewer potential benefits can be realized.

Shoreline is valuable because it is in demand for many kinds of developments. A recent survey, for example, found that 85 percent of privately owned campgrounds in northern Minnesota were located on shoreline property. Motels, picnic areas, and restaurants all become more desirable when situated on or near the water. Wherever possible, then, roads should be set

back from the lake to allow establishment of recreation facilities and necessary open space.

Careful planning has placed some roads in the region back from the water, on old beach lines, or along bluffs. On one stretch of road in Wisconsin, for example, judicious thinning of trees and removal of underbrush permits views of the lake. All trees but the paper birches have been removed. The attractive white bark stands out in contrast with the blue waters of the distant lake.

SELF-GUIDING MOTOR TRAILS

Within the Northern Great Lakes Region there is opportunity to develop a new kind of recreation and tourist attraction. For some years many State and National Parks have provided nature trails, well supplied with explanatory signs.

Adaptation of this attraction for use by the motoring public visiting the region offers many possibilities and advantages. A series of such tours would greatly increase the public's enjoyment and appreciation of the country. The signs would appeal to all members of family groups.

The tours could be used by local school children as part of their classwork in general





science, geography, history, and other social studies. A series of these tours, well publicized through visitor centers, motels, and other locations, would "slow down" the tourists and hold them in the region longer.

As an example of how effective this can be, Keweenaw County in Michigan has several large rustic signs, readable from a car, describing some of the early copper mining history of the county. These signs were erected and are maintained by the County Road Commission. They attract hundreds of tourists, who stop to read and take pictures of them. So many people stop to read one sign that a small souvenir and gift shop does a thriving business across the road from it. Several of the signs are represented on picture post cards and provide excellent free publicity to the county. Vandalism of these large wooden signs is almost nonexistent. General maintenance needed because of weathering is done by the regular staff during the winter.

A different kind of auto tour, and far more elaborate, has been developed by the U. S. Forest Service in the Northern Great Lakes Region. At seven widely separated National Forest locations self-guided tours explain how multiple use is carried out in the forest. Each large rustic sign is located in an environment showing some objective part of multiple use forest management.

The typical National Forest tour is between 10 and 15 miles long and includes from 7 to 10 stops at signs. An unmanned "visitor center" is located at the starting point. Several signs large enough to read from a car explain what the tour is and how it works. A free brochure at the center has a sketch map of the tour and supplies more detail than is appropriate to have on the signs. If such a brochure had a list of questions that could be answered by material on the signs, it would increase the user's interest still further.

Slightly more than 100 people a day used one of these tours during the summer of 1962. The potential popularity of this kind of attraction can be estimated when it is realized that this popular tour begins on a lightly used highway and has no publicity other than a large sign beside the road near the visitor center, the subject is limited to multiple use, and the tour's entire 14 miles are on unpaved and often dusty roads!

The variety of subjects that could be topics for such tours is almost unlimited. More than 20 colleges and junior colleges are located in the region. Each one has faculty members who could supply interesting information about the region. Fieldmen of the U. S. Department of Agriculture, local historical societies, State



FISH AND WILDLIFE

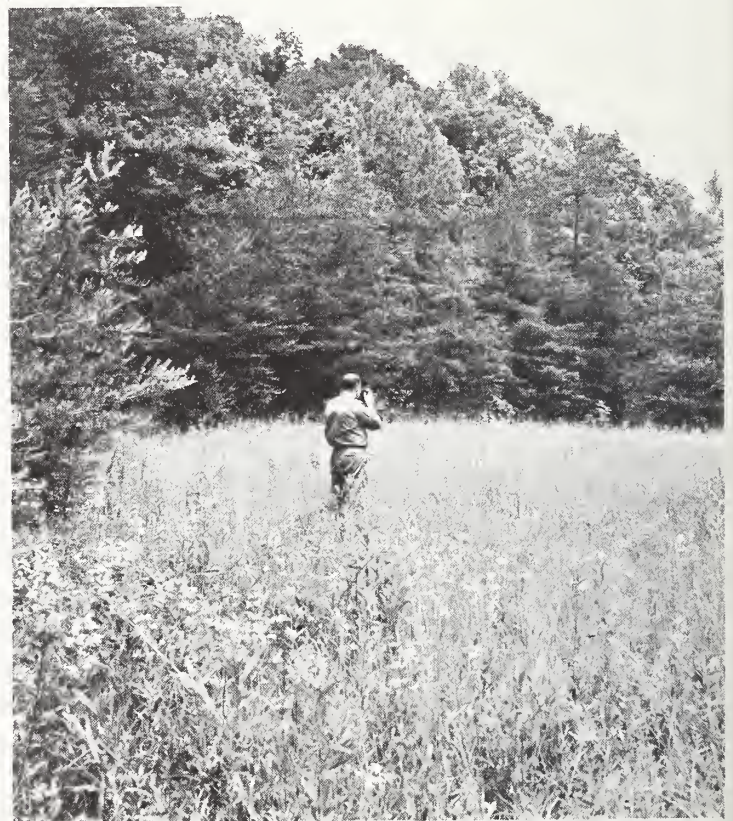
Extension Service employees, and vocational agricultural teachers all have a wealth of information that could be used for signs on tours. The RAD Committees themselves are composed of men well informed about the natural features and points of significance in the area. Community interest and support could be generated by enlisting the talents of local newspapermen or English teachers to help with the writing. This would also help to insure that tourists will find the signs easy to read and understand.

Several studies have indicated that the majority of tourists coming into the Northern Great Lakes Region are city dwellers. Thus, information that is commonplace to the local residents is often new and interesting to tourists when it is properly explained.

Several examples will illustrate the wide range of topics for signs, and subject tours which might be offered. (1) A sign beside a farm describing the method and purpose of crop rotation and contour farming and the kinds and amounts of growing crops. (2) A sign beside a bog explaining the sponge effect of the sphagnum on water storage and the degeneration of sphagnum into the peat used in the tourist's suburban garden. (3) A sign by a clump of aspen, defining "clone" and telling of aspen's recent importance for pulp, how aspen is identified, and its value as deer food. (4) A sign explaining the ecologic change caused by slight rise in the land, i.e., from black spruce to mixed hardwoods. (5) Signs explaining points of historical interest. (6) A sign explaining a slight offset "here" in the road, i.e., the cadastral survey's offset to allow for converging lines running toward the North Pole. (7) A sign beside a river explaining its early logging use. (8) A sign giving the name of the lake, its depth, area, water temperature, when it was first surveyed, and its earlier names. (9) A sign explaining the geomorphology of a landscape. (10) A sign pointing out a deer browse or "hedging" line. These are all things the general public knows little about but is eager to learn.

Natural habitat conditions for fish and wildlife are generally favorable in the Northern Great Lakes Region. But man changes the favorable situation when he alters the "obstacles" of terrain--especially wetlands--to fit his needs. For example, highway fill or drainage and ditching both seriously affect the nature of habitat. Both can destroy fish and wildlife resources.

It is almost always feasible to incorporate wildlife and fish values in the multiple use management of land- and water-related resources. An example of such a situation is the localized breeding area of the rare Kirtland's Warbler in the upper part of Michigan's Lower Peninsula. In this limited area protection of the habitat for the species assumes primary significance. Even here it has been found that other uses are feasible and desirable. It is merely necessary to restrict numbers of people by entrance permit during the 15-week nesting period in the spring.



Specific measures can be used to develop and improve fish and wildlife habitat. Some of these are a natural outgrowth of the application of multiple use management. Others are designed for the direct benefit of fish and wildlife.

Fish and wildlife habitat management in the Northern Great Lakes Region has been underway for many years. Funds from the Pittman-Robertson and Dingell-Johnson Acts currently finance management and development. For example, wildlife food plantings on 3,800 acres and more than 100 miles of improvement work on fishing streams were completed in Michigan during the 1959-60 biennium.

Trout fishing constitutes one of the key tourist attractions in the area. All three States carry on progressive trout management programs. In addition, many individuals own and operate private trout ponds for both sport fishing and commercial (table) fish production. Improvement of public trout streams will increase the tourist attraction. Many areas contain good trout boating waters as well as wading streams. These advantages serve to lengthen the season of tourist use and provide considerable holding power. Combined floating and fishing trips always attract more interest than the limited opportunities and the inconveniences of wading in streams.

Maintenance and improvement of trout stream habitat requires professional knowledge and guidance. In several places within the region, activities along one stretch of a trout stream have adversely affected potential fish production for long distances both upstream and down. All activities affecting trout waters, including timber cutting, gravel removal, bridge construction, streamside road projects, residential developments and refuse disposal, and others should be conducted with consideration of their effect on trout habitat.

Scheduling timber harvests in winter periods is one example of coordinated resource management. This practice insures a maximum amount of browse for deer during the food-short months of January, February, and March. Timber harvest, thinning, and improvement cuts in



areas close to deer wintering yards should be scheduled during this period whenever possible. Cutting in one area must be done regularly in small amounts each year to be of maximum value to wildlife. This is in contrast to heavy, long overdue cutting in one locality for a week or two, then moving to another distant site, thereby leaving a concentrated deer herd without food.

Creation of game openings is a second habitat improvement measure. At least 3 percent of a forested area should be in natural grasses and weeds, low brush, and similar low vegetation for deer. Small game, such as grouse, require an even more open or brushy habitat. As the forests mature and shade out low vegetation, this requirement becomes more critical. Creation of openings by cutting permits regrowth of brush and adds to the food supply.

Seeding of abandoned logging roads, borrow pits, and similar openings to clover and other wildlife food plants is beneficial. This is particularly helpful in maintaining favorable habitat for small upland game species.

Conifers planted in groups in either open or pure hardwood stands give game species needed shelter and cover in which to hide. Conversely, maintenance of hardwood species in conifer forest types provides browse and edible foods for wildlife.



A wildlife biologist should guide all manipulation of plant cover, and be available for consultation before any project is started. This is especially true for prescribed burning of vegetation to benefit wildlife. Such work requires professional knowledge of game habitat requirements and of the burning techniques needed to meet the objectives.

Prolonged overpopulations of game usually result in the disappearance of desirable wildlife food plants. If game populations are kept in balance, however, the food supply will normally maintain itself. It is therefore important that big-game animal numbers be held at a level that the habitat can sustain. In these matters wildlife biologists and technicians are best qualified to determine optimum populations. Yet every hunter thinks he too is an expert. He may admittedly know nothing about auto mechanics, plumbing, or electricity, but if he hunts he is sure he has the answers for all wildlife management questions. All groups interested in fish and wildlife resources should try to increase sportsmen's understanding and acceptance of the need for technical management.

Fish and wildlife resources are of great value among the many recreation potentials of the Northern Great Lakes Region. The pleasure of viewing wildlife and fish in a natural setting can be a satisfying recreation experience. It seems logical, then, to take action to bring



more animals, birds, and fish into view. This reasoning leads some persons to urge high overall levels of game population. Fortunately, there are measures that are short of this and not disastrous to the wildlife. For example, native penned wildlife might be released for viewing in natural settings during the vacation season. Feeding of animals at a regular time and location during the same period could help attract them into view. In Pennsylvania, for example, night feeding of raccoons along sections of scenic highways in one area is a main tourist attraction. In Idaho are stretches of heavily stocked rivers posted against fishing. There tourists can see rainbow trout rise in great numbers to food tossed in the water.

Fish and Wildlife Enterprise Opportunities

Within the region there are many enterprise opportunities provided by fish and wildlife. Professional guiding, outfitting, natural history, photography, taxidermy, and sporting goods stores are examples. Others of equal or more importance are more directly related to fishing and hunting. Operation of private trout ponds is one of the best from the standpoint of profit. The market for trout remains constant through the seasons and years. In fact,

the older, large trout frequently bring premium prices. A trout pond operator always has a quick source of income (either sport fishing or commercial market) at any time he wants it. If a cold spring and summer should reduce visits of sportsmen to the region he can sell trout to restaurants, hotels, and resorts. As with almost any other venture, the would-be operator should seek professional help and guidance before going into business.

Production of fishing bait, as distinct from its sale at retail, can be a source of income. It is likely to succeed in the southern part of the region, where waters are relatively warm and growth rates more rapid. But the larger, more profitable enterprise is marketing bait.

Permitting hunting for a fee is another enterprise opportunity. The region is a natural upland game area. Special habitat adjustments to favor larger grouse populations in localized areas would provide high quality for which sportsmen would be willing to pay. Pheasants are not adapted to the region, though they could be used on a "put and take" basis.

There are opportunities to provide services that will encourage recreation visits. For



Courtesy of Wisconsin Conservation Department



example, maps of local areas are helpful to visiting hunters and fishermen. Special preparation of these to show key hunting locations, trout streams, and access routes has been effective in many places and could be more widely used in the region.

Local communities have found that special activities at the opening of hunting and fishing seasons have attracted large numbers of sportsmen. Special meals, contests, and other festivities promote closer understanding between local people and visiting sportsmen.

Opportunities for Hunting and Fishing

Private Land Management.--There is cause for concern in the number of private lands within the region being fenced and closed to public hunting, and to some extent to fishing. One of the effects of this is to increase hunting and fishing pressure on available public lands, and an increasingly unfavorable ratio between hunters and the area open to hunting.

Only for hunting and fishing does American custom condone the use of another's land without recompense. A man would not build a house, run his livestock, raise crops, or repair his car on another man's land. However, when he takes gun or fishing rod in hand he may cross fence and field without even an "If you please."

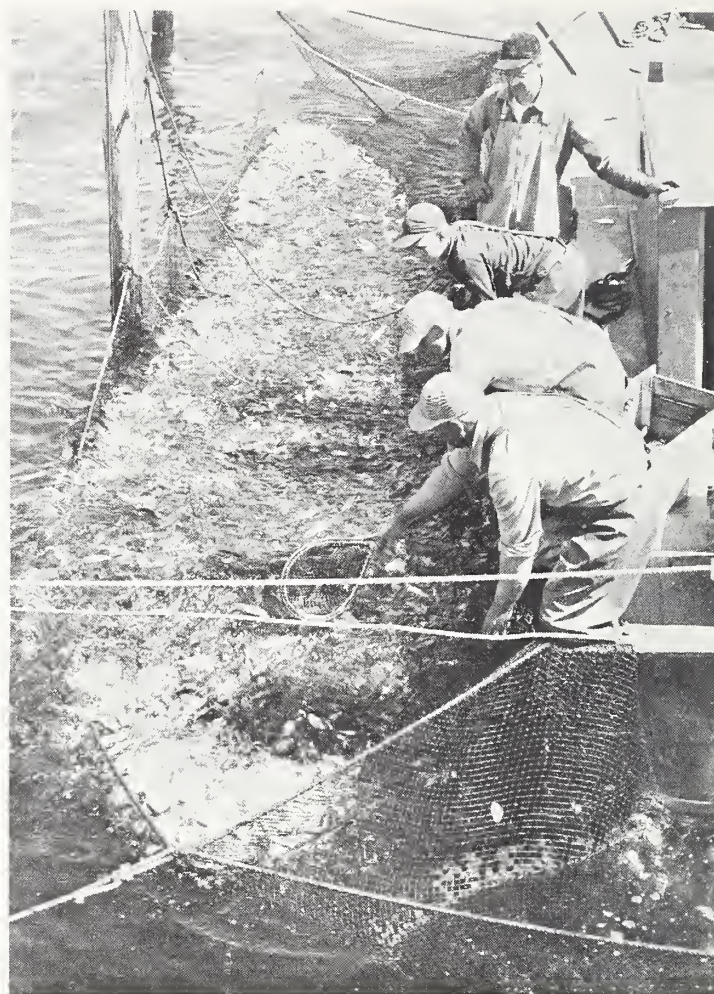
Landowners who open their land and stream-banks to public use may justifiably ask some form of reward. Payment for public use of private property is customary in almost every human activity. Certainly it should not be excluded in outdoor recreation.

As a further measure to increase the availability of private lands for hunting and fishing, relief is needed from laws which subject the landowner to personal injury and damage claims. Until landowners are relieved of such liability, inducements to permit public hunting on private land may be of no avail.

The Great Lakes Fishery.--The biological potential for production of fish in Great Lakes waters is great. Declines in lake trout and other species as a result of the sea lamprey's depredations have been catastrophic. An invaluable sport and commercial fishery was destroyed. However, the outlook is now favorable for its eventual reestablishment. Control of the sea lamprey and a large trout-stocking program give reason for guarded optimism. But this is for the years ahead.

Sport and commercial fishing activities failed to adjust to the change in available species. Therefore, the potential in other lake species remains unrealized. Though a resource close to the center of the Nation's population, its harvest faces many barriers. The complex web of State, national, and international laws and regulations restricts expansion. Financial aid is needed for establishment and initial support of new enterprises.

Wetlands for Duck Production.--Most of the Northern Great Lakes Region lies to the east of the "pothole country." Portions of the region, however, especially in Minnesota, contribute to waterfowl production in this midcontinental duck factory. Department of Agriculture conservation programs for pothole and wetland drainage have been given multiple use emphasis by enactment of Public Law 87-732, which amended the Soil Conservation and Domestic Allotment Act. Recent Federal legislation permits disapproval of cost sharing for some proposed projects that may destroy important wetland values, and sets up provisions for review and analysis of these proposals.



