

Land and Resource Management Plan
Ottawa National Forest
LAND AND RESOURCE MANAGEMENT PLAN AMENDMENT No. 2

August 3, 1992

Posting Notice Amendments to this Forest Plan are numbered consecutively. Check the last transmittal received for this Plan to see that the previous amendment was received and posted. After posting, retain this transmittal until the next amendment to this Plan is received. Place it at the front of the Plan.

<u>New Page Code</u>	<u>Replaces Old Page Code</u>	<u>NEW</u> (number of sheets)
p.'s IV-28-61	IV-28-61	34
p.'s IV-41.1-41.2	new page	2
p.'s IV 45 1-45.3	new page	3
p.'s IV 47.1	new page	1
p.'s IV-65	IV-65	
p.'s IV-65.1	new page	1
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p.'s IV-91.1	new page	1
p.'s IV-99	IV-99	
p.'s IV-99.1	new page	1
p.'s V-8		

Digest

The following page descriptions pertain to the sections of this amendment regarding standards and guidelines for gray wolf and monitoring requirements; Management Indicator Species habitat projections; and Endangered, Threatened and Special Concern (ET&SC) Plant standards and guidelines and list. Pages listed above that are not described below are routine administrative changes to the Forest Plan text covered in this amendment transmittal.

- p. IV-37-41 Page IV-37 through IV-41 were revised to include projected and current habitat acres for Management Indicator Species (MIS)
- p. IV-41-41.2 Page IV-41 through IV-41.2 were revised to provide additional detail on the monitoring practices in Remote Habitat areas for the gray wolf. These monitoring practices include utilizing the transportation information data base, field checking for road use by humans and the gray wolf, and random spot checking Townships for actual annual road density thresholds.
- p. IV-42-44 Page IV-42 through 44 continue the Endangered, Threatened, and Special Concern (ET&SC) animal species standards and guidelines.
- p. IV-45-45.1 Pages 45 through 45.1 specify actual monitoring strategies for ET&SC plants.
- p. IV-45 2-46 Pages IV-45.2 through 46 list ET&SC plants.
- p. V-8 Page V-8 provides monitoring requirements for remote habitat and gray wolf recovery

National
Scenic Trails

Manage the North Country National Scenic Trail.

Manage the North Country National Scenic Trail in accordance with the requirements and management policies found in the Comprehensive Plan for Management and Use dated September 1982, prepared by the National Park Service.

Manage under visual management system Sensitivity Level I

Except for administrative purposes, prohibit the use of motorized or wheeled vehicles and horses

Develop additional trailheads in locations where monitoring indicates a need to provide for access, public health, safety, and resource protection

National
Recreation
Trails

Manage the Gorge & Potawatomi, Mile Post Zero, and Agonikak (snowmobile) National Recreation trails in accordance with the commitments associated with their designation.

Prohibit the use of motorized vehicles and horses on the Gorge & Potawatomi and Mile Post Zero National Recreation trails.

Manage under visual management system Sensitivity Level I

Hiking Trail
Development
and
Management

The completion of the North Country National Scenic Trail is high priority. No new hiking trails will be constructed except where existing developments must be relocated and where short side trails from the existing system to vistas or other unique features would enhance the recreation experience.

Manage trails to be compatible with the Recreation Opportunity Spectrum (ROS) class of the management area.

Manage all Forest trails at Level I (see FSM 7723 Ott. Supp 3, 6/84) except as follows

Level II

- State Line Trail.
- Lake Ottawa Interpretive Trail.
- North Country National Scenic Trail from Conglomerate Falls to East Rainbow Falls
- North Country National Scenic Trail-Sturgeon River segment.
- Teepee Lake Hiking Trail.
- Beaver Lodge Trail
- Cascade Falls Lower Trail
- Sylvania Visitor Information Center Interpretive Trail.
- Norway-Nesbit Loop Trail.

Level III

- None

Locate trails and associated facilities on soil-site conditions that minimize construction and long-term maintenance costs and where they do not create undesirable soil and water impacts.

Emphasize cooperator and volunteer involvement in the construction and maintenance of trails.

Except for National Scenic and Recreation trails, obliterate and remove from Forest transportation system records those system trails for which monitoring indicates little or no use.

Monitor use of all Forest trails to a Reliability Level IV (see RIM Handbook, FSH 2309.11).

Coordinate trail development and management with the Michigan Department of Natural Resources on National Forest System lands adjacent to State of Michigan lands.

Submit trail proposals to Michigan Department of Natural Resources for review and comment whenever potential for impact on the lands or activities of the State of Michigan exists.

Cross-Country Ski Trails

Cross-country skiing is permitted on all hiking trails including the North Country National Scenic Trail and the Gorge & Potawatomi and Mile Post Zero National Recreation trails.

Hiking trails not designed for cross-country skiing will not be designated or maintained (groomed) for this use.

Manage designated cross-country ski trails.

Emphasize cooperator and volunteer involvement with other government agencies, private enterprise, and user groups in the development, operation, and maintenance of designated cross-country ski trails.

Limit Forest involvement in new cross-country ski trail development to granting special use permits and entering cooperative agreements

Grooming of trails will generally not be done by the Forest Service.

Require that designated cross-country ski trails be developed and maintained according to Ottawa National Forest standard criteria (see FSM 7723) and ROS setting guidelines.

Plan the location of cross-country ski trails on a case-by-case basis.

Avoid locating new cross-country ski trails within areas where the use will conflict with other resource management such as Research Natural Areas.

Require permittees or cooperators to monitor trail use and report user numbers.

Obliterate and remove from the Forest system those ski trails for which monitoring indicates little or no use.

Monitor all Forest ski trails to a Reliability Level IV (see RIM Handbook, FSH 2309.11).

Off-Road
Vehicles, All-
Terrain
Vehicles, and
Snowmobiles

Allow off-road vehicles (ORVs), all-terrain vehicles (ATVs), and snowmobiles to use National Forest System lands except

- On areas, roads, and trails designated or posted closed in wilderness (MA 5 1)
- In semiprimitive nonmotorized areas except where specific roads or trails are designated or posted open (MA 6.1).
- In semiprimitive motorized areas except where roads or trails are designated or posted open (MA 6.2)
- In Black River Recreation Area except areas, roads, or trails posted closed (MA 7 1).
- In special management areas (MA 8.2).
- In areas being protected for wilderness study and research natural areas and wild/scenic river corridors being evaluated except roads and trails posted or designated open
- In MAs 1 1, 2 1, 3.1, 3.2, 4.1, 4 2, 6.2, and 9.3 except on designated areas, roads, and trails on that part of the Forest south of M-28 and east of M-64 from March 1 annually to snow melt to protect nesting of bald eagles

Designated areas, roads, and trails may be limited to specific kinds of uses or may be closed to ORV use

Review Forest Supervisor's closure orders covering areas, roads, and trails annually and revise as needed.

