

Chapter III

Plan Response to Management Problems



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Chapter III discusses how the Forest Plan addresses and responds to the management problems which are described in Chapter II and lists research, administrative study, and data and information needs.

More information is provided in the Appendix Volume, Appendices A and C.

Introduction

The management problem statements formed the basis for development of the Forest Plan.

Alternatives were developed to provide a variety of ways to address and/or resolve the management problems. A broad range of alternatives were developed to:

- Provide a range of responses to each management problem.
- Explore efficient Forest resource production possibilities.
- Facilitate analysis of tradeoffs.
- Evaluate present net value (PNV).
- Assess the benefits and costs of achieving various outputs that were not assigned monetary values but would be provided at specified levels.

How well each alternative resolves and/or addresses the management problems depends upon the benefits accruing to the various public interest groups from the alternative. Because of the interrelationships among Forest resources, a gain to one interest may be a loss to another. Therefore, tradeoffs among the various interests were considered in identifying the preferred Forest Plan alternative.

Summary
Preferred
Alternative
Response

The Forest Plan (alternative 7) provides a good match of land capability and management area prescription opportunities. Both short-term and long-term vegetation composition objectives are feasible and utilize opportunities for higher productivity, more cost-effective vegetative type conversions, and a more appropriate mix of road densities and standards throughout the Forest.

The Forest Plan addresses and/or resolves the management problems. However, because information is never complete and people's desires change, the Forest Plan may not resolve every issue to the same degree. The attainment of other resource management objectives and the maximizing of net public benefits from the Forest is sought in the context of this planning process. Additionally, the Forest Plan meets the legal requirements for planning as established by the National Forest Management Act of 1976.

The Forest Plan is considered a significant achievement because it provides for change in management direction to be more responsive to public issues, management concerns and resource opportunities (ICOs) and for economic efficiency by locating practices on better suited sites. It also ensures higher quality through the management standards, identifies where research is needed, and provides a base from which all future project environmental analyses can be tiered. In addition, the Forest Plan will remove uncertainty about future Forest Service intentions and better define the Forest's land management direction.

Finally, the Forest Plan provides a great deal of variety and long-term flexibility to minimize risk and uncertainty about the future while satisfying near-term objectives. The Forest conditions maintained over time will provide a diverse mix of timber products, habitats for wildlife species, and a variety of Recreation Opportunity Spectrum (ROS) settings.

Opportunities and Responses to Management Problems

Opportunities to Respond to the Transportation Problem The roads of the Ottawa National Forest serve a variety of needs. Some combination of existing and new roads along with road closures such as gating is needed to provide an appropriate mix of public benefits from the Forest.

The Forest Plan provides the opportunity to determine the road system that will best serve future needs. The selection of the amount of road needed and the standard of road that will make up that system was based on the ICOs, the need for a year-round supply of timber products, wildlife habitat needs, access for resource protection, and the need to provide a variety of recreation opportunities.

The density of roads and the mix of road standards that compose the transportation system on the Forest will vary from one management area to another. The Forest has the opportunity to manage some areas with reduced road densities and standards to provide for a semiprimitive motorized or nonmotorized Recreation Opportunity Spectrum (ROS) setting. Other areas could be managed with higher densities and standards of road to allow for more efficient transportation of timber products, while providing a roaded natural ROS setting.

Coordination of the long-range resource management needs through the Forest Plan will reduce the cost and amount of road construction and maintenance and increase the efficiency of the roads that are built.

The response of an alternative to the transportation management problem was measured in terms of how much new local road construction would be required, what mix of road standards was planned, and what long-term mix of ROS settings would be provided.

Response to Transportation Problem

Although the Forest Plan does not provide the least amount of local road construction compared to other alternatives, it does emphasize construction in areas of the Forest where road construction costs are lower. The planned road system emphasizes low standard roads and will utilize traffic management strategies to minimize operation and maintenance cost. New local road construction will be reduced from current levels. Use of existing roads will be preferred (is emphasized) over construction of new local roads.

Road construction, to the extent possible, will utilize existing road locations and abandoned railroad grades. An estimated 60 to 90 percent of the Forest's planned local roads will primarily be on these existing road locations.

Many existing roads and abandoned railroad grades can be made useable with little reconstruction or maintenance work.

Some old road locations will be needed to provide access into some areas. Others will not be needed due to improved transportation system planning processes and other resource management objectives such as providing nonmotorized recreation opportunities in other areas. Some old roads that are not needed will be allowed to return to a natural vegetated condition and no longer will be used as roads. Others will be used for hiking and fisherman and hunter access. Still others will be managed for wildlife openings, planted, and put to other uses.