Courtesy of Wisconsin Conservation Department

There is opportunity for broader recognition of wild ducks and geese as products of the land. Even though they are not immediately harvested, they nonetheless contribute to waterfowl populations in the flyway. The benefits are "off-site"; they do not accrue to the landowner. The percentage of Federal cost sharing under existing programs should be high for projects that do not produce other "on-site" benefits. In addition, there appears to be opportunity for a new program for maintenance of wetlands in private ownership, especially where the need is for habitat preservation and where improvement may or may not be necessary. A rental or use fee based on the productive capacity of the specific area for waterfowl could be one form of implementation. These courses of action would be desirable additions to, and in some cases replacements for, public ownership of wetlands. They have the distinct advantage of providing a positive program within the Department of Agriculture and an

opportunity for farmers and other rural landowners to participate--to create, in effect, "duck factories."

ACCOMMODATIONS

People come to the region because they expect to enjoy their stay. Assuring the traveling public of enjoyment must therefore be a first objective of economic development plans based partly on tourism and outdoor recreation.

Good accommodations are indispensable. The recently established modern motels are a healthy sign of progress; many more--good ones--are needed.

Highway motels are only one kind of accommodation. The large vacation resort centers are another. They should be set well away from the major traffic arteries to take full advantage of natural settings and scenery.

Wise location of these enterprises can greatly increase chances of success. One such venture in the region was located to take advantage of its proximity to a popular ski development. The nearby ski area and the lodge's heated swimming pool help to maintain a year-round business. Several other recreation attractions

are close by. A heavily used State Park is within easy driving distance and fine fishing lakes are close at hand. The surrounding area, much of it public land, provides choice deer hunting.

The owners of this resort have direct investment only in their lodge and its facilities. They have built other recreation facilities in association with the lodge, supplementing the surrounding attractions. A heated swimming pool, several tennis courts, a golf course, and a skeet range all are parts of the vacation package offered to guests of the lodge. This particular venture is generating other businesses. A riding stable is planned as a unit independent of the lodging business, but clearly using it as a source of customers. A new gas station and gift store opened recently. A bowling alley has been proposed.

The overnight accommodations are the focus and major investment in all this activity. The lodge is relatively new, but its prime location, good promotion, and high quality management practically guarantee success over many years. Guests probably will return year after year--because they enjoy the time spent there. Active promotion to attract conventions helps to



stimulate the local economy and keep the resort full the year round.

This is no small undertaking; more than a million dollars was invested in the central enterprise. Most of the needed capital had to be obtained outside the Northern Great Lakes Region. Favorable returns from this investment arise from the interdependencies among the recreation and tourist attractions clustered in the locality.

A clear trend toward mutually dependent recreation services and facilities exists throughout the region. The hub of the wheel usually is a large motel, hotel, chateau, or lodge. Increase in the number of such resorts is slow because the investment required is large, but the trend is clearly established.

As this trend continues, more of the establishments having a limited variety of activities will face heavy competitive pressures. Some will fail. A gradual improvement in the quality of accommodations in the region will result.

Only part of the tourist and recreation demand will be served by the large corporate-type installation. Thousands of smaller businesses are needed: Tourist homes, vacation farms, campgrounds, small hunting lodges, rental cabins, and small resorts. Many people do not wish to stay in the large, often impersonal resorts. They prefer spending their vacations in a different atmosphere. Establishing rapport with the guests should be part and parcel of managerial policy. As one proprietor put it, "We try to make our guests feel like relatives from out of town, up for a visit, rather than like intruders having to pay for a night's rest."

Commercial-type promotion usually is too expensive for small recreation businesses. Guests most often are attracted by word of mouth advertising, or stop by happenstance. Highway signs help attract some visitors, but new highway regulations restrict their use. Nevertheless, proximity of location to major flows of tourist traffic and recreation attractions is important.

Large corporate resorts usually have sufficient capital available for development of varied recreation attractions. Moreover, the volume of their business is such that other entrepreneurs willingly invest in attractions nearby, often relying on business originating at the resort proper. Owners of scattered small establishments, however, have neither of these advantages.

It is therefore even more important for small businesses than for large ones to coordinate their operations with the nearby recreation attractions of natural resources. Locations near State Parks, good fishing, hunting areas, boating and ski areas, and so on, may tip the balance in favor of success.

A desirable location is important to persons about to open a new business. However, in the Northern Great Lakes Region there are hundreds of small tourist and outdoor recreation facilities not in such favored locations as is shown in figure 5. In such circumstances, other steps can be taken to partially offset the adverse location. Chief among them are friendly management, clean and well-kept facilities, and, perhaps as important as any, originality.

One example of originality is displayed in a small resort. This is a family operation. The wife and oldest daughter do the cooking. For several years these two women have been collecting recipes for the "main dishes" and desserts from their guests. The better ones are used regularly in their menus. Interest is generated when the names and home towns of "contributors of the day" are written on the daily menu. This creates a human interest, and subtly encourages other women to add their "best dish" to the list. The mother and daughter plan to publish a small paperback cookbook when they have collected enough good recipes. They will sell the cookbook as an added attraction.

A very different example, but an equally good idea, has been working for several years as part of a boat livery and fishing gear business. The owner has a large neat sign explaining the contest he runs. Each year he gives \$50, \$25, and \$10 prizes for the three largest

fish caught from his rented boats. The prize is given in trade at his store, not in cash. Each contestant pays an additional 25 cents before going on the lake, and registers his name and home address so that winners can be notified. This provides a list of most of the patrons. At Christmas time the operator sends cards with the names of the winners to all registrants. He also writes a short news release to the winners' hometown papers. Newspaper stories give good publicity for his boat livery.

Further, if the operator learns that a new party has fished more than 3 hours with no luck, he refunds half of the rental fee on their return to the dock. He says the cash loss is less important than the gain in good will.

This man also has a large hand-drawn map of the lake hanging in his shop. The map exaggerates major landmarks on the shoreline so they can be easily recognized from the lake. Colored pins stuck in the map show where fishing is the best that week. The map, drawn by a local draftsman, cost \$18.50, but he is convinced it was a good investment.

This man is making a full living from his boat rental business. He is successful largely because he thinks as much about his patrons' needs and enjoyment as about the care and condition of his boats. In short, he likes people.

Campgrounds are another important type of overnight accommodation in the region. In fact, for many people camping is the major purpose of visiting the area. Traditionally most campgrounds have been provided on public lands, but the postwar boom in outdoor recreation has, in several instances, outstripped the capacity of the public areas. As a result, the Northern Great Lakes Region has had a steady growth in privately operated camping and trailer parks.

Both U.S. Department of Agriculture and State agencies have published booklets and folders to aid the landholder who considers opening a campground.² These offer extremely

² Forest Recreation for Profit, U.S. Dept. Agr., Forest Serv., Agr. Inf. Bul. 265, 27 pp., illus., Washington, Aug. 1962.



valuable advice on proper site location, sanitation, campground layout, and State licensing regulations. Their contents need not be repeated here. It is enough to state that in spite of the relatively short season for camping and the fact that most camping is done on public land, there is still ample demand for high-quality private camping areas. This is especially true in areas where hunting, fishing, horseback riding, etc., are conveniently accessible.

The operation of a good campground requires a great deal more than simply owning a good site. It cannot be operated successfully by a novice. Investment of \$400 to \$750 per tent site is needed to develop a new camping area, and rather special knowledge to properly plan and manage the undertaking. Nevertheless, it can be a profitable venture. More than 35 private camping areas are now operating in the Wisconsin segment of the region, with an estimated total capacity of over 1,100 tent sites.

ATTRactions AND PROMOTION

Within the Northern Great Lakes Region, there are virtually hundreds of different attractions and activities available to the tourist and outdoor recreationist. These range from the thrill of ice-boating at fantastic speeds



across a frozen lake, to sitting quietly on a sunny shore watching a "long boat" pass on its way to the Soo Locks. One can hunt deer in the woods or agates on the beach, slide down a huge sand dune or off a high ski jump, gaze into the largest iron mine in the world or up at the tallest eastern white pine, camp in the wilderness, explore old mines, visit early forts, watch plywood being made, feed cattle, and visit the northernmost point in the 48 contiguous States.

With all this, and more, available to the public, with one limited access highway now running into the region and more planned, with outdoor recreation and tourism more popular than ever before, what still needs to be done to expand the region's recreation and tourist industry? The Task Force pondered this question at some length, for it is one of the central subjects of this report. One thing is sure: the basic ingredients already exist.

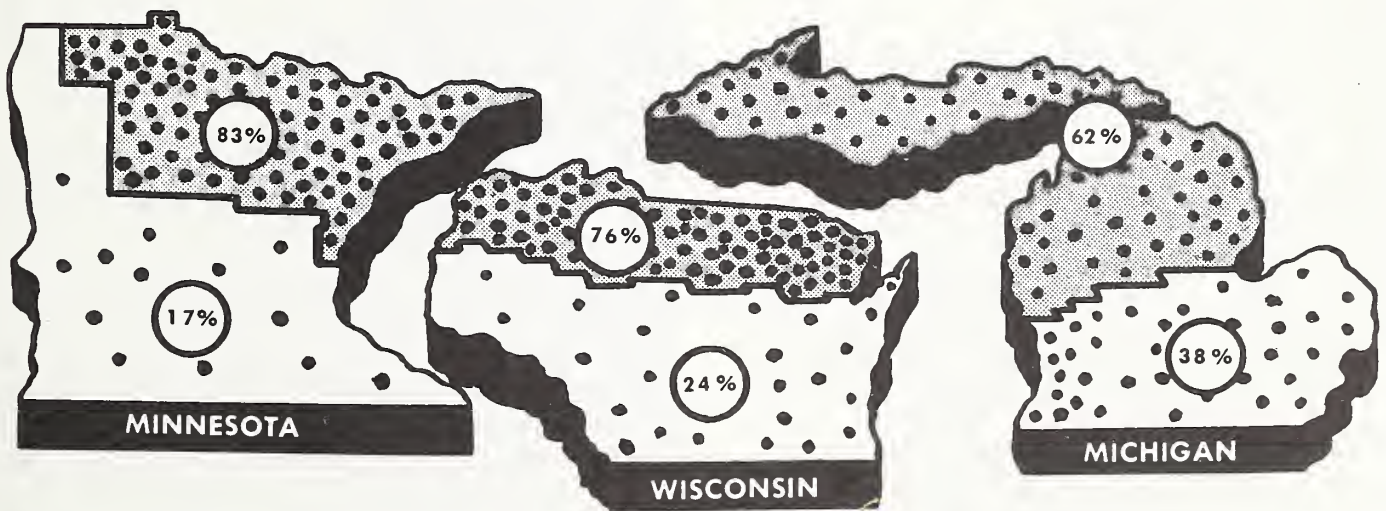
Unlike the discovery of gold or copper in the region, touching off the Nation's first

mining rush, the full magnetic force of the region for recreationists will not come into being overnight. It will start slowly, gain momentum, and properly reinforced, continue to grow. The Northern Great Lakes Region's tourist and recreation economy is already gaining momentum. If properly guided, growth will accelerate.

Promotion is needed as an important step in increasing the rate of growth. Promotion can transform potential demand into actual use. An effective publicity program need not be nationwide. The region's main outdoor recreation and tourist market lies within a few hundred miles of its southern boundary, centered at Chicago, Detroit, Cleveland, Toledo, and St. Louis. Within the North Central States are almost a quarter of the Nation's population. If only a small fraction of these people came into the region each year for their vacations, economic growth would be assured. Once family members have an enjoyable time in the region, they will come back. When this pattern has been

PERCENTAGE OF STATE PARK ACREAGE IN THE NORTHERN GREAT LAKES REGION

(ORRRC STUDY REPORT 2, Washington, D.C. 1962)



● EACH DOT = 1% OF TOTAL STATE PARK ACREAGE

established, it may carry over to the next generation. It does not become a habit, but becomes almost that. Much of the promotion needs to be within the three States--in Detroit, Milwaukee, Madison, St. Paul-Minneapolis.

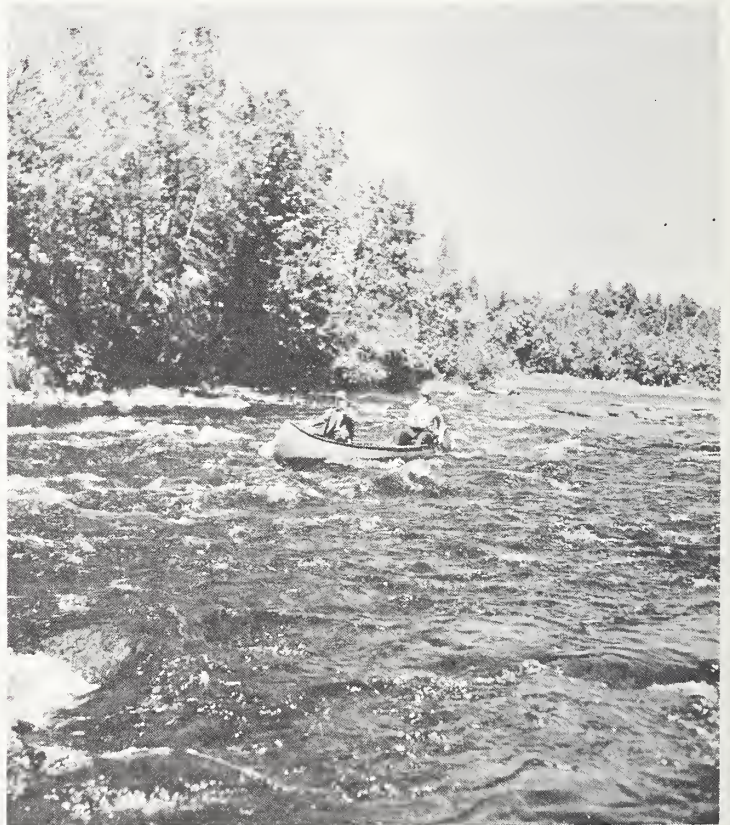
Several groups in the region now promote tourism; however, much of this is out-of-state promotion. The big need is for more in-state and nearby metropolitan area promotion. The closer people are to the region, the more likely they are to visit it. Another need is for promotion of the entire area, rather than small localities as at present.

The entire region has a stake in this effort. No single section of the region offers all the attractions mentioned earlier; they are scattered throughout the region. Studies have shown that the entire community benefits from a healthy recreation economy, not just the motel, gas station, and restaurant owners. As one chamber of commerce secretary in northeastern Minnesota put it: "It is high time that the whole town got behind this drive. We all have a lot to gain, not just the businessman on the main street." Just as all lands and facilities are developed as an integrated whole, so must the recreation "package" be promoted.

Promotion should be aimed at the whole family. Because of the time-distance factor, the region's major recreation opportunities are for long weekend and vacation visits. Nowadays this means a trip for the entire family. The "image" of recreation in the region will change from backwoods hunting and fishing, "for men only," to outdoor recreation and fun for the whole family.

Clearly, it should not be suggested that Grandmother come to the region for ski jumping or that Junior try his hand at iceboating. But it is common sense to suggest that retirees come and see the fall colors and enjoy the natural scenery.

Special attractions should be advertised, particularly if they are unique in the upper Mississippi and Ohio River country. Iceboating and white-water canoeing are good examples. Both require special skills, and while they will never displace in popularity the simple, more tranquil activities, they could be much more popular. Lake Placid in upper New York State has built much of its national reputation around its bobsled runs, a sport not open to the timid and less-skilled sports enthusiasts.



Once the tourist is in the region, the local people who come in direct contact with him have a major responsibility to see that he has an enjoyable stay. The "tourist trap" approach must not take over the industry. Already in several of the more popular tourist towns, a few shortsighted store operators have established two scales of prices, one for the residents and one for the "outsiders." Local trade associations should work hard to prevent such a practice. In the long run it does not pay. When the customer pays his money, he should get his money's worth. This in itself is a source of satisfaction to the proprietor, and is neither more nor less than good business practice.

To produce the right kind of promotion and also provide assurance of fair treatment and a pleasant visit to the tourist will require major efforts. There is need for more region-wide coordination and financing of such projects. They should receive support from private, local, county, and State funds.

Regional service centers for the tourist and recreationist are an important feature of promotion and development. An example in another area is Rapid City, South Dakota. The development of this city as a regional center was natural because it is located on the edge of the plains and at the eastern gateway to the Black Hills, an outdoor recreation "island." Facilities and services for the traveling public have been extensively developed. Business and employment created in these services contribute significantly to the economic base of the community and the surrounding area.