Emphasize cooperation and volunteer involvement with other government agencies, private enterprise, and user groups in the development, operation, and maintenance of the off-road vehicle trail system.

Grant authority needed for ORV, ATV, and snowmobile trail construction, operation, and maintenance to the State of Michigan following joint approval of specific trail proposals.

Cooperate in the maintenance and administration of trails included on the approved trail systems of the State of Michigan, within the limits of individual authority, funding, and public need, as formalized by project agreements with the Michigan Department of Natural Resources

In accordance with order of the Forest Supervisor, coordinate ORV, ATV, and snowmobile management policies with those in effect on adjacent state and private lands

Maintain and annually update a road closure map, trail closure map, and snowmobile trail map.

Provide Forest snowmobile maps for public distribution

Visual
Resources

Emphasize management of visual resources in all foreground areas of Ottawa National Forest visual management system Sensitivity Levels I and II travel routes, use areas, and water bodies to meet the visual quality objectives displayed in the matrix for each management area listed under 2300 Recreation Management - Visual Quality

Design all projects to meet the visual quality objectives considering the standards and guidelines described in National Forest Landscape Management, Volume 1, Chapter 1 and Volume 2, Chapters 2, 3, 4, and 5

Cultural
Resources

The Forest will undertake a systematic program of cultural resource inventory, evaluation and preservation aimed at the enhancement and protection of a significant cultural resource values. Integration of cultural resource management with other resource management concerns will be emphasized, as will coordination with the public, scientific community, and appropriate Native American and other ethnic groups.

Inventory

Schedule the inventory of cultural resources on all National Forest System lands, giving priority to areas with high potential for disturbance and areas with high potential for significant historic and prehistoric sites.

As a minimum requirement, an inventory project will be conducted within a project area prior to any earth-disturbing activity, land exchange, or other activity that could affect cultural resources.

Inventory projects should be scheduled well in advance of the planned activity in order to provide adequate data for use in decisionmaking during the NEPA process.

For projects involving the sale, exchange, or interchange of lands under the "Small Tracts Act" (P.L. 97-465; 96 STAT 2535), consult the Programmatic Memorandum of Agreement between the USDA-Forest Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (1985)

Projects requiring cultural resource inventory prior to implementation include, but are not limited to, the construction or expansion of roads, bridges, wildlife and fisheries ponds, reservoirs, sand and gravel pits, parking areas, and trails; the implementation of timber sales and decking areas; oil, gas, mineral, and sand and gravel explorations that require the development of drill pads, roads, trails, and test pits; the construction of new structures individually or within groups of existing

structures, or the remodeling of existing structures that are at least 50 years old and may meet the eligibility criteria for the National Register of Historic Places; the development or modification of campgrounds and other recreation facilities. Cultural resource inventory will also be required in the case of the designated wilderness where natural deterioration of sites, or damage due to activities such as hiking, may be expected to occur

Non-ground disturbing activities that do not impact known cultural resources, and that include, but are not limited to, pesticide application and routine maintenance of roadways and trails currently in use may be implemented without survey or evaluation.

Consult with Native American or other ethnic groups in a manner consistent with the Advisory Council on Historic Preservation "Guidelines for Consideration of Traditional Cultural Values in Historic Preservation Review."

Design cost-effective survey strategies, utilizing locational modeling and thematic studies to improve efficiency.

Cultural resource standards and inventory processes are designed to conform with the U S. Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation and in accordance with the Memorandum of Agreement (MOA) between the Michigan State Historic Preservation Officer (SHPO) and the National Forests located in Michigan.

Minimally, survey strategies will require walk-over coverage of all existing and historic transportation corridors, clearings, and high potential areas such as those identified from historic maps or aerial photos and shorelines. Shovel testing will be required in most instances within 100 meters of major bodies of water (lakes, rivers, streams). The appropriate methodology will be developed in consultation with the Forest Archaeologist

Emphasize the use of seasonal archaeological technicians on large projects or projects with time consuming inventory methods in order to conduct timely and efficient surveys

Guidelines for possible "no-effect" undertakings are designated in concurrence with the MOA between the Michigan SHPO and the National Forests in Michigan

Complete cultural resource inventories of all Ottawa National Forest lands by the year 2010, by annually surveying an average of 29,000 acres.

Evaluation

Identified cultural resources will be evaluated in relation to published Advisory Council on Historic Preservation criteria for eligibility to the National Register of Historic Places

Schedule and conduct evaluations if a project will have any effect on a cultural resource potentially eligible for the National Register of Historic Places. Schedule and conduct evaluations if the responsible official and SHPO disagree on whether a cultural resource is potentially eligible for the National Register of Historic Places.

Evaluation procedures, including thematic approaches, are designed and carried out in accordance with the MOA between the Michigan SHPO and the National Forests in Michigan

Schedule evaluations in a timely manner (before the project can proceed), or if properties are deteriorating and have not been evaluated.

Conduct evaluations on a thematic basis (e.g., early logging, mining, and homesteading) to improve cultural resource management efficiency

A determination of effect must be carried out in the event that a cultural resource determined eligible for or included on the National Register of Historic Places cannot be avoided or the project delayed, and if the proposed project could affect the property either beneficially or adversely.

Determination of effect process is carried out in consultation with the Michigan SHPO in accordance with 36 CFR 800

A consultation with the SHPO and Advisory Council on Historic Preservation is in order when it is determined that the project will affect an eligible site and the project cannot be relocated or modified to avoid the site.

Unavoidable destruction of eligible sites must conform to processes designated by the National Historic Preservation Act and outlined in 36 CFR 800.

Preservation

Design projects to avoid, minimize, or mitigate adverse effects on potentially significant cultural resources. In-place protection of inventoried potentially eligible properties is the minimum requirement until site significance is determined

Assess the nature and degree of damage to cultural resources due to vandalism, visitor use, and natural deterioration Identify and implement protective measures.

Prevent or mitigate deterioration that affects the significant qualities of cultural resources that are eligible for the National Register of Historic Places

Develop protection and mitigation measures on a case-by-case basis.