Due to these factors, the Forestwide long-term road density will be significantly less than the current density.

Higher standard local roads are emphasized in areas of the Forest where season of woods operations is longer and road costs are lower. Some of these areas provide nearly year-round woods operations and access. Frequently these areas also emphasize higher densities of road.

Lower standard local roads are emphasized in areas of the Forest where the season of woods operation is shorter and the cost of road construction is higher. Lower standard roads along with lower road densities are also emphasized where opportunities exist for semiprimitive recreation, and where opportunities exist to provide habitat for wildlife species, such as gray wolf and black bear.

Overall, the amount and mix of road densities and standards allow for a more economically efficient transportation system.

The standards and guidelines for Forest transportation system changes, updated road design standards, and required integration of transportation system planning with other resources, are listed in Chapter IV of this document under Forestwide and specific management area standards and guidelines.

Opportunities to Respond to the Wildlife Problem

The Ottawa National Forest has and will continue to have the capability to support a wide array of wildlife populations. The wildlife species present will depend on the type of forest existent and created by vegetative management practices carried out on-the-ground or the lack of such practices. The mix of vegetation conditions provided will influence the type and number of wildlife species and, in turn, the capacity for wildlife-based recreation such as hunting and photography.

In the Forest Plan, the Ottawa National Forest has the opportunity to address the two major aspects of the wildlife management problem.

First, the question of deer and grouse population declines can be addressed through aspen and thermal cover management, creation of temporary forest openings, and the integration of timber and wildlife management practices. The location, timing, and design of vegetation management projects has a significant influence on wildlife populations and recreation opportunities associated with wildlife.

Second, the Forest Plan can deal with the issue of coordinating wildlife and fisheries management practices with the Michigan Department of Natural Resources, others, and the Forest Service.

A minimum level of vegetative diversity is essential to retain existing wildlife species. However, the opportunity exists to create a more diverse forest than currently exist by developing a mix of vegetative community types, including a range of age classes from young growth to older mature trees with permanent upland and temporary openings intermingled.

The response of an alternative to the wildlife management problem was measured in terms of the amount aspen managed, acreage of thermal cover, the mix of even-aged and uneven-aged hardwoods, the spatial distribution of aspen harvest, amount of conversion to pine, ROS settings mix, acreage of temporary openings, and Forest standards regarding coordination requirements.

Opportunities to
Respond to the
Vegetation
Management
Problem

The choices made in resolving the vegetation management problem will determine the type and availability of wood products, the vegetative diversity of the Forest, the wildlife species habitat, the road system needed, and the visual appearance of the Forest. Vegetation management is also a major cost of managing the Forest.

The Ottawa National Forest's capability to produce timber products exceeds total projected local demand for the next 50 years. However, the supplies of some specific types of timber products may not meet demand unless steps are taken now to manage certain tree species, and schedule timely harvest practices in various vegetative types.

In the Forest Plan, the Ottawa National Forest has the opportunity to address many of the vegetation-related issues by determining the desired vegetation composition and schedule of management practices by management area. These issues include wildlife habitat, clearcutting, red pine planting, chemical use, the mix of timber products available, the overall amount of timber available, and the economic efficiency of producing that timber.

The timber sale concerns regarding sale size, designs, and administrative procedures are not totally within the scope of the Forest Plan. However, parts of these concerns are addressed in the Forest Plan standards and guidelines.

The response of an alternative to the vegetation management problem was measured in terms of the amount of temporary openings, the amount and location of practices which utilize chemicals such as artificial reforestation and release, mix of timber products provided, and economic efficiency.

Response to
Wildlife and
Vegetation
Management
Problems

The Forest Plan responds to the wildlife and vegetative management problems in an integrated manner.

The relatively high amount of managed aspen acreage in the Forest Plan provides the habitat conditions necessary to maintain or increase deer and grouse populations and provide a moderate amount of aspen product.

A relatively high amount of conifer thermal cover in the proposed Forest Plan provides essential habitat for deer and other wildlife species.

The mixture of uneven-aged and even-aged management of northern hardwoods provides species, size, structure, and age classes that help produce a variety of wildlife habitats, ROS settings, and timber products. This mixture of uneven-aged and even-aged management provides a greater range of benefits than either system of management used exclusively. For example, this mix will emphasize uneven-aged management Forestwide with particular emphasis in areas of high visual resource sensitivity and in areas managed for semiprimitive recreation opportunities. Even-aged management will increase mid-tolerant northern hardwood species on suitable sites.