There is need and opportunity for the development of regional recreation service centers in the Northern Great Lakes Region. Mackinac City and Duluth, because of their locations, are especially adapted to this development. Rhineland might be another suitable location. These are often called gateways, but they must be more than that. The centers become a kind of "staging area," a familiar military term. Here the tourist and his family should find high-quality accommodations, good food, and friendly people. The key must be SERVICE. Here large numbers of tourists will concentrate, though for brief periods. Convention hotels or lodges

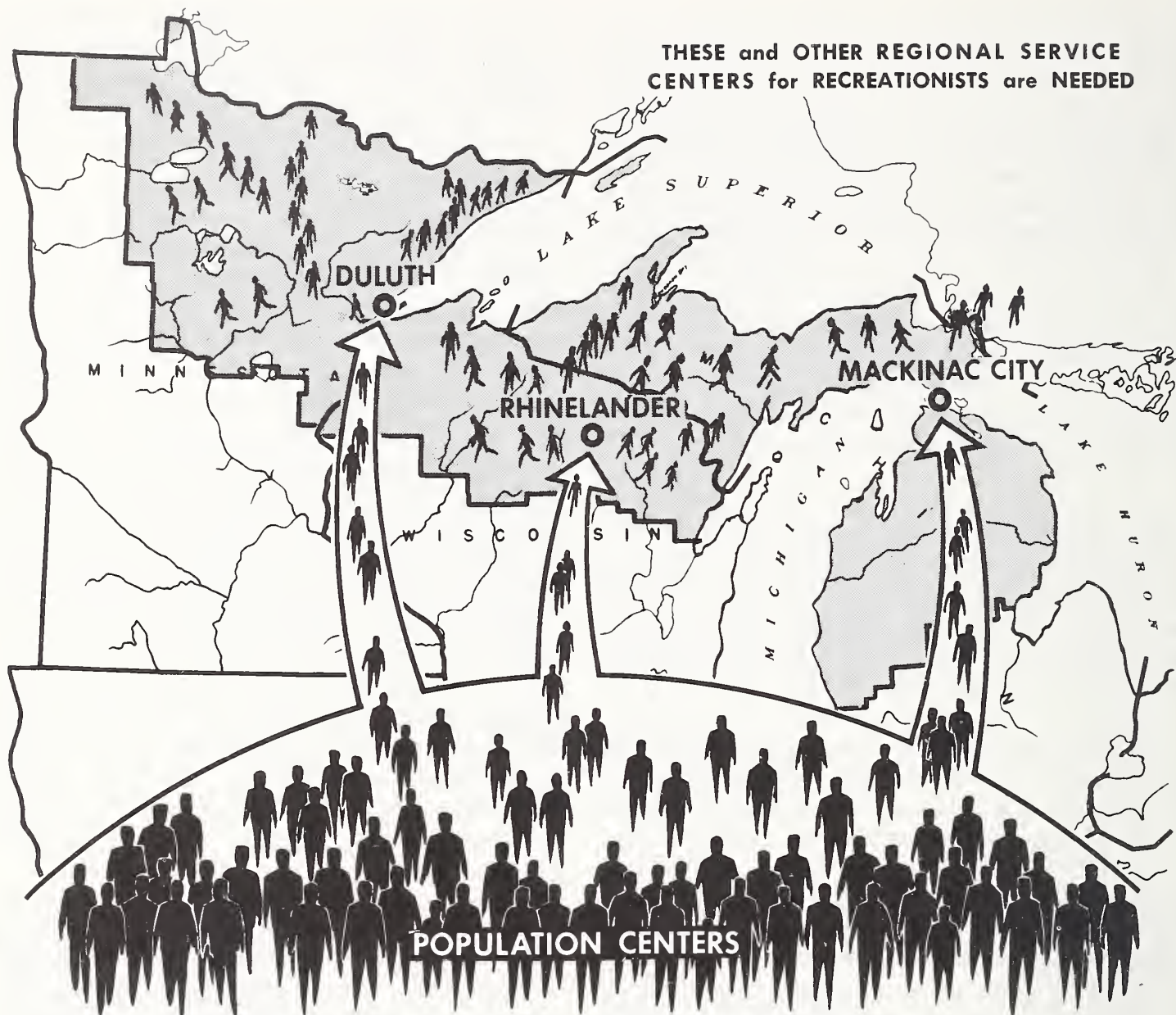
could appropriately be located in one or more of these centers. Nearby points of scenic and historic interest, manmade attractions, information and visitor centers, and other "things to do" must be highlighted and tailored to the needs of adults and children.

Over 90 percent of the current tourism is in private autos, and nothing indicates that proportionate use of public transportation will increase materially in the years ahead. Plans for regional service center facilities therefore should be designed primarily to meet the needs of the autoist. Regional service centers nevertheless will be helpful for railroad, bus, and air lines. One company now runs a highly successful bus tour through the region, starting and ending at Duluth. With adequate terminal facilities, airports, good service, car rentals, and integrated planning and development, this segment of the traveling public seeking recreation would be well served.

Limited access highways to these centers, besides facilitating auto travel, will permit high-speed express bus service from metropolitan areas to the south. Feeder bus service plus car rentals would disperse such travelers to youth camps, resorts, recreation farms, and other facilities and points of interest.

The addition of low-cost accommodations near regional service centers would be a step toward making outdoor recreation opportunities available to low-income and lower middle income young adults and youths in congested metropolitan centers. Youth Hostels could be located here, as jumping off points for hikers and cyclists.

There are opportunities for further localization of the service center concept. Area centers closer to one or two specific recreation resource use areas would serve a somewhat different purpose. Ely, Minnesota, provides an example of such a center. This community is the hub for recreationists seeking canoeing and boating experiences in wilderness or near-wilderness lake country. Area centers keyed to other forms of use, including high-density water sports and large boat operations, should similarly be considered for development as focal points in planning action programs.



Sault Ste. Marie and Houghton might be examples of area centers developed to serve a more specific recreation resource area. The former would serve as a link in a proposed scenic highway, the locale for viewing the locks and for boat trips, and also as a center for day trips "over the border" to Canada. Houghton, on the other hand, can serve as the base for recreation centering in the Keweenaw Peninsula in Isle Royale National Park.

The point to be stressed is the advantages to be gained by making things easy and pleasurable for the tourist.

VISITOR CENTERS

The opportunity for local visitor centers has been recognized in many of the Overall Economic Development Plans prepared by local RAD Committees. Some are already operating in the Northern Great Lakes Region.

The location and number of centers needed in different locations throughout the region varies greatly. The nature and amount of tourist use within an area are factors affecting the need. Routes and volume of tourist travel are also factors. In each situation demand

should be estimated and coordination insured between counties and communities establishing the centers.

These visitor centers should preferably be located in pleasant scenic settings. Adequate parking facilities and high-quality structures are obviously required. Downtown locations have advantages if the foregoing conditions can be met. Parking space is usually scarce downtown; locations on the outskirts of communities will generally be preferable.

Staffing costs have been an obstacle in the operation of centers. A "local craft" shop in connection with the center could largely offset the operating costs. At the same time, the craft shop can offer an additional incentive for tourists to stop at the center, provide an outlet and a stimulus for local craft work, and create additional tourist interest in the local area.

It is essential that the visitor be drawn to the center by some means, or come upon it naturally. He should not have to seek it out.

EMPHASIS AND ACTION NEEDED

Integrated inventories that would classify the region's overall water resources for recreation and other uses are needed. To be most useful, these inventories would include surveys of all water characteristics and site features. Water studies, pollution surveys, and pollution control measures should provide guidance for programs to preserve essential qualities as well as for correction of existing conditions. Uniform standards and criteria are needed for adjoining areas of contiguous States.

The kind and quality of water should be included as factors when this resource is allocated among uses.

Both tangible and intangible recreation values of water should be considered when determining the best uses for a particular body of water.

Multiple use of water needs emphasis as a major objective in planning and in assigning a high priority to the recreational use of water.

Inventories of shorelines, riverbanks, and streamsides would be of more value if they were broadened to determine the amount, location, and recreational capabilities of these important resources. It would be helpful if these inventories were made concurrently with other inventories of land and water potential.

Shoreline zoning can be a more important tool in the region's recreational development. It should be done simultaneously with other zoning of land and water to carry out area development plans.

It is desirable to increase promotion of recreation opportunities available in the region. This can best be done by a regionwide organization as well as by local and area groups.

It would be appropriate to establish regional and subregional tourist service centers, or "staging areas," at key locations throughout the region.

An effective regional promotional effort presupposes financial and moral support from a broad base.

There is need for better public understanding of scientific fish and game management and the principles underlying resource management practices.

Private landowners need a more equitable return from the use of their land for hunting and fishing, and protection from personal liability and property damage suits.

Action is needed to give priority to establishing additional well-financed, high-quality overnight accommodations and associated recreation facilities. It would be unwise to encourage the growth of undercapitalized, poorly managed, low-quality food and housing establishments.

A new recognized class of road within the highway system--scenic and recreational--is needed to permit allocation of highway funds for this use. Development of this class should make possible financial aid to local, county, and State

highway departments for construction and maintenance. Standards should be designed to preserve and improve scenic and recreation values.

In preparing and executing county overall economic development plans, it is desirable that RAD Committees give direct attention to the needs and opportunities for: (1) Scenic roads, (2) self-guided educational auto tours, and (3) easily accessible information centers.

Policies regarding placement of road signs need to be reviewed to consider additional kinds of information needed by recreation motorists.

Agriculture

LAND USE

The physical characteristics of soils should be used as one of the basic guides to full understanding and decision making on the use

of lands for agriculture. Soil surveys can provide such guides.

Within the farm unit, lands should be used for production of crops--field crops, forage, trees, and wildlife--for which they are most capable and economically suited. These production potentials should be evaluated both for single use and multiple use purposes. Each has influence on the others in shaping the farm organization and in operating the farm business.

On July 15, 1962, there were 9,526 Conservation Reserve contracts in effect in the 81 counties of the region. In 1963, Conservation Reserve contracts will terminate for 146,678 acres--the period of years specified in the agreement will have ended. The accompanying table shows the areas by States for which contracts will terminate each year through 1969. During these 7 years decisions about future use will be required for a cumulative total of about 664,000 acres.

Conservation Reserve Contracts: Acres Under Expiring Contracts by State and Year--1962-69.

Termination year	Number contracts and acres under terminated contracts			
	Michigan	Minnesota	Wisconsin	Total
	<u>Number</u> 3,818	<u>Number</u> 3,861	<u>Number</u> 1,847	<u>Number</u> 9,526
	<u>Acres</u> 12,763	<u>Acres</u> 43,001	<u>Acres</u> 14,917	<u>Acres</u> 70,681
1962	56,226	64,555	25,897	146,678
1963	41,451	15,443	23,092	79,986
1964	1,095	3,271	5,632	9,998
1965	14,235	59,278	7,935	81,448
1966	8,988	52,792	8,257	70,037
1967	53,472	49,125	19,683	122,280
1968	52,293	13,278	17,220	82,791
1969				
Total	240,523	300,743	122,633	663,899
Contract acres planted to trees through 1962	27,444	14,395	7,317	49,156
Open land	213,079	286,348	115,316	614,743

Already about 50,000 acres under Conservation Reserve contracts have been planted to trees; it is unlikely that they will be returned to field crop use. The other 600,000 acres may or may not be cropped again. A great part of this acreage can best be used for grazing, recreation, and forestry.

There is an unusual opportunity when Conservation Reserve contracts expire for the owner to put his land to a use fitting into a planned framework that not only benefits him directly but also serves the interests of the community. The Department of Agriculture, through its several agencies serving farmers and private landowners, can offer help in planning and technical assistance; and in most areas cost-sharing and other financing assistance is also available.

DAIRY CATTLE TYPE FARMING

Dairying should continue as the important type of farming where the physical and economic conditions are favorable.

More than the present average of 13 cows per farm is desirable. It is usually necessary to have more crop and pasture land than the present average for farms of the region to support the 20 or more cows generally recommended for satisfactory dairy enterprise efficiency.

Usually an expansion in the major farm enterprise calls for several related changes in other parts of the farm business. More housing for the added animals, added feed and storage room, extra milking and milk handling equipment and facilities, larger or additional field equipment and more fencing are required for this expansion. Financing and management aspects are not to be overlooked. A good budget analysis should be made, including the management considerations that are usually recommended.

Some present market outlets for milk may disappear. Where this occurs the farmer will need to convert his dairy cattle enterprise to another type of livestock. Beef cattle or sheep offer alternatives.

Raising dairy calves and older animals for sale can be a profitable added enterprise on many dairy farms in the region. The bull calves may be sold as steer feeder calves and the heifers as yearlings or at an older age after they are bred. A common practice at present is to sell most of the calves as "bob" veal at 10 days or younger.

Farmers are becoming more aware of the relationship of production potential to land capability. This leads them to a greater appreciation of forage crop potentials, and in turn increases their interest in and adoption of some of the newer forage harvesting and storage methods. Grass silage and low-moisture grass silage have special significance. With these methods, costs of forage production, harvest, and storage become lower per unit of feed nutrient. At the same time, developing markets for feeder cattle and dairy herd replacement heifers make it feasible to raise dairy calves as a further income source.

Such changes in dairy farm methods and management offer one way of increasing the farm business volume without use of much added capital. Frequently, grazing lands can be purchased or rented at reasonable cost or added through onfarm improvements. There are, of course, additional management considerations such as housing, feed, pasture, and sales. Many farmers already raise their own dairy herd replacement heifers and thus understand the feeding and care of younger dairy cattle. In a great many cases farm organization adjustments for raising younger cattle will neither be extensive nor prohibitive in cost.

Although small dairy herds on farms operated by part-time farmers are not uncommon in the region, maintaining their efficiency is increasingly difficult. Profitable operation today requires reasonably high milk production per cow. This requires good-quality cows, constant vigilance for animal diseases and feeding disorders, regular breeding and calving schedules, and sanitary handling of the milk. Daily labor demands for dairying are not compatible with off-farm employment for any extended period of time. To keep a satisfactory income these

farmers confront a choice between expanding their dairy operations and more outside farm employment. An alternative is to change from dairying to another type of livestock less demanding on the farmer's time.

BEEF COW-CALF TYPE FARMING

Beef cattle production can become an important farm enterprise in the region. A shift to this type of farming is already going on and it may replace dairying on many farms and completely in some areas.

Full-time farming or ranching with beef cow-calf livestock as the only livestock enterprise appears to have promise in some major parts of the region. To provide an adequate income a herd of 120 to 150 beef brood cows is required. The calf crop is sold as feeder calves excepting those kept for herd replacements. Grasses of the region under good management provide reasonably high grazing capacities in relation to cost. An operating unit of 1,100 to 1,600 acres will carry the beef-calf herd where one-half to three-fourths of the unit is open grazing land.

Limited research and farmers' experience indicate that in this region 4 to 9 acres of unimproved grassland will be required to carry a beef brood cow, her calf, and her pro rata



share of herd bulls. If capital costs are kept low per unit of cattle, a satisfactory family income can be made.

In this type of farming full use is made of the grazing opportunity. Only enough hay is made to meet winter feed requirements. This hay may come from a relatively small acreage of the best potential cropland, intensively managed for this purpose. It may, however, come from cutting over a larger acreage of grassland which has had some kind of soil management and renovation treatment, assuming that the early season grazing capacity is greater than the herd's requirements. The grassland used for an early hay crop would be available for grazing later in the summer.

Essentially the western ranch type of grazing and management could be adapted to many parts of the region. There are reasons to believe that either natural shelter afforded by woods, brush, and low hills, or low-cost constructed shelters can meet cattle needs for the winter months.

The operation and management of a beef cow-calf enterprise will be new in the experience of a dairy cattleman. For example, reliance on natural shelter or open sheds for cattle in the most severe winter weather is quite foreign to a dairy farmer. Likewise, a forage and pasture feeding program for beef cows, without grain, is not usual for a dairy cow. The change is not difficult, but the farmer who shifts from dairy to beef must understand these differences or he will overfeed and overhouse his beef cattle and reduce his profits.

Full-time farms or ranches with large herds are not expected to become numerous in the immediate future. Nevertheless, in the years ahead, they could become commonplace in sub-areas having the requisite economic and physical conditions, and thus add to the region's economy.

In the central and eastern part of the region, an increasing number of feeder cattle are sold each year through cooperative auction sales. These are held at six locations in Michigan and two in Wisconsin. In 1962 almost 9,400 head of feeder cattle were sold through the cooperative auctions at weights mostly about 350 to 425

pounds. Total number of feeder cattle moved in the six Michigan auctions has doubled every 4 years since the first one was started 18 years ago at West Branch. The newest of these Michigan auctions were started 2 years ago. The two Wisconsin auctions were first held in 1962.

Good prices are received for cattle sold in the cooperative auctions. Prices are estimated to be $1\frac{1}{2}$ cents to $2\frac{1}{2}$ cents above those for comparable kind, grade, and size of animals shipped from the West into the same Midwest areas and sold for fattening. Improved highway systems are adding to the attractiveness of these sales, since sellers and buyers can more easily and economically transport their cattle to and from the auction center.

Many beef type feeder cattle move out of the region besides those marketed through the cooperative auctions mentioned. The number of feeder cattle raised each year is not known; however, a conservative estimate would be 15,000 to 17,000 head. Presently a large proportion of these cattle are from small herds not constituting the major farm enterprise. Although farm herds have only 10 to 50 percent of the number in a full-scale ranching herd, these small herds form an important part of the agricultural pattern.

A beef cow-calf enterprise does not need the farmer's constant attention and can be profitable on many farms in the region when it is added to other farm enterprises. The other enterprises, if not dairy cattle, might be sheep or feeder pigs or a farm recreation business. Furthermore, it can be well adapted to farm-forest management enterprises if the operators spend considerable time working in their own woods or in nearby public forests.