Field measures include, but are not limited to, signing, road closure, fencing, vegetative screening, and withholding locational information

Maintain the integrity of potentially significant cultural resources

Issue antiquities permits to qualified academic institutions or other organizations for the study and research of cultural resource sites. Permit activities that are consistent with policy and management objectives

Allow excavation or removal of artifacts by others from cultural resource sites only by permit

Develop a preservation/maintenance plan for historic administrative and recreational facilities in cooperation with the Michigan SHPO.

Monitor the implementation and effectiveness of protection and mitigative measures prescribed for cultural resources.

Conduct on-site visual inspection as needed or required.

Human remains will be treated with dignity and respect. Burial sites will be left undisturbed. Only when there is an urgent need due to accidental or other unforeseen disinterment will human remains be disturbed. In-place preservation is the preferred method for the preservation of human remains. The Region 8 - Region 9 Policy on the treatment of human remains will be followed.

Curation

The Forest will work to comply with the new curation standards set forth in the Secretary of Interior's Standards and Guidelines for curation. In the interim, curate and store all artifacts recovered on the Forest at Michigan Technological University, Department of Social Sciences, Houghton, Michigan, under the existing curation agreement.

Enhancement

Develop interpretive facilities and projects in compliance with the 1988 amendments to the Archaeological Resource Protection Act.

Identify opportunities for both on-site and off-site interpretation of cultural resources.

Implement the National "Windows on the Past" program to improve public understanding of our heritage, to raise public awareness of the fragile and irreplaceable nature of cultural resources, and to provide enhanced public recreation opportunities.

Provide opportunities for the public to observe or to participate in all phases of Forest Service heritage management Utilize the "Passport in Time" program to involve amateur and professional volunteers in selected aspects of preservation and management efforts. Emphasize public outreach and involvement efforts with local schools and organizations. Develop partnerships with external organizations, groups, and individuals, to provide a public service through cultural resources

Develop an updated Cultural Resource Overview document for the Forest in 1993.

Recreation
Special Uses

Retain and manage all existing summer home groups under the provisions of the authorizing special use permits

Maintain in place those existing recreation residences occupying National Forest System land under special use permit that do not constitute a hazard to Forest resources and do not endanger the health, safety, or well being of the permittee or the public.

Recreation residences in established summer home groups will continue to be a valid use of National Forest System land New recreation residence groups will not be approved.

Permits will not be issued for unoccupied lots in established summer home groups.

In the event recreation residence improvements are destroyed by natural forces or fire, the special use permit will be terminated and the lot will be restored to a natural condition.

Recreation residences will not be used for commercial purposes or year-round use to the exclusion of a permanent home elsewhere

Existing improvements will be maintained in a manner compatible with the forest environment.

2500 Water and
Soil Resource
Management

Plans and
Inventory

Maintain a current inventory and evaluate potential watershed improvement projects as described in FSM 2520.

Integrate all soil and water resource inventory information into the Ecological Classification System.

Correlate all soil and water resource inventory information with adjacent Lake States National Forests.

Provide for lake and streams monitoring to detect changes from baseline data already on hand including Kildeer, Skyline, Tepee,

Bob, Golden, James, Hager, and Norway lakes and other lakes as needed primarily for productivity and impacts of atmospheric deposition.

Use the Ecological Classification System to identify resource capability, specify management limitations, and identify appropriate mitigating measures for all management prescriptions and practices. Supplement ECS information with soil and/or water management support services whenever more detailed or specific information is needed

Riparian Area

Riparian areas include aquatic and riparian ecosystems, floodplains, wetlands, and a special attention zone (NFMA regulations, Sec. 219) extending approximately 100 feet horizontally from the edge of perennial streams, lakes, and other water bodies

Preserve the beneficial values of floodplains and wetlands, protect public safety, reduce nonpoint pollution, and be cost efficient in the construction, management, protection, maintenance, and rehabilitation practices in all areas of structures and facilities.

Review riparian area practices on a case-by-case basis to ensure that the practice is compatible with the riparian area and the practice has a low risk for the following.

- Causing detrimental temperature or water chemistry changes
- Introducing pesticides into surface and groundwater
- Depositing undesired sediment.
- Blocking stream flow.

Avoid practices that cause detrimental changes in visual quality, water quality, fish and wildlife habitat, and soil productivity

Minimize risk of flood loss, restore and preserve floodplain values, and protect wetlands.

Use filter or buffer strips to prevent soil, nutrient, or pesticide movement into lakes and streams. Filter strip width will vary according to the soil, slope, vegetation, and type of practice

Obtain State of Michigan review of all water-related projects as specified in the Memorandum of Understanding between the three National Forests of Michigan and the Michigan Department of Natural Resources. Obtain U S Army Corps of Engineer permits for water-related projects when required.

Watershed
Disturbance

Apply management practices that will not accelerate the aging or eutrophication of any lake or stream. Design management activities adjacent to lakes, streams, and wetlands to maintain streambank and shoreline stability.

Restore disturbed areas, such as borrow pits and mineral developments, so they meet the management objectives of the area.

Salvage and store topsoil so that the topsoil can be replaced as portions of the disturbed area are restored

Create waterbodies during restoration only if surface runoff and soil conditions permit.

Treat all disturbed areas that are subject to erosion for erosion prevention within the growing season in which the disturbance occurs.

When obliterating roads or closing temporary roads, use erosion control practices outlined in Watershed Improvement Handbook (FSH 2509.15) and Soil and Water Conservation Handbook (R-9 FSH 2509 22)

Give particular attention to Landtype Association (LTAs) 1, 5, 6, 13, 16, 18, and 20 using an erosion prevention practice preferably within the growing season in which the disturbance occurs. Follow techniques presented in Watershed Improvement Handbook (FSH 2509 15) and Soil and Water Conservation Handbook (R-9 FSH 2509 22)

Use erosion control practices for roads, skid trails, and other intensive soil-disturbing uses on the following Landtype Associations (LTAs) when slopes exceed the following

Slope	LTA
>5%	1, 4, 14, 14a, 15
>2%	2, 3, 5, 6, 7, 9, 10, 11, 12, 13, 16, 17, 19

Consider enhancement of soil productivity when opportunities are economically feasible

Rehabilitate soil and water resource improvement projects with materials, structures, and design to be compatible with the Recreation Opportunity Spectrum setting of the area and appropriate to meet visual quality objectives for the area.

Obtain county review under State of Michigan Act 347 (The Soil Erosion and Sedimentation Control Act) for all activities other than silvicultural activities that disturb more than one acre or are within 500 feet of a lake or stream Refer to Chapter IV, Forestwide Standards and Guidelines, 1300 Administration, 1900 Land and Resource Management Planning, 2100 Environmental Management, 2300 Recreation Management, 2800 Minerals, and Geology, 7700 Transportation System, Forestwide Vegetative Management Standards and Guidelines and the specific management prescriptions

2600 Wildlife
Habitat
Management

Management Indicator Species Monitor population trends of management indicator species and determine relationships to habitat changes in order to indicate the effects of management activities.