In summary, the Forest Plan responds to the wildlife/vegetation management problems by increasing the amount of wildlife habitat for deer and grouse in management areas with the highest potential and need, increasing the amount of temporary openings, maintaining and increasing permanent upland openings, creating a greater diversity of vegetation, providing a mix of timber products, reducing red pine plantings, reducing chemical use, increasing the variety of ROS settings, while meeting visual quality objectives, and coordination with other land managers and owners including the Michigan Department of Natural Resources.

The standards requiring the integrated management of wildlife and vegetation along with other resources are listed in Chapter IV of this document under Forestwide Vegetative Management and specific management area standards and guidelines.

Opportunities to Respond to the Landownership Problem

The Ottawa National Forest will continue to be a major land manager in the western Upper Peninsula of Michigan. The need to make landownership adjustments will continue.

Through the Forest Plan, policy will be established for landownership adjustment that will address private community development opportunities, resource management efficiency, and exchange and purchase opportunities.

Response to the Landownership Problem

The Forest Plan has established direction for landownership adjustment which includes consolidation of National Forest System lands. This will reduce the total miles of property boundary to be located and marked, will reduce the likelihood of trespass, and will benefit both the public and adjacent landowners. Situations where purchase of additional National Forest System lands is desired have been established along with direction to assist in the development of local communities.

This direction is listed in Chapter IV of this document under Forestwide Standards and Guidelines-5400 Landownership and also under specific management prescriptions 3.2, 5.1, 6.1, 7.1, 9.2, and 9.3.

Opportunities to Respond to the Wilderness Problem

Through the Forest Plan, the recommended management of existing roadless areas can be established. The 50,026 acres in question can either be released for nonwilderness uses, protected for further study or, in the case of Sturgeon Gorge, recommended for wilderness designation.

The response of the Forest Plan to the wilderness problem was measured in terms of the amount and location of areas recommended for nonwilderness, wilderness study, or wilderness designation.

Response to the Wilderness Problem

Four roadless areas were evaluated in response to the wilderness problem during the Forest planning process.

The Forest Plan recommends protection for wilderness study for the Sylvania and the Cyrus H. McCormick Experimental Forest roadless areas. Sturgeon Gorge is recommended for wilderness designation. The Norwich Plains roadless area is recommended for management as nonwilderness under management prescription 6.2.

Refer to the Appendix Volume, Appendix C - Roadless Area Evaluation for more information.

The direction for management of designated wilderness areas and study areas is listed in Chapter IV of this document under management prescription 9.1.

The standards for managing the Norwich Plains roadless area are listed in Chapter IV of this document under Forestwide and Vegetative Management standards and guidelines and management prescription 6.2.

Research Needs, Administrative Studies, and Data and Information Needs

Research Needs

Research needs for the Ottawa National Forest have been identified by the Forest Supervisor and focus on Forest conditions related to the issues, concerns, and opportunities. This research is in addition or supplemental to those needs identified by the Regional Forester in Chapter 5-Research, Regional Guide for the Eastern Region.

All research needs are subject to the approval by the Regional Forester and may be supplemented or modified by additional needs identified during Forest Plan monitoring and evaluation activities.

Research Need 1

Subject - Methods for valuing priced and nonpriced benefits for land management planning by the Forest.

Problem - There is a need for a method and the factors required for determining both priced and nonpriced benefits for Forest-level land and resource management planning.

Background - Forest Plan analysis used values based on the 1980 RPA assessment for most of the outputs evaluated. The question of how valid many of the priced values are relative to the local or regional economy is often raised. Many benefits were not priced primarily because there was no acceptable method available to determine the price of nonpriced benefits. Currently, nonpriced benefits are primarily evaluated subjectively.

Need/Urgency - The values assigned priced benefits and evaluated for nonpriced benefits play a critical role in the assignment of management area prescriptions and the level of management intensity on the Forest. It is important that these values are valid to specific Forest situations in subsequent economic analysis and future Forest planning. Emphasis should be placed on all resource areas except timber since historically this is the one resource area where a market value has been established.

Research Need 2

Subject - Determine kind and degree of impacts on forest soils and stand quality caused by heavy equipment harvesting northern hardwood stands on sites sensitive to compaction on the Ottawa National Forest. (Refer to Research Needs Request R-9-1000-1 dated 5/11/81 submitted by the Ottawa National Forest.)

Problem - Some land managers and operators feel operating periods in northern hardwoods are currently too restrictive.

Background - A major increase in northern hardwood harvesting activity will start in 1985 and continue to increase. Problem soils occupy about 75 percent of the Forest. Dominant soil conditions and where research is needed are known. Sites can be selected that will maximize research results for the western Upper Peninsula of Michigan and northern Wisconsin.