The small beef cow herd also fits very well on many of the part-time farms. The farm enterprises of a part-time farmer must not demand constant supervision and attention if off-farm work keeps him employed during a considerable part of the year. Generally, of all livestock suited to the region, the beef herd is the least demanding of the farm operator's time and attention. Moreover, the labor available in the

family, especially that of teenage boys, is more effectively applied to a beef herd enterprise than, for example, to a dairy herd or a feeder pig enterprise requiring experienced management and daily attention.

The part-time farmer has only so much time for his farm work; this limits the size of beef cow herd that he and his family can handle.¹ Each farm and each operator constitutes a different case, but generally the herds consist of 15 to 35 cows.

VEGETABLE AND POTATO ENTERPRISES

Soils, climate, and favorable markets are traditionally considered as determining factors for vegetable production. More recently the availability of water at reasonable cost for irrigation has become equally important. With its abundant low-cost water, the region can expect to continue growing vegetables.

Commercial vegetable production centers mainly near Lake Michigan. Within the region vegetables are grown for sale on approximately 20,000 acres which is about 4 percent of the acreage growing vegetables in the three States. The Minnesota part of the region has only 1,000 acres in vegetables.

On some of the farms vegetable production is the major enterprise. On many farms, however, only one of two kinds of vegetables are grown on a small part of the total cropland. Technological advances will undoubtedly be made in the production of vegetables, but they are unlikely to bring much change in the region's acreage devoted to vegetables. However, farmers in the region should be alert to technological improvements that may offer opportunities for increased income from growing vegetables.

Technological advances in growing potatoes under irrigation, particularly in the loamy soil areas (as in Resource Area 8, figure 1) of Wisconsin and Michigan, are prompting some

¹Since in general the same principles apply for a breeding flock of sheep, no discussion of this enterprise is included.

shifts of production to soils more suitable for irrigation. Frequently the growers move their operations from nonirrigated to irrigated acreage. Technical assistance on soil surveys, irrigation water supplies, techniques of water use, and soil and water conservation practices are important to the success of a potato enterprise. These services are available through the local soil and water conservation district and State agricultural agencies.

OTHER FARM ENTERPRISES

There are small areas in the region where favorable factors, such as local climate and topography, provide distinct opportunities for fruit farming. The two outstanding examples are along the eastern shore of Lake Michigan in western Michigan, and along the southwestern shores of Lake Superior in Wisconsin (Resource Areas 1 and 5, fig. 1). Apples and cherries are the major fruits; and some berries are grown. About 75,000 acres in the region are devoted to fruit trees. Opportunities exist for some expansion in this enterprise, especially by present growers, and they should be assisted in their planning for changes.

The commercial cranberry industry in the region is expanding. In northern and northwestern Wisconsin there are about 1,000 acres of marsh areas planted with cranberries, mostly of production age. Additional suitable land is available on cranberry growers' farms or landholdings to double the present acreage. Much other land can be developed if demand and other factors favor such expansion.²

Water supply will always be important to cranberry growers. A large majority of the growers depend in part or entirely on stream water. An acre of bearing marsh takes 10 to 12 acres of water reservoir of ordinary depth to supply. Water storage therefore is a necessity for most marsh operations. Water storage and distributing systems are being improved with technical assistance provided through soil and water conservation districts. Since dependable water supplies are vital for cranberry

growing, protection of the watersheds is important.

Cranberry production in the region, with a gross annual value approaching \$1 million, is an industry of considerable significance to the regional economy. Research, educational and technical services, and cost-sharing for conservation practices should be expanded if necessary, and should continue to be available through established working arrangements. In turn, the cranberry growers have an opportunity to further multiple use of resources in the region. They can help make cranberry marshes an interesting attraction, understandable to tourists. Informational and educational signs can help. At every opportunity, owners and supervisors should respond congenially to visitors' inquiries. They can assist with guided tours for recreationists who may come from nearby resorts, farm vacation establishments, or other recreation centers.

Fur farming, although not extensive in the region, offers an opportunity for some farmers. It can be either a full-time enterprise or integrated with other farm enterprises for supplementary income. Muskrat, racoon, and beaver fur farms number about equally in the region. Mink, otter, and skunk fur farms are also in operation, but are not numerous. The fur farmer may raise two or three kinds of animals. For example, in the Wisconsin part of the region in 1962, on the 43 licensed farms, there were 80 fur-producing animal enterprises.³

The water-based fur farming enterprises, especially for muskrat and beaver, are not only valuable resources within themselves, but also are vitally related to other wildlife.⁴ Good muskrat-producing areas are usually good waterfowl-producing areas. Ducks and geese are quick to take advantage of habitat changes resulting from the feeding and house-building activities of muskrats. Areas managed for the fur farming enterprises very often benefit

³Licensed Fur Farms (to Aug. 1, 1962). Wis. Conservation Dept. (Mimeographed).

⁴Studies on Level Ditching for Marsh Management. Wis. Conservation Dept. Tech. Wildlife Bul. 12, Madison, 1956.

²Cranberries of Wisconsin. Wis. State-Federal Crop Reporting Service, Special Bul. No. 70, Dec. 1957.

upland game, deer, and other fur bearers largely by creating "edge effects," important in wildlife management. Here again, water control and adequate supply are important, and watershed protection should be practiced. Fur farms offer another opportunity to enhance the multiple use complex in the region, and provide enjoyment for recreationists. Educational signs calling attention to muskrat houses or beaver dams, with short, easily readable explanations, can prompt the tourist to stop briefly and enjoy his vacation in the region a little more.

Wild fruit and nut production presents opportunities for profitable returns. The most intensive of these enterprises is the "native fruit farm." In other regions such farms are prospering, and in the Northern Great Lakes Region conditions appear equally favorable. Visitor-pickers can be charged a minimum entrance fee, plus fees based on the kinds and amounts of fruit gathered. This could easily be an adjunct to other farm enterprises. The farmer with a vacation farm type enterprise may raise some wild fruits, which add to the satisfaction of his customers. Some customers would come primarily for the fun of an outing, others to obtain fresh products with the wild flavor. Many native plants are adapted for this enterprise, including blueberries, strawberries, raspberries, june berries and choke cherries for

jellies, wild plum and cherry trees, grapes, and elderberries.

There is an opportunity for the RAD Committees with assistance from their Technical Action Panels to determine suitable locations for native fruit farms in their respective areas. Their Overall Economic Development Plans could include this type of farm enterprise and the assistance necessary for its development.

FARM RECREATION ENTERPRISES

There are many rural recreation opportunities on the farms in the Northern Great Lakes Region. As an additional farm enterprise it is readily integrated with other farm businesses, though some combinations will be more feasible than others. For example, an enterprise including a stable of riding horses and riding trails can easily be associated with the beef cow herd, extensive grazing areas, and adjacent woodlands.

Another illustration is the farm recreation enterprise which boards the guests with the farm family, either in their home or in adjacent buildings. The main feature of this "vacation farm" type of recreation is to live in the country and experience something of farm life. The guests are allowed to stand by and watch, or to help milk the cows, feed livestock, make hay, pick berries and fruit, gather the eggs, shear the



sheep, spray weeds, nurse injured animals, flush a covey of game birds, grind feed, repair or install watering facilities, cut fireplace wood, build fences, herd the cattle or sheep, repair field equipment, and drive the tractor. These experiences are not limited to any one type of farm. For an extra attraction, a farm might not have a natural lake for swimming, but it could have an artificial pond or lake.

Whatever may be the nature of the recreation enterprise among the many covered in detail in "Rural Recreation: A New Family Farm Business" published by the Department of Agriculture in September 1962, it must be handled in a businesslike manner. As in other farm enterprises, efficiency is essential if an adequate farm family income is to be maintained.

Since people are the income source in farm recreation rather than crops, livestock, and machinery, personal attention and good human relations are of first importance. All farm family members and employees need to recognize this importance. Especially in the vacation farm enterprise, the quality of product is tested to a large extent by conduct of the farm family.

The competitive position of any one farmer in his recreation enterprise should underly all of his management decisions. He must have satisfied customers if his recreation business

is to prosper. Farm recreation enterprises must be of high quality and well managed to successfully compete for vacation business in the region.

Outdoor recreation is destined to become more prevalent and important throughout the region. With this will come coordination between farm based recreation and other outdoor recreation not directly associated with farms. Rural people will better understand and appreciate the facilities and services that need to be supplied by community sanction and direction.

EMPHASIS AND ACTION NEEDED

Land capability maps and use recommendations would be widely used and fully justified if developed and followed for farmland improvements in all areas likely to continue in agricultural use.

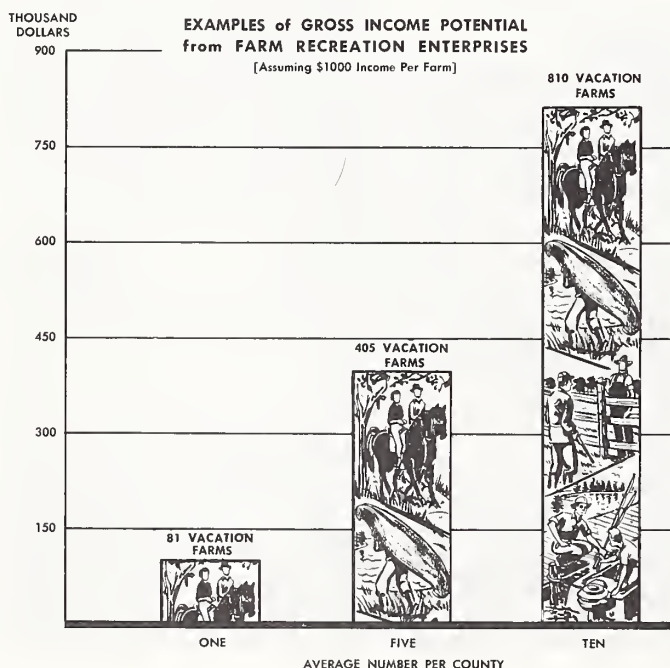
Use recommendations, including site condition criteria for grazing lands, can be helpful. Initial recommendations should be improved as research and cattle-grazing experience indicate.

There is need for larger volumes of business on dairy farms. Increasing average size of herds from 13 to 20 or more and raising calves for sale as steer feeder cattle and dairy production heifers would be helpful in accomplishing this.

Beef cow-calf grazing enterprises can be developed further to utilize open grasslands. Large-scale operating units require a minimum of 120 to 150 brood cows. Smaller beef herds with 15 to 35 cows can increase farm family incomes for part-time farms where grasslands are available and addition of this enterprise can add to farm efficiency.

Commercial fruit, vegetable, potato, cranberry, and other specialized enterprises like fur farming can be expanded if demand and price situations warrant.

Native fruit and berry enterprises can be developed as a part of the farm business. A few



farms with only native fruit crops ("native fruit farms") as their enterprise may be profitable in some locations.

Farm recreation enterprises can add significant supplemental income on many farms throughout the region, if operated on a businesslike, efficient, and high-quality-product basis.

Forestry

THE CELLULOSE SURPLUS

A large surplus of hardwood or broadleaf trees, smaller than saw-log size, exists in the Northern Great Lakes Region. This surplus of cellulose raw material, amounting to an estimated 150 million cubic feet available each year, represents the capacity of 13 additional pulp and paper plants or 25 new hardboard and paperboard plants.

It seems a wild overstatement to say that utilization of this available surplus by manufacturing plants located within the region could end serious unemployment. But it is true. However, though not an overstatement, it is an oversimplification.

In the Nation as a whole, paper consumption is increasing at an annual rate of about 4 percent. The forecast is that this trend will continue, possibly at a slightly higher rate. The capacity of manufacturing plants, however, still exceeds consumption although the gap is narrowing. The outlook is good for an expansion of total plant capacity in the next 3 to 5 years. The point in question is where in the country this expansion will take place. At least some of it could be in the Northern Great Lakes Region. But this will not come about unless the situation is favorable.

Here is a real opportunity for rural area and other economic development interests to establish a favorable economic climate. Beyond this, a step that cannot be undertaken locally, is the need for interregional analyses of comparative advantages and disadvantages for the establishment of pulp and paper capacity. Some additional specific opportunities are pointed out in the following section.



NEED FOR FEASIBILITY STUDIES AND TIMBER RESOURCE DATA

To encourage development of plant capacity for the utilization of surplus hardwoods, adequate basic information must be available. Of course, many types of data are needed. Industrialists interested in plant expansion or sites for new plants naturally inquire first about the raw material supply and assurance of the continuing availability of that supply. Several manufacturers who explored the possibility of establishing plants at specific locations in the region abandoned their search. One of the reasons given was uncertainty of a present and future wood supply at reasonable cost. It is difficult to reconcile this with the regional situation: a great surplus of wood.

The obvious remedy is to have the inventory ready "on the shelf." Timber supply data must be available for subareas within the region. Data on timber volumes, growth, timber cut plus losses due to fire and natural agents, and estimates of annual quantities available in perpetuity for cutting must be current and accurate.

The responsibility for forest surveys, performed to established standards of accuracy, rests with the Forest Service. The standards provide for 10-year resurveys to keep the data

current. The average resurvey period for parts of the Northern Great Lakes Region is now 16 years. During this long interval, statistics on volume increases (due to growth of young trees to pulpwood sizes) and volume accumulations caused by failure to harvest the sustained yield allowable cut rapidly become obsolete. It is important that Forest Survey activities be accelerated to meet established frequency standards.

The survey work now federally financed provides sufficiently accurate data for use on a statewide basis or for an entire region such as the Northern Great Lakes Region. However, the intensity of sampling employed does not give sufficient accuracy in data respecting single counties or groups of three or four counties. The more localized type of data is most needed as the basis for deciding the feasibility of plant establishment. In some locations cooperative State funds have been available to permit increased localization of data. Regardless of how the intensified inventory is financed and accomplished, it is important that it be done. Rural Area Development Committees and Technical Action Panels have an opportunity to focus attention on this need in local areas.

Individual industries commonly make feasibility studies when investigating plant sites. They will of course continue to do so, but a complete forest survey requires more time, skill, and investment than a single company is willing to spend. Some types of feasibility studies can provide much of the basic information to any potential entrepreneur looking for a site within the region. Such studies should be supported by public funds.

NEED FOR INTENSIFIED FOREST MANAGEMENT

The situation with respect to present degrees of forest management has been covered in an earlier section of this report. It was noted that the management of timber as a crop is good on most of the large private and public landholdings. It is mostly not good on the small holdings.

Markets, of course, are a major factor in providing opportunities for woodland improve-

ment and realization of maximum sustained yield. In those parts of the region where demand is good, and in other areas as demand increases, technical services and multiple use management advice will need to be intensified. The major opportunity (and difficulty), lies with the absentee small landowner. He must be reached. The great aggregate of forest properties in this category of private ownership need to be placed under sustained yield management within a multiple use framework.

NEED FOR BETTER MARKETING ARRANGEMENTS

In some parts of the region procurement of wood supplies by the various industries overlaps and competes. In other areas of the region, the situation is reversed, with forest products being unmarketable or uneconomical to market. Landowners, unless they have sufficient volumes of marketable products to attract major industry attention, have no sure outlet. Landownership groups in specific zones or localities generally are not organized to seek solution for their marketing needs. Farmer groups have organized to secure electric service, feed grinding facilities, sales of special crops, purchase and sale of animals, acquisition of fertilizer, feed, and lime, etc. However, small forest owners, with few exceptions, have never adopted this practice.

A marketing organization can take many forms. In some cases associations have assumed this function. In other instances cooperatives have been successful. In many situations brokers have furnished this needed service. Not the structure or organization, but meeting the objective is important. Concentration yards for rough forest products, a key element in marketing, permit sorting for kind and grade of product and price, and help stabilize the flow of raw material.

In one locality of the region a timber harvesting and marketing association was formed 14 years ago. Since that time the enterprise has grown and prospered. It now employs a full-time manager who concentrates his time on locating markets, selling products, and securing new stumpage contracts. The number

of the association members varies but now approximates 300. With a large membership, the financial position of the enterprise is good. It is able to acquire timber for cutting and produce sizable quantities and a large variety of forest products annually. Many members are part-time farmers, road workers, or industrial employees. Separately, very few members would be able to operate a timber business continuously. Together, they have substantially increased the employment opportunities in their locality.

The group marketing of products provides opportunity to reduce industrial raw material procurement costs, insure an improved standard of product, and relieve the mill managers of considerable uncertainty as to their raw material supply. Thus the operation is mutually beneficial to both the area's economy and the wood-using industries.

Emulation of this example in other localities of the region will require both promotional and planning effort. Local RAD committees, with the assistance of the technical action panels can study the opportunities and develop plans for local use. The committees can also be helpful in furthering the formation of marketing associations and providing guidance to them during the starting period.

POTENTIAL FOR PRODUCTION OF SOFTWOOD DIMENSION STOCK AND CONSTRUCTION LUMBER

The plantations and available natural pine stands in the region will provide a supply of raw material for construction uses by 1980. By the year 2000 there could be a stabilized industry consisting of several softwood lumber and dimension stock enterprises. Production from these plants can be expected to compete favorably in the Midwest market area now supplied by mills located in the South and Far West.