Management Indicator Species

Mammals

Black bear
White-tailed deer

Birds

Common loon
American bittern
Ruffed grouse
Osprey
Bald eagle
Goshawk
Barred owl
Blackburnian warbler

Fish

Brook trout
Smallmouth bass
Northern pike

Forest Plan Objectives for Habitat of Management
Indicator Species

Species	Long-Term Objective
Deer	<p>Current habitat for deer is 227,000 acres The projected amount of habitat for deer is 312,000 acres managed with the following objectives:</p> <ul style="list-style-type: none"> - Manage at least 138,000 acres of aspen/paper birch type - Maintain at least 150,000 acres of thermal cover (hemlock/swamp conifer/balsam fir-jack pine types) - Maintain at least 8,700 acres of existing permanent upland openings with a long-term goal of 24,000 acres of permanent upland openings
Bear	<p>The current areas suitable for black bear habitat is 350,000 acres. The projected number of acres to manage for black bear is 448,000 acres with less than 1.5 mi²/mi² of roads open to public travel by passenger vehicles during July and August of most years.</p>
Loon	<p>Protect and maintain existing common loon breeding territories (97 known lakes)</p> <p>Inventory and manage potential breeding territories, other bog lakes relatively free of human disturbance with</p> <ul style="list-style-type: none"> - Islets or isolated bays having grassy or mossy shoreline and poor predator access - Adequate forage base, especially yellow perch
Bittern <u>1</u> /	<p>Inventory and maintain existing American bittern breeding territories currently estimated at 40,200 acres. The objective is to maintain or improve potential breeding territories of open wetlands</p> <ul style="list-style-type: none"> - Large areas of sedge meadows having emergent vegetation (sedges, cattails, rushes), for nesting (4,700 acres) - Shallow marsh having open water areas for feeding (7,600 acres). - Other wetlands (27,900 acres) with potential for improvement

Objectives for Habitat of MIS (continued)

Species	Long-Term Objective
Osprey <u>2/</u>	<p>Retain and manage 6 existing osprey breeding areas (about 600 acres) on National Forest System lands (10-year average 1975-1984) The projected objective is to manage 10 breeding areas or 1,000 acres</p> <ul style="list-style-type: none">- Prohibit controllable disturbances within approximately 330 feet of each osprey nest- Prohibit significant changes in the landscape with approximately 660 feet of each osprey nest- Restrict management practices that result in adverse disturbance of nesting birds within 1,320 feet of each osprey nest <p>Locate and designate at least 10 additional potential breeding areas (about 1,000 acres)</p> <ul style="list-style-type: none">- Free from human disturbance- Within or adjacent to open water, deep marsh, or bog areas.- Within 1 mile of major rivers- With supercanopy white pine- Potential for creation of deep marsh
Eagle <u>2/</u>	<p>Retain 31 existing bald eagle breeding areas (about 7,600 acres) on National Forest System lands (10-year average, 1975-1984) Increase breeding areas to 13,200 acres</p> <p>Locate and designate at least 34 additional potential breeding areas (about 5,600 acres including open water)</p> <ul style="list-style-type: none">- Free from human disturbance- Within 1/2-mile of a lake of at least 200 acres- With supercanopy white pine or yellow birch- Potential for creation of deep marsh
Goshawk <u>1/</u>	<p>Estimated current suitable habitat is 424,000 acres Maintain viable populations of at least 240,000 acres of poletimber to mature sized forest.</p>

Objectives for Habitat of MIS (continued)

Species	Long-Term Objective
Barred <u>1</u> / owl	Increase suitable barred owl habitat from 147,000 acres to 170,000 acres of mature and old growth hardwoods, red pine, upland spruce, hemlock, and swamp conifers <ul style="list-style-type: none"> - Having cavity trees 20"+ DBH for nesting - Having mixed or coniferous woods for roosting and hiding - In riparian habitat or near open country for hunting.
Ruffed grouse	To maintain population (1980 level) <ul style="list-style-type: none"> - Maintain at least 16,000 acres of 0-10 year aspen/paper birch regeneration well distributed over managed aspen areas
Black- burnian warbler <u>1</u> / 	To maintain viable populations Estimated suitable habitat is 84,000 acres <ul style="list-style-type: none"> - Maintain at least 76,000 acres of pole-timber to mature sized hemlock and swamp conifer forest
Brook trout	Maintain suitable brook trout spawning and feeding habitat <ul style="list-style-type: none"> - An estimated 1,200 miles of cool-water streams. - Stable and vegetated stream banks. - Silt-free spawning gravel stream bottoms.
Small- mouth bass	Maintain suitable smallmouth bass spawning and feeding habitat <ul style="list-style-type: none"> - An estimated 38,000 acres of meso-trophic lakes that are deep and clear, of moderate productivity with extensive gravel or rubble shoals, sunken logs in near-shore areas, and pH of 5 7+ for reproduction - An estimated 355 miles of streams and rivers greater than about 35 feet that are cool and clear with abundant shade and cover, deep pools, moderate current, and gravel or rubble substrate.

Objectives for Habitat of MIS (continued)

Species	Long-Term Objective
Pike	Maintain suitable northern pike spawning and feeding habitat: <ul style="list-style-type: none">- An estimated 41,000 acres of meso-trophic and eutrophic lakes.- An estimated 108 miles of warm-water streams- Marshy spawning areas- Maximum surface water temperature less than 30°C.- Large populations of white suckers (preferred prey)

1/ Habitat objectives for these species, whose population/habitat inventories are not well known, are based on the minimum viable population analysis.

2/ Habitat objectives for eagles and osprey are based on the population objectives (existing plus potential) and an average feeding area (open water) of about 200 contiguous acres per territory.

In cooperation with Michigan Department of Natural Resources, monitor population trends and habitat conditions of management indicator species

Assess the impact of management practices on management indicator species and their habitat.

Identify, schedule, and carry out management practices to achieve population and habitat objectives for management indicator species.

See Chapter V, Implementation, Monitoring, and Evaluation, Table 5 2, NFMA Monitoring Requirements, for the management indicator species monitoring action program which is included as part of the Forest annual program of work.