Need/Urgency - Without research, heavy equipment operations may continue to be severely restricted and/or cause undesirable soil-site impacts to stand quality. Alternatives to overcome these inherent limitations need to be developed. These alternatives could extend operating periods, improve sale administration, improve understanding by the public, and avoid negative resource impacts. The land manager and public (including timber harvest operators) need to know what impacts and the degree of impact, if any, occur to better plan and implement the forthcoming increased timber harvest activity in this area.

Research
Need 3

Subject - Determine the impact of whole tree harvesting on vegetation and site.

Problem - With the recent trend toward intensive and total tree harvesting, there is a concern that seedling establishment and site productivity may be adversely affected. The need is to determine the maximum level of biomass removal that a given site can sustain without decreasing long-term forest productivity. This is of particular importance in:

- Moderately productive hardwood ecosystems where nutrient consumption is not limited by water availability.
- Dry, coarse textured soil-sites where loss of organic matter is critical to moisture-holding capacity and additions of organic matter is part of the site management objective.
- Nutrient-poor sites.
- Aspen ecosystems where some research has indicated large quantities of nutrients are retained in aspen wood and bark.

Need/Urgency - Currently, whole-tree harvesting is occurring annually on the Forest. The trend appears to be that this method of harvesting will increase in the future. With this in mind, the following questions need to be answered, if possible.

- Does total-tree harvesting reduce chances for establishment of seedlings, site productivity, and total vegetation composition?
- What impact occurs?
- How quickly can forest sites naturally respond and return to their original productivity level?
- What modifications of whole-tree harvest methods can be done to reduce impacts on various sites?

Research
Need 4

Subject - Key habitat conditions that affect responses of wildlife indicator species.

Problem - What are the relationships between wildlife species and their habitat conditions that are sensitive to Forest resource management activities, especially endangered and threatened species?

Background - The Forest Plan identifies wildlife indicator species and establishes standards and guidelines for the management of their habitat. This is based on current state-of-the-art management. This direction is felt to be adequate in ensuring minimum viable populations of species indigenous to the Forest. For some species, particularly threatened and endangered species, this knowledge is quite subjective and focuses on ensuring protection as compared to effective management of populations.

Need/Urgency - A more thorough understanding of key habitat components and their sensitivity to management activities is essential. ECS information and its use in the management of associated resources may assist in this also.

By working with the Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service, existing habitat relationship models need to be adapted and additional models need to be developed for each management indicator species. The existing data base needs to be integrated with and, where necessary, expanded to these models.

Research
Need 5

Subject - Natural regeneration of northern hardwoods where heavy sod cover prevents regeneration.

Problem - On certain sites on the Forest, heavy sod cover is present, even under nearly full crown cover. The heavy sod cover commonly occurs on upland, south-facing sites with high moisture-holding capacity, temporary perched watertables, and an apparent stand history of fire and/or grazing. The sod is composed largely of two species of Festuca. Sugar maple and other northern hardwood seedling regeneration is notably absent. This condition occurs on Ecological Landtype Phase sites that would have uneven-aged management of northern hardwoods emphasized. Use of mechanical scarification will not only enhance sod establishment but could cause root damage.

Background - Over 50,000 acres have the site conditions described above and the potential for this problem within the Forest. The problem has been observed throughout northern Wisconsin on similar landform and soil conditions.

Need/Urgency - Regeneration methods need to be developed for stands having the heavy sod competition. Understanding of what creates this heavy sod condition is needed to be able to prevent sod establishment where it is undesirable and to establish sod where desired, such as enlarged log landings to be maintained for both wildlife and timber harvest.

Research
Need 6

Subject - Growth yield prediction for northern hardwoods.

Problem - Growth and yield of northern hardwood forest types for various products and under different conditions could be improved.

Background - Currently available techniques of growth and yield determination could be improved to increase the accuracy of predicting response of northern hardwood stands to important differences in the way they are managed and in site conditions and for responses over periods exceeding several decades. Improvements could also be made in yields by product quality or value classes.

There is a growing need for information on the growth and yield of managed immature stands of northern hardwoods. This information also needs to be coordinated with the Ecological Land Classification System. This type of information could be improved from what was available for the development of the existing growth and yield projections used in the Forest planning process.

Need/Urgency - The predominant forest condition of the Ottawa National Forest is immature stands of northern hardwoods. Opportunities for thinning these stands are growing as the need for hardwood pulp grows in the area. Implementing effective management of these stands requires a prediction tool that permits evaluation of the cost-effectiveness of various management practices and their integration with other resources.

Specific research themes under this topic are thinning studies for the various northern hardwood species, particularly sugar maple; studies of the ingrowth of saplings and poles and refinements of the predictive models; and measurement of existing growth and yield plots.