If this opportunity is to be captured, action during the next two decades must be designed to develop the full potential. This will require positive steps to accelerate tree growth rates in forest plantations throughout the region.

Forestry policies and forestry technical assistance should emphasize improvement of tree growth on all lands.

Wide fluctuations in numbers of trees successfully planted annually since the first plantations were established have resulted in an unbalanced age-class distribution. Improvement cuttings and cultural operations should have, as one objective, the balancing of size classes so that yields at maturity will be spaced over the years.

In most of the region, intermediate cutting for pulpwood in red pine plantations has begun and the product is readily salable. In some locations the demand is low. Where this is true, the demand should be met from plantation thinnings, to realize long-term benefits, rather than through cutting hardwood species for quick returns. An exception, of course, might be where the hardwood cuttings are being made to release high-quality hardwood species for future saw-log production.

The favorable market outlook and opportunity justifies a stepped-up rate in planting red pine on public and private land in the region. This is a sound conservation practice on private land for site protection, watershed improvement, and timber production. Continuation and expansion of reforestation programs are in the public interest and warrant cost sharing with private owners.



In reforestation both on public and private land, full advantage should be taken of multiple use opportunities. For example, open spaces and "edge" for wildlife are essential in a multiple use program.

OPPORTUNITIES IN SPECIAL FOREST PRODUCTS

The nature of the region's forests, their variety, with conifers and hardwoods, bogs and uplands, produces a storehouse of interesting and diverse raw materials. These, in turn, form a base for developing profitable enterprises. Examples are found in producing fence posts and furniture structural members; in cutting firewood and charcoal blocks; and in harvesting sphagnum moss and pine cones. Some of these are already established and profitable ventures. Many more opportunities exist both for expansion of present production and for ventures into new and ingenious uses and combinations of widely available raw materials.

Many of these products have proved competitive in the metropolitan markets to the south. There is also an unmet demand for such products by recreationists visiting the region. Low-priced imports from distant manufacturing centers now partially satisfy the demand. High-quality, locally produced items, including Indian-made articles, can provide enterprise opportunities. Development groups can seek out these opportunities and encourage and help finance individuals in ventures of this type.

Ingenuity and enterprise have often created successful businesses in the region. One individual, for example, collects lakeshore driftwood, both roots and branches. He cleans the material, cuts it into small sections, and sells it both to local curio stands and major city department stores. Material of this kind sells readily for home decoration.

Manufacture of pine and spruce cone wreaths and miniature Christmas trees has proved profitable to a number of individuals. Cones can be either gathered in the forests or purchased from tree nurseries. Gross labor return averages \$2 per hour in such work.



An enterprise in the central part of the region specializes in the manufacture of Christmas wreaths. "Princess pine," a woods fern, is the basic material. Painted Norway pine cones and imitation red berries are added. The product normally retails for \$3 to \$5 depending on size. The plant employs 30 people from September through November. Other labor is used in collection of the fern during the fall months. Labor averages \$1.25 per hour.

Similar opportunities exist in gathering and processing maple sap for sirup and sugar, cutting cabin logs, weaving willow and split ash baskets, making wooden stools and other novelty furniture items, cutting white birch firewood for resort and summer home fireplaces, carving miniature wooden wildlife figures, and whittling canoe paddles, ax handles, and similar wooden objects. Enterprises such as these exist in scattered locations throughout the region. Many are family operations with few involving more than two or three employees. However, the market for native wood products is good; they quickly displace the average imported curio or trinket.

Peat, common in much of the region, provides enterprise opportunities. While utilization may be mainly for soil conditioning and special horticultural purposes, specialty products and industrial uses hold promise for future development. A few firms may develop sizable businesses based on peat.

Extensive deposits of peat exist throughout the Northern Great Lakes Region. A modest start has been made in a few localities towards realizing the potential of this natural resource. One operation began in 1957 and now produces 200,000 units of 6 cubic feet annually. The peat is harvested from bogs. Trees, brush, and the top layer of herbs and litter are removed, and ditches are dug to drain the area. The peat is loaded on trucks and hauled to a central processing plant, where it is dried, cleaned, and packaged. The product is nationally advertised under a trade name as a soil conditioner. Employment averages about 40 people.

EMPHASIS AND ACTION NEEDED

There is a need to accelerate collection and publishing of basic forest inventory data. Increased survey intensity would provide the data needed for feasibility studies in localized areas.

Where wood surpluses are known to exist and where additional wood-using industrial development is most likely to occur, publicly financed basic feasibility studies would help expand development. Economic development plans of RAD Committees and other groups could help give further emphasis.

Intensified woodland management is needed, particularly in areas having a potential for saw-log production.

Establishment of marketing groups and similar enterprises would help improve forest products marketing. Concentration yard facilities would have an important place in these efforts. Guidance and financial assistance are needed to encourage this type of enterprise.

Guidance, technical services, and information programs to emphasize the potential of red pine plantations for saw-log production would improve long-term prospects for successful forest products enterprises.

All groups and agencies engaged in rural area development activities have an opportunity to help the regional economy by encouraging development and expansion of special forest products enterprises.

Transportation

REGIONAL ACCESSIBILITY

Modern transportation facilities cause distance to be measured in units of time rather than in miles. Roseau County, Minnesota, for example, is 800 miles from Chicago; thus, it is nearly 2 days away by automobile on existing highways. Half of a one-week vacation in Roseau County would be consumed on the road by a Chicago family. If scheduled jet airline service were available between the two points, the trip would take slightly more than an hour. By private or chartered plane, the trip could be made in 5 or 6 hours, and by limited-access express highways, the distance could possibly be spanned in 1 long day of driving. Travel time between the Northern Great Lakes Region and its market areas to the south must be reduced further if the region's resources are to be more fully utilized.

Present criteria for allocation of funds for highway, airport, and marine improvements do not permit the construction of additional time-saving expressways or aviation facilities in this sparsely settled region. High priority must be given to the construction of north-south expressways, airports, harbors, weather stations, and navigational devices. If the region were as adequately served as is the area to the south, it would be reasonable to consider this region as a northern extension of the park and recreational facilities of the metropolitan areas.

To illustrate the potential impact of reducing the time-distance ratio, the accompanying map (fig. 13) represents the dimensions of the Northern Great Lakes Region and its market area if they were fully served by multilane controlled access expressways. The outer line of the map represents the dimensions by existing conventional highways. The comparison depicted by this map is based on the assumption that such expressways enable a motorist to travel twice as far in the length of time previously required on conventional highways and streets. Similar changes in time-distance relations are evident in areas now served by express-type highways.

**EXPRESSWAYS SHRINK DISTANCES
NORTHERN GREAT LAKES' RESOURCES and MARKETS
DRAW CLOSER TOGETHER**

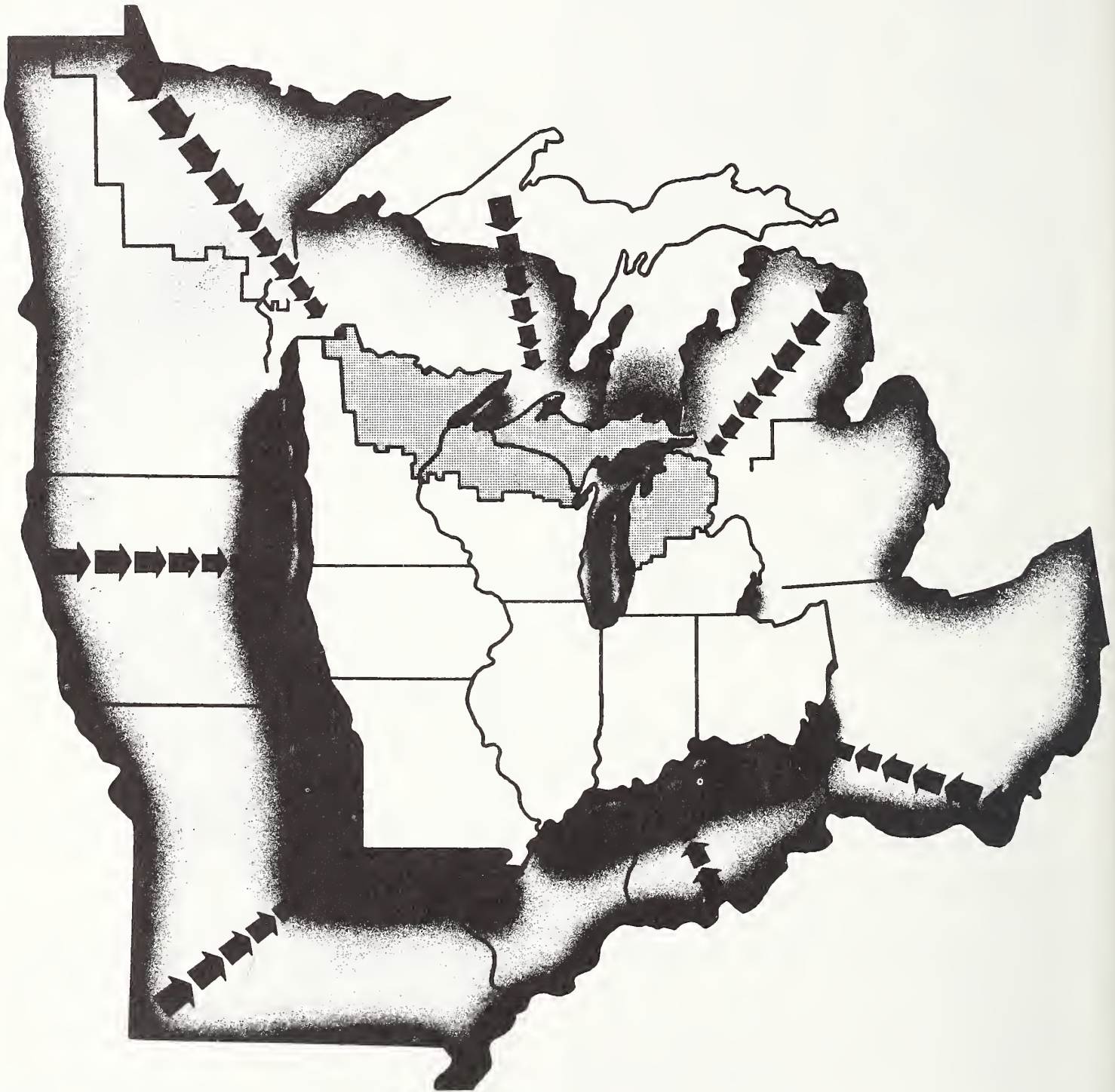


Figure 13

The impact is more dramatically shown in the map (fig. 14) in which several representative metropolitan markets were graphically moved 50 percent closer to representative points within the Northern Great Lakes Region. The potential tourist and recreational development of Copper Harbor in Michigan's Keweenaw Peninsula would be much different from that of today if Metropolitan Chicago and its 6 million people could be moved to the vicinity of Green Bay; or if St. Louis could be moved 250 miles closer to Bayfield, Wisconsin (graphically it would be north of Dubuque); or if Cincinnati could be moved to the vicinity of Lansing in relation to Sault Ste. Marie.

Such relocations of market-resource relationships are taking place in Michigan now that the Upper Peninsula is linked with the Detroit Metropolitan area by high-speed freeways and the Mackinac Bridge. This impact is reflected by the construction of new summer and winter resort accommodations and service facilities and by greatly increased business activity in the counties served by the north-south freeway. The corridor of counties traversed by Interstate Highway 75 (U.S. Route 27) in the northern part of the Lower Peninsula of Michigan are experiencing population and business increases considerably greater than those in most other northern counties. The northern counties lacking large military establishments and not served by an expressway are consistently losing population. Unquestionably, Interstate 75 is triggering significant economic expansion in this part of Michigan.

Comparable north-south freeways are vitally needed in Wisconsin and Minnesota, with an east-west collector and redistribution route from Interstate 75 near the Straits of Mackinac to at least as far west as Duluth, and ideally, to Grand Forks, joining Interstate 29. Investment in such facilities could lead to a significantly higher level of economic development in the region. If funds could be allocated for these arterial expressways, and also for local access roads, the economic growth of the Northern Great Lakes Region would repay the investment long before the useful life of the highways ends (fig. 15).

What has been said of changes in time-distance ratios resulting from expressways is even more true for airlines and general aviation. Scheduled airline service will not greatly expand in the region until there is a concentration of demand for tourist travel comparable to that in the Southeast or the Southwest. Charter flights into the region will expand as more terminal facilities and resort attractions and activities are developed.

General aviation holds great promise for moving tourists and sportsmen into the region more quickly and more economically. Before this potential can be fully tapped, sizable investments in airfields, emergency landing fields, and weather reporting and radio navigational facilities must be made. When the volume of business warrants it, complete fixed base operations must be provided (fuel, food, lodging, repairs, air taxi and rental, rental cars, charter flight and guide service).

Volume of demand is the key to expanding aviation facilities serving the Northern Great Lakes Region. To achieve the necessary volume, some initial investments in facilities must be made by both private and public interests. The volume of business activity that would be generated by the proposed inter-regional expressways and by improved internal access roads will be reflected in an increased demand for air travel. One augments the other.

The historic and future role of marine transportation should not be overlooked in outlining the transportation needs of the Northern Great Lakes Region. The tempo of construction of harbors of refuge and servicing facilities along the Great Lakes should be quickened by larger Federal and State contributions. Private marine service operators must be given more incentives to expand so that waterborne tourists will have things to see and do and be able to make purchases in the harbor areas. As in the case of general aviation, volume is the key to profitable operation and expansion, and initial public investments and incentives are necessary to achieve the needed volume.

Experimentation is needed with ACV's (air cushion vehicles) and hydrofoil craft for fast