See Appendix Volume, Appendix I, Management Indicator Species, Table I 1, Management Indicator Species Habitat and Guide, for list of wildlife and fish species associated with each management indicator species

Endangered,
Threatened,
and Special
Concern (ET&SC)
Species

Protect endangered and threatened plant and animal species and their habitats

Endangered and threatened animal species of the Ottawa National Forest are listed below. (There are no known federally listed plant species endemic to this area)

	Status 1/
Mammals	
Gray wolf	E
Birds	
Bald eagle	T
Peregrine falcon	E

1/ Status codes:

E Federally endangered

T Federally threatened

Population recovery objectives:

Species	Recovery Objective
Gray wolf	4 packs (24 animals)
Bald eagle	65 active pair
Peregrine falcon	1 active pair

Habitat objectives

Gray wolf - An area totaling at least 256,000 acres has been designated on Forest work maps for the purpose of assisting in recovery of the gray wolf. The area encompasses parts of management areas 2.1, 3 2, 6 2, and 9 1 in the southern part of the Forest and is identified as remote habitat area.

Maintain or improve habitat for deer as the prey base within the area

The standards and guidelines for open road density in areas suitable for gray wolf habitat will be less than or equal to 1₂ mile of open road per square mile of land ($\leq 1 \text{ mi/mi}^2$) as an average

Collector roads (traffic service level A-B) are open for travel (Reference IV-62 and IV-63 Forestwide Standards and Guidelines for traffic services level standards) Woods roads (traffic service level C-D) will be open for administrative use and will be closed upon project completion and will generally be open to ATV and snowmobile traffic except in non-motorized areas (see IV-163 and IV-173 6 1 and 6.2 management prescriptions)

Monitoring Methods

- 1 Consult transportation system database for the specified areas.

- 2 Determine if roads are open or closed (Roads opened temporarily for administrative uses, ATV, and snowmobile traffic will not be counted).
- 3 Establish a code in this database for roads opened and closed on a seasonal basis
- 4 Conduct annual field inventories on roads closed within affected area.
 - a determine road use by wolves by identifying tracks (road track counts).
 - b determine road use by humans by identifying tracks or evidence of human use
 - c. use incidental sightings to verify wolf habitation within road density threshold areas of $<1 \text{ mi./mi}^2$

Effectiveness

The effectiveness of the objectives are based on.

- o Road density thresholds $\leq 1 \text{ mi./mi}^2$ of land
- o Providing a prey base.
- o Presence or absence of wolves
- o Human presence and contact with wolves.

These elements will be used to monitor and measure the effectiveness of the methods for wolf recovery standards and guides.

If the gray wolf fails to utilize, inhabit, travel, or establish within the 256,000 acre area outside factors may be the cause based on a number of social and biological conditions that affect gray wolf survival and mortality. The behavior dispersal pattern and population growth of wolves will be used to monitor the overall effectiveness of the Standards and Guidelines. The standards, guidelines and objectives are to minimize wolf and human contact by providing suitable habitat for the gray wolf

Bald eagle - Designate essential habitat and management plans for existing bald eagle breeding areas for formal approval
Essential habitat of bald eagle

- Is that area considered necessary for continued survival and recovery of the species and is described in breeding area plans.
- Is considered to encompass a minimum of 640 acres at each nest site and may include private as well as public land

- Should correspond to legal landlines or survey descriptions to facilitate listing and identification in public documents, but the configuration of essential habitat of each breeding area may vary
- Includes Region 9 management constraints for 330-, 660-, and 1320-foot management zones described below
- Includes all aquatic and terrestrial habitat used for foraging and essential features of air, water, land, and solitude necessary for the breeding pair, including active and alternate nest sites, major fishing waters, and roost and perch trees.

The actual nest structure(s) does (do) not need to be at the center of the area nor must the area be in any particular configuration.

In areas of high nesting density, a larger single unit or essential habitat may be more appropriate than several smaller ones.

Prohibit controllable disturbances within approximately 330 feet of each eagle nest except those necessary to protect the nest

Prohibit significant changes in the landscape within approximately 660 feet of an eagle nest.

Restrict management activities that result in adverse disturbance to nesting birds when the activities occur within approximately 1320 feet of an eagle nest during the nesting season.

Identify and manage potential nest trees (two or three if possible) within each active bald eagle nesting area. Bald eagles in this area usually nest in white pine (51 percent) or yellow birch (34 percent) with mean diameters of 32" DBH, usually on a topographic break or type change, and most often (85 percent) within 1 mile of a lake 200 acres or larger, from Forest bald eagle nest records, Form R9-2600-8

Coordinate with Michigan Department of Natural Resources and U.S. Fish and Wildlife Service to determine and take appropriate action to eliminate the causes of recurring bald eagle nest failures

Identify, establish, and protect at least 34 potential bald eagle breeding areas, in addition to current active breeding areas.

Potential breeding area specifications:

- Relatively free from human disturbance (that is, away from resorts, highways, and developed recreation areas).
- Within 1/2 mile of a large lake (200 acres or larger)

- Preferably stocked or suitable for stocking with supercanopy white pine or yellow birch
- Well dispersed throughout portions of management areas meeting these specifications
- Which meet or exceed criteria for existing essential habitat

Limit management practices within potential breeding areas generally to those practices that avoid disturbance to nesting birds during the nesting period (similar to 660- to 1320-foot zone around active nests)

Within potential breeding areas prior to timber harvest, designate a minimum of eight supercanopy white pine or yellow birch trees per breeding area to be retained. Ensure a continuous supply of nest trees for the future.

Peregrine falcon - Designate for special management a potential hacking (release) site for the peregrine falcon in the Trap Hills area. Restrict road or trail construction as necessary. Review proposed road and trail building and other management activities in the vicinity of the site with the U S Fish and Wildlife Service as part of consultation procedures prior to implementation.

Protect sensitive species and their habitat as designated by the Regional Forester.

Seven animals have been recommended for Regional Forester sensitive species status. The Forest will protect any sensitive species and their habitats that are included on the Regional Forester's list to be issued following completion of all forest plans in Region 9. (Refer to Appendix Volume, Appendix H for more information.)

In cooperation with Michigan Department of Natural Resources, put into motion a process of recovery planning for animal species identified as endangered, threatened and special concern plant (ET and SC) species, including extirpated species that should be restored, but not including species for which the Forest cannot assume responsibility for management and recovery (i.e., species known to be irregular, occasional, casual, accidental, or hypothetical to this area).

Watch List
Animal Species

In cooperation with Michigan Department of Natural Resources, maintain a watch list of animal species that occur or may occur on the Ottawa National Forest.

Include those species for which more information is needed to determine suitability for selection as management indicator species.