Research
Need 7

Subject - Determine effects of atmospheric deposition on terrestrial and aquatic ecosystems; develop feasible mitigating measures when and where warranted; and determine management methods for affected environments.

Problem - Lakes on the Forest have been and are being affected by acid deposition. Effects on vegetation and the soil resource are presently unknown.

Background - About 8 to 10 percent of the lakes on the Forest have been acidified beyond their buffering capacity. The effects of this impact on the fishery resource and other aquatic resources is not known; however, reduced diversity of fish species and reduced fish productivity are expected results. Increased acidity of forest soils can cause reduced soil fertility due to loss of essential soil nutrients and the increase of some mineral concentrations to levels toxic to plant growth. The capacity of the Forest's soil resource to buffer precipitation acidity is unknown. Impacts of acid deposition on

vegetation have been documented in Europe and the northeastern United States.

Need/Urgency - Research has shown that acid deposition is clearly affecting lake chemistry on the Ottawa National Forest. Very preliminary research has just begun on the effects on soil and vegetation resources. The Forest has soils and vegetation considered sensitive to acidification.

Administrative Studies

Administrative studies are limited to the extension of research study results and the application of existing knowledge for resolving local problems on National Forest System lands. Administrative studies are generally short-term (less than 5 years), but there are no specific prohibitions against longer studies.

Administrative studies are usually conducted by Forest personnel. However, some will be conducted with the help of cooperators. (Refer to Forest Service Manual (FSM) 1990.

The following needed administration studies are not listed in priority order.

- Develop methods to ensure natural regeneration of jack pine on Landtype Associations (LTA) 14 and 15.
- Develop methods for timber sale administrators to measure site-specific conditions that identify operating periods for timber sales on a day-to-day basis, particularly relating to the beginning and ending dates of operation annually and other times when soil moisture is excessive.
- Develop methods to ensure natural regeneration of paper birch, lowland conifers, mid-tolerant northern hardwoods (oak, ash, basswood, and yellow birch), hemlock, northern white cedar, oak, and others.
- Determine Ecological Landtype Phases on the Argonne and Dukes Experimental Forests so that research from these experimental forests can be more effectively applied to the Chequamegon, Nicolet, Hiawatha, and Ottawa National Forests.
- Through the use of several kinds and modification of harvesting equipment, determine which could extend the operating season for northern hardwoods.
- Determine whether a camper reservation system for the water access/hike-in campsites in the Sylvania Recreation Area is needed and would be beneficial to the public.
- Determine the potential Recreation Opportunity Spectrum (ROS) setting for Ecological Landtypes utilizing the Ottawa National Forest Ecological Classification System and ROS Users Guide.

- Interpret the Visual Management System variety class and visual absorption capability for Landtype Associations utilizing the Ottawa National Forest Ecological Classification System.
- Update the Visual Management System sensitivity levels for travel routes, use areas, and water bodies on the Forest.
- Determine which system of measuring recreation use at developed sites and dispersed areas, utilizing existing research, would be most efficient and reliable to implement on the Forest to develop a better understanding of the relationship between the demand for recreation activities and the demand for recreation settings (ROS).
- Determine the effectiveness, including costs, of using herbicides as compared with other methods of site preparation and release on a variety of sites common to the Forest.
- Cost studies of Forest practices to verify Forest-level management costs and variations in costs across the Forest.
- In cooperation with Michigan Department of Natural Resources, conduct studies to develop methods to include deer trail and deer pellet surveys, black bear population estimates and trends, ruffed grouse drumming census and flush counts, goshawk population determination by recorded calls and direct observation, and blackburnian warbler breeding bird census.
- Cooperate with other government and private organizations and seek matching funds to investigate productivity of the common loon and bald eagle with emphasis on prey base and bioconcentration of environmental toxicants.

Data and
Information
Needs

New and additional data and information are needed for implementing the Forest Plan and for updating or revising the Forest Plan in the future.

By identifying these needs now, a new or more systematic method can be developed to record the information in a way that it can be useful at all levels of Forest land and resource management planning.

Many of these information needs do not require collecting new kinds of information but refining the method of collection, the intensity of the data collected, the process of deciding where and where not to collect data, and the storage and dissemination methods that are efficient and useful.

The following are the Forest's data and information needs.

- Establish a better method for determining and tracking demand of timber products, recreational use, and other outputs through coordination with the state of Michigan, private industry, and other affected National Forests.

- Ecological Classification System capability information (descriptions, interpretations, maps) should be readily accessible at the District offices.
- Transportation inventory maps and information should include location and miles of existing roads by standards and potential road corridors by management areas.