METROPOLITAN MARKETS MOVE CLOSER TO NORTHERN GREAT LAKES REGION AS TRANSPORTATION IMPROVES

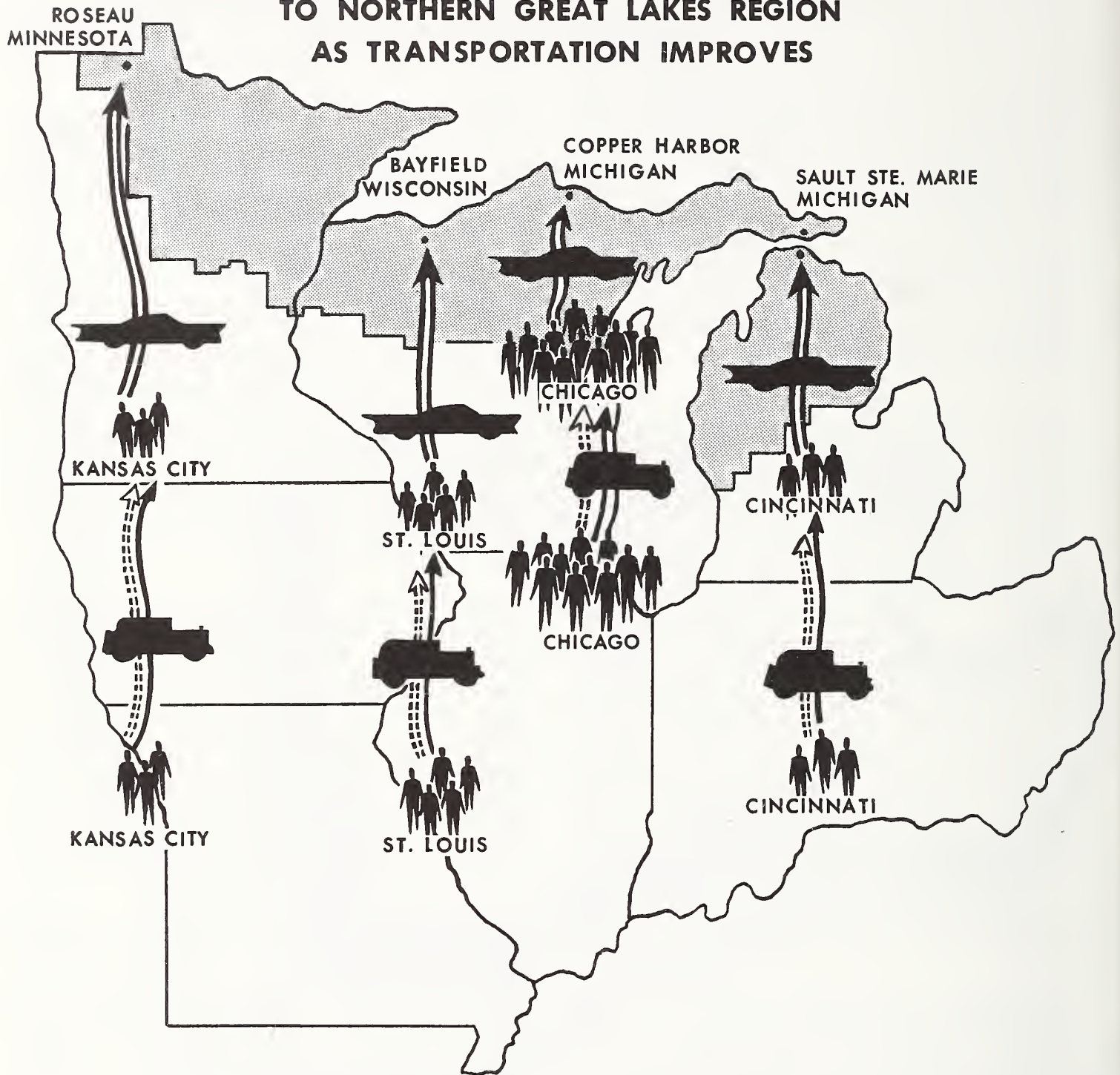


Figure 14

LIMITED ACCESS EXPRESSWAY NEEDS
 . . . NORTHERN GREAT LAKES REGION

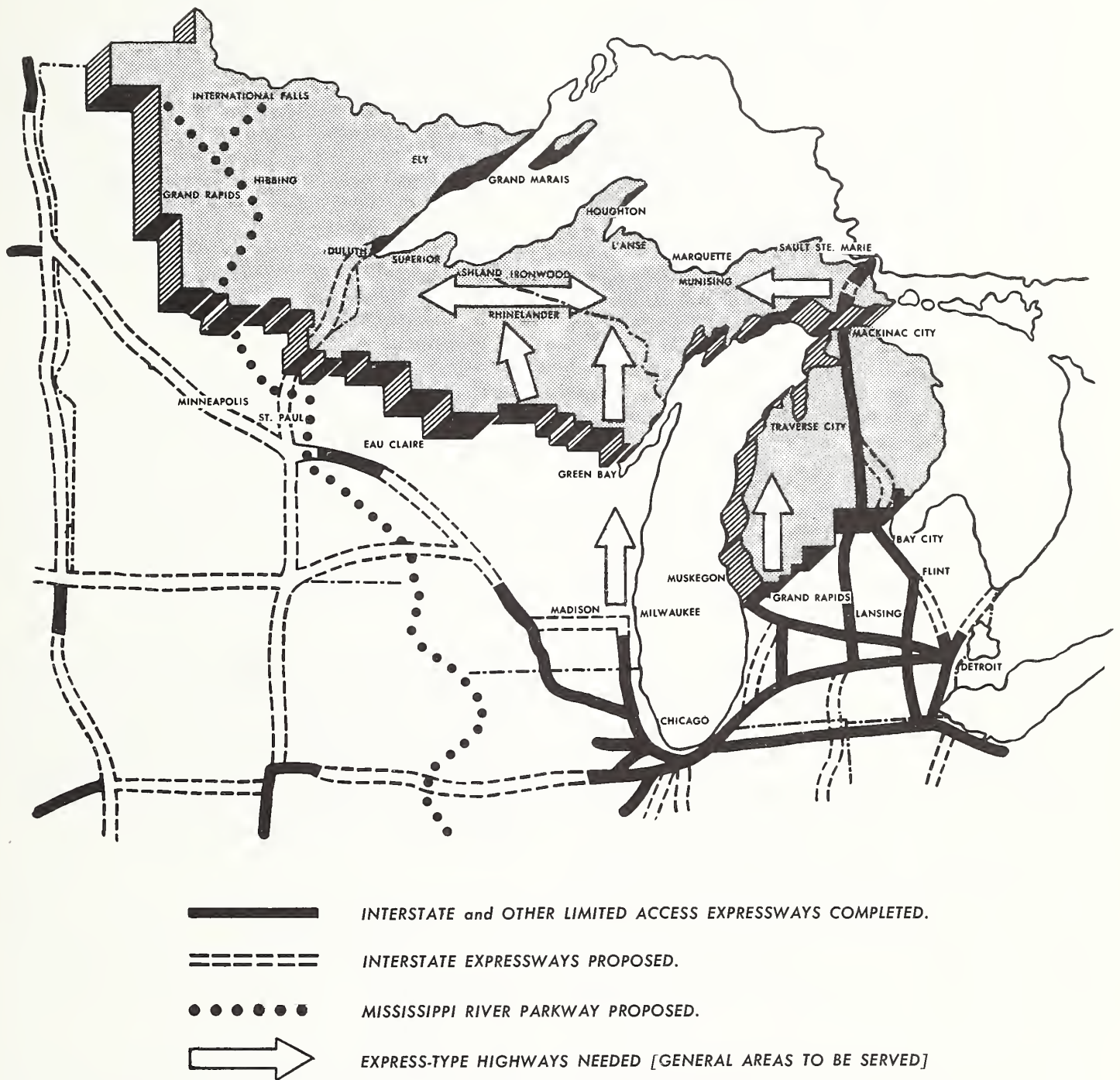


Figure 15

passenger and package freight service on the Great Lakes. Other nations have sponsored research that has resulted in scheduled commercial service at speeds of 50 to 100 knots. Conceivably such craft could partially revitalize the passenger service which was once such an important part of the initial resort development of the Northern Great Lakes Region. The waters of the Great Lakes, instead of being a barrier to economic development, could be more fully exploited as one of several new media for transportation and growth.

LOCAL ACCESSIBILITY

Although it is important to improve regional accessibility by constructing major north-south expressways, and by improving aeronautical and water transportation facilities and navigational aids, it is equally important that local access roads, trails, and landing fields be improved within the Northern Great Lakes Region. Tourists must have means to move about within the region as well as to get to the region in greater numbers, more quickly and safely.

Access to the lakes, streams, and scenic spots of the region is grossly inadequate for the optimum utilization of those resources. The sparseness of population, the absence of extensive and continuous agricultural areas, fragmented ownership, prevalence of public land, and the nature of the terrain have deterred development of integrated transportation systems. Winter logging roads and abandoned railroad grades are perhaps adequate for local residents, but they are frightening and even dangerous for the pavement-oriented tourist and sportsman.

Existing formulas for the allocation of local road improvement funds do not permit the expenditures necessary to open up the recreation resources of the Northern Great Lakes Region. In the more remote areas there are few year-round residents and little need for maintaining roads for school buses, mail delivery, or milk hauling. New criteria of need and new cost-benefit values must be devised if these resources are to make the contributions of which they are capable. The direct

and intangible economic and social benefits of tourism and recreation should be fully evaluated and used as a basis for obtaining the necessary incentives and funds.

A substantial part of the cost of local access improvements must come from public, nonlocal sources which are sympathetic to area redevelopment and recreational expansion. Ideally, both Federal and State financial participation are needed. In any case funds should be administered so as to insure that the local recreational access roads do not lose their newly based priority.

Possibly the owners of extensive tracts of forest and mineral lands could enter into cost-sharing arrangements with Federal and State agencies responsible for improving the access to remote recreation resources. Public investments of this nature would create an immediate increase in local land valuations and new resort and cottage construction would multiply the initial investments.

The alternatives for improving local accessibility will vary with each particular situation. In some cases, it might take the form of a grant or a long-term loan to enable a resort operator to construct a landing field or to provide navigational aids. It might be a grant to construct a landing strip or a small boat harbor.

The construction of access roads and trails provides multiple benefits by improving logging chances and by facilitating fire control and forest management.

The benefits of local access improvement would accrue to local service businesses, to local governmental units through larger tax revenues, to the manufacturers and distributors of transportation and recreation goods and services, and to the users themselves. Certain additional costs or losses must also be evaluated; for example, the cost of fire control increases as forest use by people increases. A difficulty also is that local residents might resent crowds of avid pleasure-seekers cluttering up secret hunting and fishing spots.

EMPHASIS AND ACTION NEEDED

Appropriations from local, State, and Federal sources for highways and administrative action to further transportation development affecting the Northern Great Lakes Region can be most helpful if special consideration is given to requirements for regional economic growth. Fund-allocation formulas for this purpose based on criteria reflecting the types of needs and resource-use benefits in the region are needed.

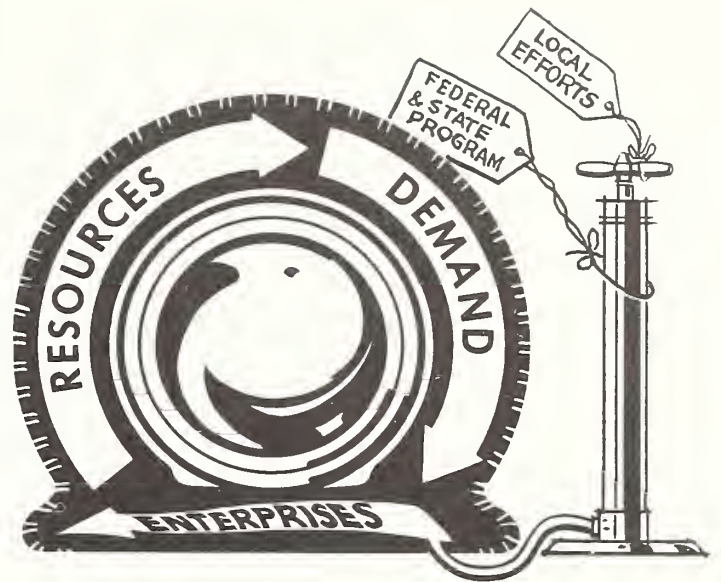
Early construction of proposed north-south express-type highways to the region would greatly benefit economic development.

More and better secondary roads connecting with express-type highway interchanges, and improved internal road systems, are needed developments to provide access to recreation facilities and other resource-use opportunities throughout the region.

Employment--Education--Extension

There are opportunities to increase employment in the Northern Great Lakes Region. Some can be realized rather quickly; others will take time. Since this report is chiefly about multiple use of resources and outdoor recreation, the related employment opportunities are stressed. Emphasis here on certain phases of employment implies no doubt of the recognized need for overall programs to alleviate widespread unemployment and underemployment in the region.

The characterization of this region as one of many natural resources has special significance with respect to the nature of its people's employment. In most regions part-time, or more properly, mixed employment of a large fraction of the population carries a certain stigma. Working this way is not quite "respectable." The forester and the wood producer worry because woods workers fit their work schedules in with other jobs instead of spending most of their time in the woods. People in agriculture, especially professionals working on specific phases of farming, worry about the farmer not farming full time. Since he does not, he is a part-time farmer, and that is bad. They feel



THIS IS HAPPENING NOW; MORE IS NEEDED to MAKE the WHEELS GO AROUND!

that, ipso facto, he is a marginal operator, or not really interested in farming and just biding his time to get into something else, or awaiting the opportunity to get into farming full time.

The criteria that are used to measure whether or not a person is a farmer, and thus entitled to share in Department of Agriculture development and conservation programs including farm loans, do not quite fit in the Northern Great Lakes Region. What serves in other regions to draw a line between farm (rural) employment and employment in town does not work well here. Since almost the entire region is "rural area," a large part of the employment is rural employment. The recent revision in criteria to include farm recreation as farm employment will help more farmers to "qualify," but this is not enough. Off-farm employment in the woods, and in outdoor recreation, should also be included. It is rural employment based on the resources of the land, and thus an integral feature of rural area development in the region.

One need is to project a new image of employment in the Northern Lake States Region. Mixed employment is normal and appropriate in a region characterized by multiple resources. It is not "bad." It can be expected to become even more characteristic as a result of increased emphasis on multiple use.

TRAINING FOR WORK IN RECREATION ENTERPRISES

Outdoor recreation seems to hold the largest potential for resource uses that would create immediate additional employment. Training and retraining for work directly in recreation enterprises or associated services can help many additional people find profitable occupations. It also can help people provide BETTER service.

County RAD Committees and Technical Assistance Panels, cooperating with county ARA Committees and Development Corporations, could coordinate the training, financial, and other assistance programs for the most beneficial results.

The opportunities for additional training in outdoor recreation are presented in terms of labor, management, and relations with the public. In each of these categories, the need is for more effective work and a more favorable impression on the public.

All three States in the Northern Great Lakes Region have programs of extension education in outdoor recreation. These are a good foundation for exploiting the opportunities through a greatly expanded program. More trained personnel, more funds, and more intensive coverage are needed in each State.

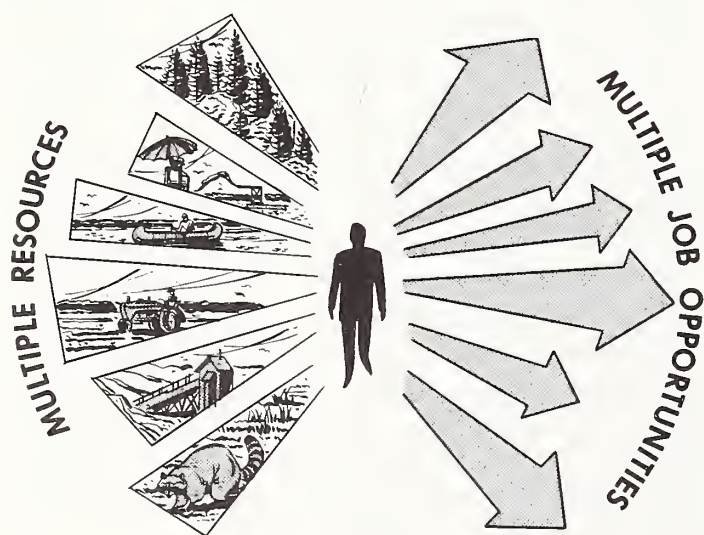
Both new and experienced employees can benefit from special training and demonstra-

tions covering various aspects of their work. Cooks often can use information on cookery, use of new equipment, and regulations for health and sanitation. Waitresses could benefit from training in efficient ways of carrying and handling heavy trays, personal grooming, health requirements, and etiquette on the job. Boatmen, lifeguards, horse wranglers, and other specialists could benefit from training and retraining in their jobs. As each of these people applies better attitudes and methods to his work it helps improve the quality of the recreation service provided and reduces costs.

An employment and job counseling service adapted to the psychological needs of youths and inexperienced workers would be particularly beneficial. One well-designed and executed program for training outdoor guides that came to the attention of the Task Force failed to fulfill its objective because counseling assistance in getting jobs was not given. Most of the trainees did not know how, or were too shy to approach prospective employers. Both the training and the needed specialized services were lost to the recreation industry because the keystone of the arch was omitted from the planned program.

Operators of recreation enterprises, whether owners or managers, also need training and various kinds of assistance related to their work if they are to provide optimum recreation services. They could benefit from special training in business management, bookkeeping, personnel supervision, law, and other phases of management. Of particular benefit would be guidance in advertising to attract customers, and in public relations methods to make satisfied customers of them when they leave.

Vocational training in arts and crafts would be especially useful and appropriate, particularly if this were related to the tourist and recreation trade. A market exists for a wide variety of personalized and specialized services using indigenous products or used in activities for which the visits are made. Among these crafts or skills may be listed taxidermy, gunsmithing, fly-tying, artwork, handicrafts, stonecutting and polishing, processing of fruits and berries, and fabrication of small wood products.



Goods produced in excess of what can be sold through local trade channels often might be suitable for promotion in other markets. Additional employment could be created in providing this marketing function.

Everyone in a community who meets the traveling public shares responsibility for public relations--they represent the kind of local "image" projected to visitors. A stranger's first impressions often are formed from the service and hospitality he receives at the gas station where he asks directions while his tank is being filled, at the drive-in where the family stops for refreshments, or from the policeman on the corner.

Community-wide emphasis on better public relations frequently is needed. RAD committees, technical action panels, and individual members could encourage organizations promoting business enterprise to sponsor extension-type programs designed specifically for personnel who cater directly to the region's visitors.

Additional employment opportunities could be provided in concentrated recreation localities at visitor centers emphasizing public relations, educational benefits, and "attractions." Some of these would justify chamber of commerce and industry financing; others might best be supported by public funds.

Civic greeters and information aides are needed in many sections where they are lacking. Knowledgeable elder citizens are frequently available on at least a part-time basis to talk about the history, sights, points of interest, and other features of the area. College students, retirees, and others could present movies, slide talks, and lectures about wildlife, fishing, canoeing, lifesaving, or a host of other subjects of interest to the visitors. They could conduct nature hikes and interpret various management and conservation programs of the public agencies.

Some communities have effective historical museums manned by people familiar with local lore. A few give demonstrations of how certain tools were once used, how certain jobs were done, and how the early settlers lived.

Conducted tours through local industrial plants and other points of interest could provide small amounts of employment--but lots of recreation.

Groups might stage festivals, folk dances, summer theater, and similar entertainment that would keep visitors pleasantly occupied during part of their stay.

TRAINING UNDER PUBLIC WORKS PROGRAMS

The growing need for facilities and services on lands used for outdoor recreation provides a fine opportunity to combine education, employment, and public resource development into one productive program.

Work Camps for Young Men

Work camps for adult young men could produce immediate benefits and build significant benefits for the future. These camps would be particularly well adapted to the needs of the Northern Great Lakes Region where public lands suitable for publicly supported improvements predominate.

The work camps would be supported by public appropriations and usually operated on State and Federal lands. Their purpose would be to provide education, training, useful employment, and healthful surroundings for young men, reduce delinquency of youths, and also to develop, maintain, and protect public resources.

These camps could be administered as continuing or seasonal operations. They might be somewhat like the Civilian Conservation Corps of 1935-42. Different camps are suggested for different purposes. In one situation a permanent camp would be operated in a forest to provide employment, training, and better physical fitness for unemployed youth. Workdays might be divided into periods of physical labor in forest improvements and periods of training for other occupations after the young men leave the camps. Nominal wages would be paid. Organized recreation activities would aim at physical fitness.