Encourage participation by volunteer cooperators

Maintain records of observations at the Ranger District

Report summaries of watch list animal observations in annual Ranger District Wildlife and Fish Reports

Manage breeding area of great blue heron colonies

Prohibit controllable disturbances within approximately 330 feet of each great blue heron colony except those necessary to protect the nest or colony

Prohibit significant changes in the landscape within approximately 660 feet of a great blue heron colony.

Restrict management activities that result in adverse disturbance to nesting birds when the activities occur within 1,320 feet of a great blue heron colony.

Support Michigan Department of Natural Resources programs for recovery of lake sturgeon (Fisheries Research Report No. 1883) In cooperation with the Michigan Department of Natural Resources and local cooperators, periodically assess population trends of those watch list species to be studied further to determine suitability for selection as management indicator species.

Maintain reliable observations of other watch list animals and their breeding activities.

Observations of watch list animals by Forest personnel usually will be incidental to other project activities

For specific monitoring requirements and practices, reference Chapter V page 13

Watch List Species of the Ottawa National Forest

<u>Species</u>	<u>Status</u>	<u>3/</u>
<u>Mammals</u>		
Gray squirrel	<u>1/</u>	
Beaver	<u>1/</u>	
Fisher	<u>1/</u>	
Eastern cougar		
Bobcat	<u>1/</u>	
Moose		
<hr/>		
<u>Birds</u>		
Great blue heron	<u>2/</u>	
Northern harrier (marsh hawk)	<u>1/</u>	<u>2/</u>
Sharp-shinned hawk		
Cooper's hawk		
Broad-winged hawk	<u>1/</u>	<u>2/</u>
Spruce grouse	<u>2/</u>	
Sharp-tailed grouse	<u>1/</u>	
Sandhill crane	<u>1/</u>	
American woodcock	<u>1/</u>	
Black-backed woodpecker	<u>1/</u>	<u>2/</u>
Eastern bluebird	<u>1/</u>	<u>2/</u>
Golden-winged warbler	<u>1/</u>	<u>2/</u>

Watch List Species of the Ottawa National Forest

Species (continued)	Status
Magnolia warbler	<u>1/</u> <u>2/</u>
Chestnut-sided warbler	<u>1/</u> <u>2/</u>
Pine warbler	<u>1/</u> <u>2/</u>
Kirtland's warbler	
Lincoln's sparrow	<u>1/</u> <u>2/</u>

Endangered, Threatened and Special Concern Plants

Unless otherwise noted, the following general standards and guidelines apply to all Endangered, Threatened and Special Concern (ET&SC) plants which are, or are likely to occur on the Ottawa National Forest (Table 1). It should be noted that these lists are dynamic and frequent updates will be required based on new information regarding distribution, and/or legal status

1 Management emphasis for ET&SC plants includes identification of existing sites, protection of known individuals, and providing habitat for possible population growth and expansion. Although not all adverse impacts to these plants are known, protection of site locations will strive to maintain or develop the appropriate light, water, wind, temperature, and soil/water chemical regimes required by the plants to the extent possible.

2 Locations of all known ET&SC plants will be maintained and classified as administratively confidential. These files will be checked prior to all significant and pertinent management activities. Any management activity which may positively, or negatively, impact a known Ottawa endangered, threatened or special concern species will be documented in an environmental assessment. Biological Assessments may be made (FSM 2672 4). The Michigan Natural Features Inventory and the Fish and Wildlife Service will be notified of this proposed action for their comments and recommendations for enhancing, or mitigating, or eliminating these impacts as appropriate.

3 As an aid to additional field surveys, a rare plant field guide with photos, plant descriptions, and type of habitat where the plants are found will be developed and maintained. A second information source for updates of the field guide and Standards and Guidelines will be Element Stewardship Abstracts provided under contract by The Nature Conservancy

4 The presence of ET&SC plant species will be a consideration in decisions regarding land adjustments either through exchange or acquisition

5 The Forest Service will meet annually with the MDNR to discuss over-winter deer population goals for the Ottawa. One of the points of discussion will be the possibility of reducing over-winter population goals in some deer management units because of the concern that white-tailed deer and other mammals

may browse certain ET&SC plants (The Forest Service recognizes the MDNR as having authority over the deer herd and the MDNR has not granted nuisance control of deer to land owners except through special permit. The Forest Service also recognizes that concern for ET&SC plants is only one of many biological, ecological, and social aspects of deer herd management that the MDNR has to evaluate.)

6 Field inventories of likely habitat for ET&SC plants will be conducted during the Forest Plan period. A qualified, experienced botanist with skills and knowledge in plant ecology and plant taxonomy will conduct the field inventories. The Ecological Classification and Inventory (EC&I) will be used to design the sampling approach. For upland areas, the stratified-random transect sampling approach will be used during the inventory of plant species. However, riparian areas will be inventoried utilizing the "meandering" approach. Inventories will be conducted on a priority basis. Priorities will be determined according to LTA and project activities that have been proposed for a given site. Reference LTA Project Priority Table below.

LTA Project Priorities

High	Medium	Low
7, 2, 9, 10, 5, 11, 20, 18, 6	3, 4, 17, 12, 13	1, 14, 14a, 14b, 15, 16, 19
Clearcut - summer Shelterwood - summer Selection cut - summer Broadcast burn Herbicides Brush rake New road construction	Shelterwood - winter Clearcut - winter Roller chop Bracke scarifier Disk trenches Road reconstruction	Selection cut - winter Handscalp Shearing - winter

**LTA numbers are given in order of their priority.

7 An appropriate management strategy will be established for ET&SC plant sites, according to the needs of the species of interest and the requirements for maintaining the integrity of populations within a particular habitat.

8. Monitoring of known sites will be done periodically during the Forest Plan period to document location of occurrence, plant population size, age, evidence of reproduction, herbivory, specific habitat characteristics and to determine whether additional protection measures are needed. A qualified, experienced botanist will refine species-specific monitoring efforts and evaluate results.

9 The list will be updated periodically. ET&SC plant species are listed on page 45.2.

Endangered, threatened, and special concern plant list (Michigan
Endangered Species Act, 1974, as amended)

Species	Common Name	Status	
		MI	Fed
<i>Amerorchis rotundifolia</i>	small round-leaved orchid	E	
<i>Mimulus glabratus</i> var <i>michiganensis</i>	Michigan monkey-flower	E	E
<i>Platanthera leucophaea</i>	prairie white-fringed orchid	E	T
<i>Allium schoenoprasum</i>	wild chives	T	
<i>Arenaria macrophylla</i>	big-leaf sandwort	T	
<i>Botrychium hesperium</i>	moonwort	T	
<i>Calamagrostis lacustris</i>	northern reed grass	T	
<i>Callitriche heterophylla</i>	water-starwort	T	
<i>Calypso bulbosa</i>	fairy slipper	T	
<i>Carex assiniboensis</i>	assiniboia sedge	T	
<i>Collinsia parviflora</i>	small blue-eyed Mary	T	
<i>Dentaria maxima</i>	large toothwort	T	
<i>Disporum hookeri</i>	fairy bells	T/PE	
<i>Dryopteris filix-mas</i>	male fern	T	
<i>Gentiana linearis</i>	narrow-leaved gentian	T	
<i>Gratiola lutea</i>	hedge-hyssop	T	
<i>Helianthus mollis</i>	sunflower	T	
<i>Myriophyllum farwellii</i>	water-milfoil	T	
<i>Nuphar pumila</i>	yellow water-lily	T	
<i>Oryzopsis canadensis</i>	Canada rice-grass	T	
<i>Panax quinquefolius</i>	ginseng	T	C3
<i>Pellaea atropurpurea</i>	purple cliff-brake	T	
<i>Petasites sagittatus</i>	sweet coltsfoot	T	
<i>Polygonum careyi</i>	Carey's smartweed	T	

Species	Common Name	Status	
		MI	Fed
<i>Pterospera andromeda</i>	pinedrops	T	
<i>Ranunculus cymbalaria</i>	seaside crowfoot	T	
<i>Senecio indecorus</i>	Rayless mt ragwort	T	
<i>Thalictrum revolutum</i>	waxy meadow-rue	T	
<i>Thalictrum venulosum</i>	veiny meadow-rue	T	
<i>Woodsia obtusa</i>	blunt-lobed woodsia	T	
<i>Adlumia fungosa</i>	climbing fumitory	SC	
<i>Asplenium viride</i>	green spleenwort	SC/PT	
<i>Astragalus canadensis</i>	Canadian milk-vetch	SC/PT	
<i>Astragalus neglectus</i>	Cooper's milk-vetch	SC	
<i>Callitriche hermaphroditica</i>	water-starwort	SC	
<i>Camptosaurus rhizophyllus</i>	walking fern	SC/PT	
<i>Carex arcta</i>	sedge	SC	
<i>Carex pallescens</i>	pale sedge	SC	
<i>Clematis occidentalis</i>	purple clematis	SC	
<i>Crataegus douglasii</i>	Douglas's hawthorne	SC	
<i>Cryptogramma stelleri</i>	slender cliff-brake	SC	
<i>Cypripedium arietinum</i>	ram's head lady's slipper	SC	C3
<i>Dryopteris expansa</i>	expanded woodfern	SC	
<i>Elymus glaucus</i>	blue wild rye	SC	
<i>Epilobium palustre</i>	marsh willow-herb	SC	
<i>Littorella americana</i>	American shore-grass	SC	
<i>Mimulus glabratus</i> var <i>fremontii</i>	Michigan monkey-flower	SC	
<i>Mimulus guttatus</i>	western monkey-flower	SC	
<i>Ribes oxycanthoides</i>	northern gooseberry	SC	

Species	Common Name	Status	
		MI	Fed
<i>Rumex maritimus</i>	golden dock	SC	
<i>Salix pellita</i>	satiny willow	SC	
<i>Scirpus torreyi</i>	Torrey's bulrush	SC	
<i>Solidago lepida</i>	western goldenrod	SC	
<i>Sisyrinchium strictum</i>	blue-eyed grass	SC	
<i>Trisetum spicatum</i>	downy oat-grass	SC	
<i>Lysimachia hybrida</i>	loosestrife	None	
<i>Menegazzia terebrata</i>	lichen	None	
<i>Spiranthes casei</i>	Case's ladies-tresses	None	
<i>Viola primulifolia</i>	violet	None	

E - Endangered
 T - Threatened
 SC - Special Concern
 SC/PT - Special concern/proposed threatened
 T/PE - Threatened/proposed endangered
 C3 - Review-not to be listed

Wildlife

Refer to Chapter IV, Forestwide Standards and Guidelines, 1900 Land and Resource Management Planning, Vegetation Management, for additional standards and guidelines relating to wildlife habitat management.

Place high priority on direct habitat improvement that can otherwise be obtained with integrated practices or can be accomplished with volunteers, cooperating agencies, and other groups, through the Challenge Cost-Share Program.

Consider wildlife habitat needs in the design and layout of temporary openings created through vegetative management activities accomplished through timber sales.

Upland openings are constructed primarily through timber sales in areas where management objectives cannot be met through temporary openings. They are generally permanent forest openings maintained for multiple resource benefits. Include existing permanent openings on unsuitable lands and adjacent private lands when analyzing the need for permanent upland openings.

Describe local species-habitat relationships and integrate wildlife information into Ecological Classification System (ECS) interpretations.

Identify vertebrate wildlife species and their habitats on ECS permanent plots and other areas.

Identify habitats that require protection prior to implementing adjacent resource management practices.

Existing wetlands will be protected under the provision of Executive Order 11990 (Protection of Wetlands). An inventory of wetland types and acreages will be maintained for each management area and locations for potential wetland improvement projects documented during the implementation phase of the Forest Plan. Inventories of potential wetland improvement projects such as low-head dams to create marshes and nesting structures will be made available to interested cooperators such as Ducks Unlimited, Michigan Habitat Foundation, Michigan Audubon Society, and others. These projects will be coordinated with local clubs, the Michigan DNR, local governments, and other interested agencies such as the U S. Fish and Wildlife Service and U.S. Army Corps of Engineers

The intent of the Fisheries Program is to implement appropriate objectives found in the "Forest Service and Bureau of Land Management Recreation Fisheries Policy" of 1990.

First priority for fisheries management will be on lakes with recreation developments, blue ribbon trout streams and anadromous fish streams. Other lakes with a high fisheries potential and limited or reduced standard access may be managed to provide a high quality fishing experience.

MICHIGAN BLUE RIBBON TROUT STREAMS ON THE OTTAWA NATIONAL FOREST

<u>Stream</u>	<u>Upstream Limit</u>	<u>Downstream Limit</u>	<u>Miles</u>
Brule	M73	M189	12 5
Cooks Run	US-2	Paint River	6 0
Ontonagon River			
East Branch	Lower Dam Lake	Sparrow Rapids	13 0
Middle Branch			
Upper Section	T45N-R39W Sec.19	Ontonagon Co. Line	12 0
Lower Section	Bond Falls	M-28	10.5
Paint River	FS Road 3270	Gibbs City Road	18 0
West.Br.Sturgeon River	W.Br.Sturgeon Falls	M-38	5 0
Iron River	Raft Lake	City of Iron River	12 5

Conduct lake or stream surveys, including fish population surveys, before fish habitat improvements are prescribed or carried out.