An alternative to the "relief of unemployment" aspects of this program would be presented in

other camps where young men could enroll for training and outdoor experience. These probably would operate during summer vacations and concentrate the training on subjects complementary to the courses of study followed in senior high school and college. Financing for these camps could be less purely public than in the work camps focused on employment and training of unemployed youth. The young men's families might be asked to pay tuition or fees to partially offset camp expenses and instructor training costs. Summer school, summer camp, and physical fitness programs would be combined with productive labor for the public welfare. These boys also would receive small wages for productive work; to some extent public payment for excess value received in work accomplished might stand in lieu of tuition charges.

A modification of this idea has been applied for several years in a nearby region. The work is conducted primarily on public forests, although nearby public parklands and other public facilities are included in the service if their needs can be fitted into the work schedule. Boys apply for acceptance in the summer work program. Some consideration is given to financial need, but social, physical, and other factors such as occupational aspirations are weighed in the final choices. Boys living in all circumstances are selected--from college students to boys on the street corners.

The main objectives are first, to provide a healthful atmosphere and some knowledge of the outdoors to young men; and definitely second, to have a modicum of work done on public lands and facilities. Wages are paid, although many applicants would work just for the experience. The morale factor involved is the truism that "every man should be worthy of his hire." Public funds are appropriated specifically for this program, which apparently has widespread popular support.

Wisconsin had 400 boys in camps of this kind for 6 weeks during the summer of 1962. Costs were about \$9 per day for each boy, and a large share of this was regained through the conservation work accomplished on State property for



public benefit. The boys were paid \$18 a week.

Work Camps for Young Women

While far fewer young women are listed on the unemployment rolls, unemployment and underemployment plague them as well as young men. The heavy physical labor nearly always included in work programs for young men is physically impractical and socially unacceptable for most young women. However, summer camps would be particularly beneficial for girls planning to teach science and physical education, supervise playgrounds, or administer social welfare programs.

The program could include subjects related to botany and wildlife identification, conservation and management of resources, public area administration, techniques of camping, physical fitness, survival methods, and many others that these girls could use as future teachers, camp counselors, leaders, supervisors, and mothers responsible for shaping the attitudes of future generations.

Employment counseling might be included as a feature of this training program to help girls find immediate employment or to help



shape their future training. The public should support this type of camp equally with those for young men.

PUBLIC WORKS PROGRAMS

There are opportunities on State and Federal forests and parks for a continuing program of seasonal public works maintained at levels appropriate to the needs from year to year. Such a program would provide badly needed income to people otherwise unemployed, help to bridge annual seasonal gaps in employment, help bridge periods of unemployment occasioned by changes in occupations, help bridge the period between loss of job opportunities and eligibility for retirement benefits, and produce goods and services needed by the local economy. The program could be concentrated during seasons of high unemployment. The Accelerated Public Works Program activated in November 1962 proved that residents welcome such work opportunities. All agencies of government, including villages, could participate. State and Federal funds would be needed to finance construction and repair of facilities used for public benefit. These could include construction of sidewalks or

public facilities, repair and storage of equipment used seasonally, construction of new equipment, erection and maintenance of signs for self-guided tours, and similar activities.

This program, and those outlined in the preceding pages, also could be means of implementing the public investment needed to provide the intangible values desired by recreation visitors, and for which they are willing to pay through their taxes.

SUPPORT OF RECREATION EMPLOYMENT

Jobs can be created and economic activity generated by investments in physical facilities to create business. A large proportion of the resorts, for example, in the Northern Great Lakes Region are reported to be small, poorly planned, underfinanced, and unprofitable enterprises. Owners of these properties could benefit from assistance by extension specialists or commercial consultants who would help them plan remodeling and reorganization of present facilities or replacement with well-designed, properly equipped, and well-located structures.

A need often expressed is for the services of people trained in recreational development. Prospective operators need help in locating proper sites for proposed undertakings. They also want advice and technical assistance in



plan development, including layout, engineering and design, site location and landscaping, sanitation, safety features, and State laws and regulations concerning their operations.

Funds for initial investment, refinancing, and operating expenses frequently are needed for new enterprises and for revitalizing or expanding established ones. Local banks often are unable to finance the short-term operating funds needed, nor can they invest heavily in long-term improvement loans. Needed are additional grants and loans from public sources for remodeling and new development of various kinds of outdoor recreation facilities.

RAD committees and technical action panels, together with other groups encouraging development, can help to promote recreational developments by emphasis on overcoming the impediments.

EMPLOYMENT OPPORTUNITIES IN AGRICULTURE

Farming will continue as a basic occupation in many sections of this region. Although the number of farms may decline, the farm operators and their families can earn larger farm incomes as a result of programs designed to help them adjust their operations to changing economic situations. Closer communication and a spirit of rapport often are needed to obtain the attendance of farm families at meetings and their participation in discussions.

Public programs of educational, management, and financial assistance more nearly adapted to the situation are needed throughout the region. A hard look at the economic opportunities possible through different mixtures of the factors of production is needed. Some farmers need additional education and management assistance to enable them to manage their farms more intensively. Others, in different circumstances, might be better advised to develop enterprises that would use land and other resources extensively. Still others might be best advised to acquire skills in another kind of work and leave farming.

Large-scale commercial dairy farms, extensive operations based on beef cow-calf production, and smaller businesses operated in conjunction with various kinds of off-farm work all have a place in this region. All require different skills, different orientation, and different levels of educational assistance.

To maintain agriculture in some areas where farmers currently are hard-pressed economically and where few young people enter farming, RAD and other agencies might consider a coordinated program similar to the Young Farmer Program recently started on a trial basis in seven pilot areas of Minnesota. Each pilot area includes the school district or the trading area of a community. A committee of local leaders guides the program. Committee membership usually includes a banker, a local businessman, and two or three prominent farmers plus the high school vocational agriculture instructor and the county agricultural agent. Its purpose is to locate farms suitable for continued agriculture, to select young men who have potential for development as successful farm operators, and, through financial assistance and additional on-the-job training as needed, to help the selected young men get started on their own farms. They may either buy or rent the farms located by the committee. The program is designed generally, however, for ultimate ownership.

This cooperative program promises to be effective in helping energetic young farmers and their families into profitable farm businesses. It will strengthen the local business structure. Similar programs are possible in forestry, recreation, and allied enterprises adapted to local situations.

FORESTRY AND RELATED OCCUPATIONS

Training could be provided by foresters or experienced personnel to help woods workers maintain and use equipment for top efficiency. Other training could emphasize felling and bolt or log cutting techniques for maximum product utilization and market value. Still others could emphasize piling, hauling, and handling techniques. Assistance in establishing cooperative marketing of forest products would help local

people in many communities capture a larger share of the potential product values through adoption of standards and grades, pooled marketing, use of assembly yards, and ability to use equipment and specialized personnel more effectively. Improved management in the woods and in the marketing process frequently would create opportunities for effective use of additional specialized equipment. Local financing is more apt to be available for operators who have taken advantage of training opportunities for more effective management. Public lending agencies could supplement and often insure the local funds with additional capital as might be required.

One county provides an example of public-private cooperation that created multiple benefits. The officer in charge of county lands, the local welfare officer, and a local timber buyer developed a program whereby unemployed men from the relief rolls could cut timber on county land and sell it to the timber buyer. The welfare burden of the county caused by unemployment was reduced substantially, ripe timber on county lands was harvested, the industry acquired raw materials for its mills, and the cash income received from the work flowed throughout the community. Its effects were twofold: public expenses in relief payments were reduced during this period, and new business was created by the work done. A third benefit, often inadequately recognized, was the improved morale created by productive employment among the willing wage earners and their families.

In a similar vein, public agencies could create new and additional work opportunities through projects of cutting, storing, and selling fuelwood for use in public campgrounds and picnic areas.

LOCAL LAND AND PEOPLE CONFERENCES

The four land and people conferences held during 1962 by the U.S. Department of Agriculture demonstrated widespread citizen interest in national policies and programs. This vehicle could be adapted and used advantageously in the States, areas, and communities of

the Northern Great Lakes Region. Forums of this nature held in key communities and locations throughout the region might lead to a more unified understanding of potential opportunities for economic growth and a more coordinated assault on those elements in the economy that retard progress toward their realization.

The RAD organization might use land and people conferences as a vehicle to develop more widespread understanding of its purposes. It also might benefit from discussions of ways its programs could be expedited through adjustments, modifications, and expansions to fit local needs.

EMPHASIS AND ACTION NEEDED

The "Land and People Conference" concept carried out at area and community levels in the region would stimulate local action.

Training and retraining programs with emphasis on counseling and employment services would help young and inexperienced persons locate work and adjust to shifts in employment opportunities.

More professional recreation consultants are needed to assist individuals, organizations, and groups interested in developing new recreation enterprises.

Owners and managers of small businesses in the region, especially in the fields of recreation, and to some extent in farming, forestry, commerce and trade, need expanded training and technical assistance services.

Community-wide programs for improved public relations with visitors would be helpful in many areas. Local civic groups and private business firms have an opportunity to take the lead. Public agencies can help in many ways.

Grants, loans, and insurance on loans made by local financing agencies are needed to help expand existing enterprises and establish new firms as a basis for additional employment.

Public works programs on a continued and expanded basis would be helpful in speeding

resource development and in improving those features of the recreation and tourist economy traditionally not the responsibility of private business.

An aggressive program to employ and train young men and women is a region-wide need.

Landownership

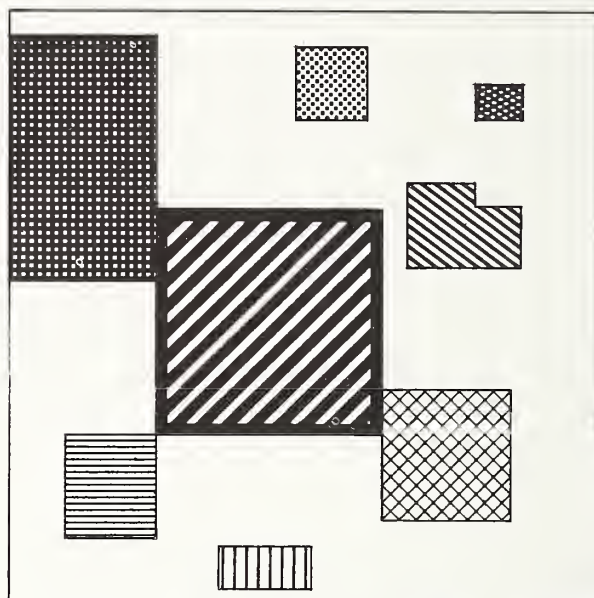
GROUP MANAGEMENT FOR SMALL PRIVATE OWNERSHIPS

Fragmented ownership in the Northern Great Lakes Region reflects, to some extent, the lack of specific objective in ownership. The situation may stem from the low value of the land (investments purely speculative in nature) and lack of understanding of resource potentials and values. At the same time, splitting and re-splitting of land areas into numerous pieces of property, without development or improvement, lessens the possibility of good returns from resources of the land.

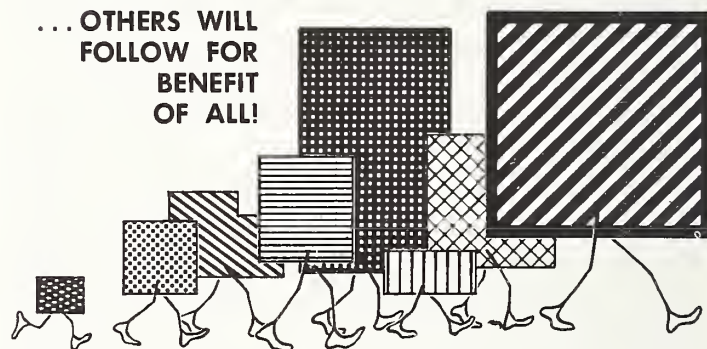
Eighty percent of the private landownership consists of small parcels, predominantly held by absentee owners. The land in these holdings is generally unsuited to agricultural or other intensive types of use. Further, a very high proportion is not of high quality for recreation and has no valuable frontage on lakes or streams. Relatively few of the parcels are easily accessible by good roads. Individually the tracts cannot produce marketable quantities of timber or of wildlife for hunting on a charge basis. Yet activities on one parcel frequently have a strong influence on the relative production of resources on adjacent parcels. Such lands are not yielding their full resource values for the benefit of either the area's economy or the individual owner.

A forester in one of the region's States has taken advantage of the opportunity presented here. Over the last few years he has bought approximately 40 parcels of land totaling 2,000 acres. This land is scattered widely over several hundred square miles. As a commercial enterprise, he manages the land for timber products, Christmas trees, hunting rights, and summer camping by families and

PRINCIPAL LAND OWNERSHIPS SHOULD ASSUME GREATER LEADERSHIP...



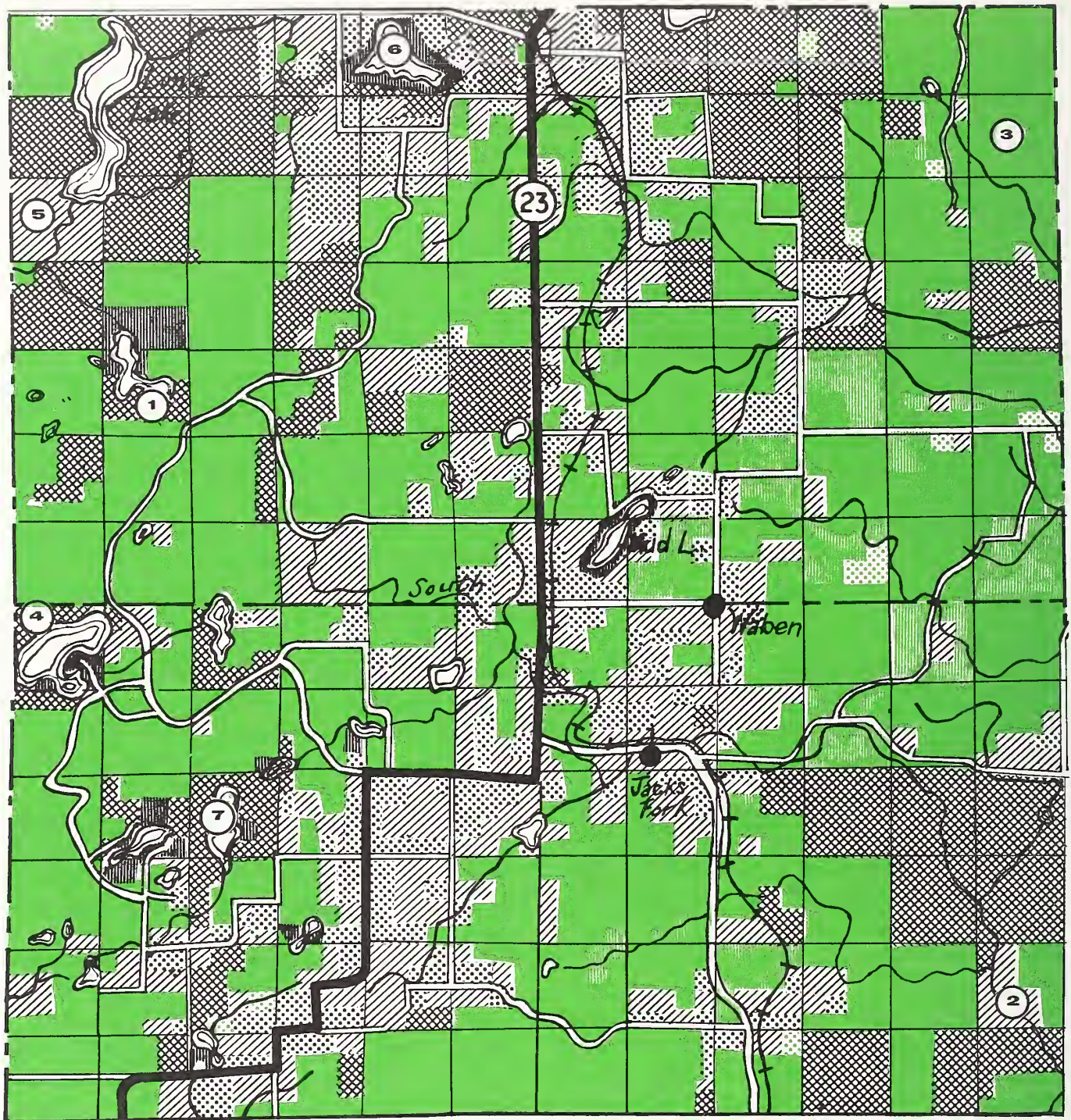
... OTHERS WILL FOLLOW FOR BENEFIT OF ALL!



group organizations. His management objectives are sustained yield of all renewable resources, and maximum dollar yield during his lifetime. This example suggests the opportunities available for private professional land managers. They could establish enterprises to manage groups of separate private properties on a fee basis. Undoubtedly, such a manager would need assistance during the period of establishing the group management enterprise.

Financial assistance to the management enterprise could be made a part of an Area Re-development Administration program on the basis of RAD Committee recommendations in each area of need. The lands managed as a group need not be contiguous, but the best results could be expected if they were so located that the manager was not using much time in travel between properties.




Absentee ownership involves the usual unsupervised property worries, such as vandalism,



SCALE 0 1 2 MILES

LEGEND

Public Ownership

-  } Federal
-  } Federal
-  State and County

Private Ownership





-  Large industrial
-  Recreational
-  Farm
-  Other

Figure 16

theft, and damaging trespass. Protection of property from these dangers could be the foundation stone of service to owners and a strong talking point in the proposal. Not only protection would be offered, but coordinated resource management. This would include: Reforestation for timber production, wildlife purposes, and esthetic values; leasing of hunting rights (where legal); proper management of timber crops to meet ownership objectives for individual parcels; harvest of timber crops to insure maximum return to owners; and development of commercial facilities for recreation such as picnicking, camping, and overnight hiking or horseback riding. The manager could also serve as the owner's representative in efforts to coordinate management of resources on landholdings of all types.

Many areas of the region are only sketchily served by the "farm" or "service" forester system operating under the State Forester's direction. Expansion of the system to reach a greater number of landowners will result in improved management of forest lands and increased income. The advisory and training assistance provided must necessarily concentrate on resident landowners. It will supplement the private land management enterprise outlined above, but will not compete with it.

Support for the intensification of the service forester program can be based on area analyses of the need by RAD technical action panels and action by county RAD Committees.

OVERCOMING MANAGEMENT OBSTACLES DUE TO INTERMINGLED AND FRAGMENTED OWNERSHIP

Intermingled and fragmented ownership makes it difficult to define attainable management objectives for individual small parcels of private land. In this situation the owners also find it difficult to manage the land effectively and efficiently.

The example given in figure 16 shows existing landownership in a particular location of the Northern Great Lakes Region. Place names have been changed, but the example is typical. In some areas industrial forest land is inter-

mingled with small private and public holdings. Elsewhere, there are large areas of a single public ownership with interspersed acreages of various smaller public and private holdings.

The opportunities for creating efficient and manageable blocks of property are numerous in this example. If the goals of industrial forest ownership in this area are known and are compared with those of scattered small private holdings, an exchange of properties between the two classes of holdings could bring improved operating efficiency for both. An instance is the exchange of the industrial forest parcel shown as (1) for the parcel shown as (2). Properties with similar management objectives would then be grouped in contiguous units.

Management handicaps due to fragmented holdings range through all possible types of interference with specific ownership plans. The Federal forest block shown as (3) might be operated much more efficiently if the acreage were consolidated and extended both south and west to the road.

Similarly, consolidation of private recreational land around the lake might be effected by eliminating industrial forest properties shown as (4) through exchange of parcels shown as (5). It would also provide mutual protection from vandalism and damaging trespass, and reduce costs of maintaining common property lines.

Examination of the ownership pattern will reveal numerous similar opportunities to adjust acreages between ownerships of all classes. For instance, quite possibly there should be public landownership on Silver Lake. Perhaps it should also be increased on Toe Lake. This would make public use areas available for the private recreational ownerships in the background of the lake border and scattered throughout the locality.

In most areas, long-range land adjustment plans of major owners (public and private) are keyed, not to exchanges, but to land purchase and sale opportunities. Plans are thus influenced by fluctuations in the local land market. Many small private landowners must patiently await

a change in ownership of adjacent property before it can be acquired and used.

The opportunity to serve all ownerships and thus accelerate the development of resources in a locality is quite evident. Encouragement of land adjustments may not be considered a proper function of local government. However, various groups of people in local government can stimulate desirable action. Thus, a committee of a county board of supervisors could serve as the catalyst in land adjustment efforts. It could resolve differences in aims in accordance with county zoning ordinances and economic development plans.

The Rural Area Development organization has an opportunity to promote needed land adjustments, either independently or in conjunction with local government. Its activities could include study, analysis, and recommendations for action. The exchange and sale of land from one ownership to another will need RAD Committee encouragement and promotion. RAD activities could further progress in exchanges even in those areas where local government assistance is not available.

As suggested elsewhere in this report, a key factor in the success of such efforts will be representation of important types of land-ownerships on both the technical panels and the County RAD Committees.

EMPHASIS AND ACTION NEEDED

Adjustments in landownership are needed to facilitate optimum resource management and utilization and to simplify coordination. Leadership and emphasis can be provided by RAD Committees and other groups. Establishment of private forest land and property management firms would be helpful.

There are opportunities to establish and improve multiple use forest management by intensifying and expanding farm (service) forester management assistance to private forest land-owners.

Institutional Features

There is a challenging opportunity, need, and responsibility for development of plans for

land and water resource use in the Northern Great Lakes Region. This fact is not newly recognized. It has suffused all major studies of this region for the last 30 years. New, however, are the present opportunities for orderly development of resources through governmental mediums of recent origin, together with some older ones. These governmental structures are tools to be used by people to effect their desires and plans--they are not ends in themselves. In an earlier section some of the more important mechanisms were briefly described--units of local government, laws and regulations, special purpose districts, rural zoning, and a regional planning commission. In this report reference has been made repeatedly to Rural Areas Development Committees. The newest authority which broadens their responsibilities is the Food and Agriculture Act of 1962.

COUNTIES

The counties can sponsor planning for their areas. This is done most commonly through appropriation of special funds and a program carried out under leadership of a county officer. The officer in turn may solicit and receive assistance from local citizens and agencies, and from State and Federal agencies. One noteworthy study of this nature in Wisconsin, titled "Blueprint for Growth," represents the combined judgment of nearly 250 people--highly specialized experts, technicians, thoughtful community leaders, and plain everyday citizens.



Counties can work together on regional planning. How they may legally do this is covered by State statutes. In Wisconsin, for example, under section 66.30 of the statutes, counties or other local units of government may contract with one another in the furtherance of any activity authorized by law. This would include regional planning. Such a joint endeavor, however, needs approval of any sizeable project from the State Public Service Commission. Further, under section 66.945 of the statutes, counties may cooperate through a regional planning commission to make studies and prepare master plans for their combined areas; this commission has a directorate including a representative from each county board.

Counties can more intensively study their road systems. They have worked for many years with their State Highway Departments, even contracting for building and maintenance of certain types of roads. As the counties move more into overall resource developments, they have greater opportunity to justify new road projects under the criteria and formula for financial aid from outside the county.

At the same time, however, the county has a grave responsibility to further progress, not impede it. As one example in the region, a county refused to build a public access road to a lake. The State Highway Department policy is to contract with the county for this type of road. A few property owners with commercial enterprises well beyond the proposed public beach were apprehensive that concessions might be permitted at the beach and take away their business. The county yielded to their opposition. Impartial evaluations indicated general benefit to the community from public access to the lake, but the road has not been built.

SOIL AND WATER CONSERVATION DISTRICTS

Soil and water conservation districts, which are units of local government, have the opportunity to evaluate and to facilitate land and water use. The districts have begun a conservation needs inventory, both for individual land use on farms and for small watersheds. These needs are not static; they change as the

community of interest and plans for regional redevelopment move forward.

Three prominent types of opportunities can serve as examples:

1. Increasing use of open grazing lands by beef cattle in a range management system of farming will require reconsideration of grassland conservation inventories and management practices.
2. Under the Food and Agriculture Act of 1962, districts can sponsor conservation and development projects. Such projects are designed to carry out a program of land conservation and land utilization in areas where accelerated current conservation activities plus the use of the new authorities will provide additional economic opportunities. These projects will be locally initiated and sponsored. The plans for such projects are to be made consistent with an approved overall economic development plan encompassing the project area, if one has been made.
3. Soil and water conservation districts have an opportunity to sponsor watershed projects including recreational facilities. For public recreational developments they may receive Federal cost-sharing assistance. The districts can also assist rural people to establish income-producing recreation enterprises on farmland under the Food and Agriculture Act of 1962.

As a general, overall opportunity, soil and water conservation district governing body members, as recognized rural leaders, can assist materially in shaping progressive redevelopment plans for their district, county, and regional areas. These leaders are accustomed to working with similar boards from adjoining districts, and considering land and water use effects on a scale larger than for a single county. Furthermore, districts are authorized to enter into planning and action programs for larger areas including their district which need regional improvements.

RURAL RENEWAL

Under the Food and Agriculture Act of 1962, rural renewal projects can be started by local people with assistance by local and State Rural Areas Development (RAD) committees and State and Federal agencies. These projects must aim to aid the elimination of chronic rural under-employment, foster sound rural economy, strengthen farm family incomes, and conserve and develop natural resources of the project area. Pilot projects should be established in the region where the need for renewal is greatest and where good demonstration opportunities are found.

LAWS AND REGULATIONS

The agencies who enact, interpret, and administer laws have an opportunity to bring about improvements that will hasten progressive growth in the region. For example, rapid development of major expressway roads brings new large highway interchanges. Haphazard development of roadside slums at such locations is inevitable unless positive action is taken to prevent it. Planning organizations should recognize the need for zoning highway interchanges and recommend action accordingly. State legislatures can act before these detrimental situations arise. Similarly, legislative bodies have an opportunity to enact statutes to improve regulations relative to surface water uses, drainage and pollution, protection of shore cover and scenery, and location of structures near public waters, to cite only a few examples. Local zoning can help on a number of such matters within counties, and many counties accept this responsibility. Criteria for uniform regulations, statewide or in a large group of counties, may be advisable to prevent confusing variations between one locality or county and another.

In regulation of fishing and hunting, for example, the biggest opportunity to aid regional economic growth lies in the equitable administration of the laws. The mother and her son fishing from their boat within sight of their resort cottage who were fined \$15 because they forgot life jackets may not return to the region next year. The lost deer hunter who

after dark finally found a byroad 8 miles from his camp, then was accused of nighttime deer hunting and forfeited his gun and \$40, may decide another region is a fairer place to hunt.

Regulations are essential. Maintaining and increasing recreation pleasure while enforcing the regulations demands the services of trained agents. The administrative agencies have an opportunity to aid this cause by increasing the scope and intensity of training for their employees. The usual explanation is that funds are inadequate to employ and train high-quality personnel. Businessmen, sportsmen's clubs, and others in the region who are often prone to deride the regulations, might better use their influence to support appropriations permitting satisfactory administration.

ZONING

The counties in the region can establish comprehensive zoning regulations. Although good zoning ordinances exist in several counties, some are largely ineffective because of lack of approval by town boards, lack of appropriations, or a sheer lack of interest. Many ordinances are out of date, providing only zoning for three or four land uses and lacking intra-use provisions. For example, zoning an area as a recreational district without prescribing and defining what constitutes recreation uses (hotels, resorts, camps, boat storage, boat liveries, sale of bait, family residences, etc.) can only lead to ineffective administration of the ordinance.

Most counties could establish the six to ten classes of use districts found to be most helpful by counties with more experience in zoning. Appropriate use districts may be: Forestry, single family residential, multiple family residential, farming and residential, recreational, marina, business, manufacturing and industrial, and all-purpose. Provisions of such an ordinance should be limited to the minimum requirements needed to encourage the use of lands and natural resources in accordance with their character and adaptability; to promote orderly development; to secure safety to life and property; to protect highways from economic suffocation by encroaching use; to

preserve land values; and to encourage and promote public health, morals, safety, and general welfare.

Zoning ordinances can prevent a type of realty speculation too frequently detrimental to the region. Tracts of land purchased some years ago at very low prices, often in isolated localities, are now being subdivided into 1-acre to 10-acre plots and sold to unsuspecting city people for \$15 to \$50 per acre. Most of these plots lack access to usable roads, telephone and electrical services, police and fire protection, and schools. They are called subdivisions, which legally is not misrepresentation though it bears a false connotation to the city person.

COORDINATION OF LOCAL PLANNING

The opportunity for implementation of regional planning should be fully explored to the Northern Great Lakes Region. Local units of government have powers to cooperate in planning for larger areas than their own boundaries embrace. The three States have already shown that they can cooperatively study interstate developments of mutual interest. Multi-county committees, sponsored by either the local, State, or Federal government, can develop voluntary cooperative working relations to plan for developments that if undertaken by single units might not result

in the fullest use of resources in any one county. Wisconsin has provided that counties may establish regional planning commissions to make studies and prepare master plans for regions within the State; one such commission is being activated in the Northern Great Lakes Region.

If a local comprehensive resource-use planning board is to be most productive, it must look beyond the county to the future potentials of the broader area in which it resides. A county RAD committee, for example, should seize all opportunities to learn what regional economic conditions its Overall Economic Development Plan can capitalize upon. This is true for all of the major fields of resource development--forestry, agriculture, recreation, and industry. Knowledge of regional conditions is particularly important for outdoor recreational developments, since those in one segment of the region can supplement and complement others. Recreation development opportunities are not equally distributed throughout the Northern Great Lakes Region, but the entire environment for outdoor recreation can be enhanced to the mutual benefit of each part. Opportunities and needs exist for broad advisory planning by and for local planning groups or units of government; it remains for them to take advantage of such opportunities.

A LOOK AHEAD

The Nation is taking a new look at Rural America. The Northern Great Lakes Region is again coming into focus as a storehouse of natural resources essential to our way of life.

Thirty years ago thousands of unemployed families from depression-stricken cities turned to farms and rural areas for sustenance. Today, millions of pleasure-seeking urban families turn to rural areas for outdoor recreation. Rural America can also meet this challenge. The Northern Great Lakes Region is a frontier for recreation. It has resources almost without limit available for both sustenance and recreation.

A bright new era can be dawning for the Northern Great Lakes Region. But the dawning will occur only through the aspirations of the local people supported by appropriate national efforts. Success will require perseverance, imagination, hard work, a little risk, and strong convictions.

The Department of Agriculture can do much to help through its own programs and through synthesizing and coordinating other related programs and efforts. Proven programs of long standing can be stepped up, and the new USDA tools established by recent legislation can be fitted directly to the needs of the region. But it is obvious that efficient use of resources will require skillful combination of efforts by all levels of government and by private interests. Just as the multiple uses of resources described in this report are necessary to achieve maximum benefits, so will the careful coordination of efforts result in maximum effectiveness of all programs. Here, too, the Department of Agriculture makes a useful contribution through Rural Areas Development committees which are able to blend effectively the available programs to meet the specific needs of local areas.

Several programs have been started to develop a coordinated system for improving the welfare of rural areas. USDA Technical Action Panels are set up at the request of local groups to assist in planning and executing rural development activities. Thus the first component of USDA assistance is intensified aid to local action groups in rural areas planning for well-considered development and use of resources. The Department helps in appraising resource development problems and potentials and in evaluating alternative measures for reaching desired objectives. USDA programs and activities for rural areas development include:

1. Land use adjustment. Farmers and other landowners can be assisted under this program to change cropping systems and land use and to develop soil, water, forest, wildlife, and recreational resources. Provision is made for technical and financial assistance to help establish and carry out long-range farm plans.
2. Rural renewal projects. Recent legislation authorizes the Department to start rural renewal projects in certain rural areas for the purpose of creating conditions that will stimulate development.
3. Resource conservation and development projects. Locally initiated and sponsored projects provide a framework for accelerated conservation, development, and use of land, water, and related resources. They create new economic opportunities for local people. Technical and financial assistance is provided to help landowners to adjust their land use patterns and to develop wildlife, outdoor recreation, and other uses of their properties.
4. Watershed protection and development. New recreational opportunities and new sources

of future water supplies for municipalities and industries can be provided by Small Watershed Projects. State game, fish, and park agencies are eligible as sponsoring public bodies along with counties, municipalities, and special purpose districts created under State legislation.

5. Loans for recreation, fish, and forestry enterprises. Credit and technical assistance may be extended to aid individual farmers and groups of rural residents to develop new sources of income including on-farm and community recreation projects, fish farming, farm forestry, and other activities that generate new uses of cropland.
6. Land and water conservation. The conservation of land and water resources is essential for rural areas development. Aid in matching land and water use with resource capabilities and in the application of conservation measures is especially important in such an area of limited agricultural potential as The Northern Great Lakes Region. Soil surveys, detailed farm plans, and cost-sharing in land and water conservation measures are examples of specific USDA assistance in this area.
7. Forest conservation and development. Rural areas development in this and other heavily forested regions largely depends on the proper utilization and management of forests and woodlands. Technical forestry assistance and cooperative fire and pest control programs meet a growing need for more intensive forest management, development, and protection. National Forests contribute to rural stability in many ways and provide a

demonstration of the multiple-use management of resources described in this report.

8. Other related programs and activities. Many other USDA and other Federal programs can make vital contributions in improving the well-being and opportunities of Rural America. These include, for example; Improved rural housing; strengthened rural industry; improved electrification and communication services; accelerated public works; manpower retraining; and better community schools, roads, and hospitals.

The foregoing outline of USDA assistance in rural areas indicates the scope and variety of the efforts that can be focused on specific rural areas. This report describes some of the resource potentials of the Northern Great Lakes Region and how those resources may be developed and used. A remaining need is to mesh these USDA activities effectually with all similar efforts in this broad but homogeneous region of obstacles and opportunities.

The Challenge

The amount and kind of economic growth in the Northern Great Lakes Region will be to a great extent the people's choice. They are the ones directly affected. They have the most at stake. They can use the tools available for planning and development; they can improvise, adapt, and innovate; and they can call for new tools or modification of the old if the present ones do not serve.

The future of the Northern Great Lakes Region, as in all Rural America, is bright and rests where it should, with the people who are most directly concerned.



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