Emphasis in lake fisheries for mixed and/or warm-water species will be for self-sustaining populations and balanced predator-prey conditions to provide "quality-size fish" (see Glossary).

Emphasis in lake fisheries for cold-water species will be for maintenance and improvement of existing trout lakes

Emphasis in Michigan Department of Natural Resources-designated trout waters less than 18 feet wide will be for recruitment of trout.

Maintain or restore fish population balance, to the extent practical, through habitat and access manipulation. The remaining 2600 Wildlife Habitat Management - Fish standards and guidelines apply to management areas 1.1, 2.1, 3 1, 3 2, 4 1, 4.2, 6.1, 6.2, and 9.3 Refer to management prescription standards and guidelines for management areas 5.1, 7.1, 8 2, 9 1, and 9.2 for the standards that apply to those areas.

Construct fish shelters and/or fish attractors where appropriate to decrease natural mortality of gamefish and increase fishing morality of panfish.

Construct walleye spawning reefs:

- Size of 1/1000 of area of lake.
- Where adult walleye are present
- Where needed to provide spawning habitat.

Place half-log cover in top-quality trout streams where natural cover is insufficient for trout Place bank cover (brush) where natural cover is insufficient for immature trout. Anchor bank cover to prevent debris jams. Half-log placement will be the primary method for fish cover improvement on trout streams.

In trout streams where reproduction of trout is clearly limited by sediment bedloads, a combination of bank stabilization, roadbed erosion prevention, and sediment traps will be considered to decrease sedimentation and increase trout production.

Alder removal should only be practiced on streams where summer temperatures are very cold, or where replacement of the riparian shade is planned through release of existing trees or by planting Protect existing riparian vegetation such as mature cedar, hemlock, and hardwoods (except aspen) to ensure both shade and recruitment of logs and rootwads to the stream.

Construct spawning riffles in top-quality trout feeder streams that lack quality spawning areas.
Remove inactive beaver dams.

Assist Michigan Department of Natural Resources efforts to control beaver populations.

In existing or potential top-quality trout streams, removal of active beaver and beaver dams will be coordinated with wildlife resources including, but not limited to, threatened and endangered species, waterfowl,

and the furbearers themselves. The Michigan Department of Natural Resources will coordinate and approve all these activities.

Cooperate and work with the Michigan Department of Natural Resources in carrying out fish manipulation practices when requested

Use chemical, mechanical, or manual means to adjust fish species populations.

Where stunted populations occur or where rough fish are severely competing with valuable gamefish or panfish:

- Thin problem species.
- Stock with predator species as necessary.
- Monitor results.

2700 Special Use Management

Other Special Uses

Authorize special use permits that are compatible with management prescriptions, that are in the public interest, and cannot reasonably be accommodated on non-National Forest System land

Locate special uses so that adverse effects on desired forest conditions are minimized.

Minimize cost of processing special use applications by requiring applicants to bear or share the cost of cultural resource surveys, environmental analysis, and other activities related to application processing.

Generally, when more than one special use is located in a proximity, require joint use of access roads whenever practical.

Consult with local units of government before authorizing land uses that could create demand for increased public services

Require commercial outfitting or guiding services based or conducted on National Forest System land to obtain permits. Consider applications for other special uses involving National Forest System lands, including utility corridors; transmission lines; radio and television transmission towers; wind, solar, and hydropower generation sites; and others on an individual basis and consistent with the management prescription and visual resource VQOs for the management area.

2800 Minerals and Geology

Mineral Exploration

All National Forest System lands shall be available for nonsurface-disturbing exploration.

Private
Minerals

In land management decisions, make provisions for private mineral owners to make reasonable use of the surface in exercising rights defined by deed and public law (see Land Manager's Handbook on Minerals Management, FSH 2809.11)

Act within 60 days upon requests for permits and other authorizations needed for the exercise of nonfederal mineral rights (see FSM 2835).

Common Variety
Minerals

Assess the local supply/demand situation

Develop Ottawa National Forest inventory of common variety mineral materials.

Complete an Order 3 inventory as part of the ECS-SRI throughout the Forest with an Order 2 survey done on those Ecological Landtype units found to be most likely to contain common materials. Priority of Order 2 survey is LTA 6, 12, 13, 17, 18, 19, 14b, 14a, 1, 3, 14, 4, 7, 2, 9, 11, 5, 15, 16, 20, 10

Make common minerals available to the public and to local, state, and federal government agencies where reasonable protection of or mitigation of effects on other resources is ensured, and adequate volumes are available. Document in pit plan (see FSM 2850).

Prohibit extraction of gravel and similar mineral materials in LTAs 6, 12, 13, 15, 16, 17, 18, and 19 except for administrative purposes, for limited quantities that may be given to local units of government for use on public roads within the Forest boundary, and for sales of 10 cubic yards or less to local residents

A pit operating plan will be prepared and kept current prior to the extraction of mineral materials from National Forest System land.

- The Forest Service will prepare pit operating plans with interdisciplinary input for community and common-use pits.
- Permittee or contract holder will prepare such plans for single user pits, subject to Forest Service approval
- Include a pit operating plan as a part of all Forest Service contracts where mineral material sources are designated in the contract and are located on National Forest System lands.
- For Forest Service in-service projects, a pit operating plan will normally be approved prior to working in a mineral material source.

Authorize the disposal of mineral materials by sale, free-use permit, inclusion as a mineral materials source in a contract, or for the direct use of the Forest Service

Charge fair market value for all mineral materials disposed of by sale.

Grant free use of mineral materials for Forest Service contracts and maintenance agreements.

Mineral materials may be given without charge to any federal, state, county, or local government provided the applicant shows to the satisfaction of the authorizing officer that such materials will be used for a public project. Such a donation shall not be made when the applicant owns or controls an adequate supply of materials in the area of demand.

Reclamation costs for community pits or common-use areas shall be borne by the Forest Service.

Oil/Gas and
Hardrock
Minerals

Exploration of oil/gas and hardrock minerals will be permitted in accordance with the Forestwide Environmental Assessment dealing with these minerals dated June 1985 and August 1986 approved by the Regional Forester

3400 Forest Pest
Management

Use integrated pest management methods to minimize or prevent the development of pest problems. Where pest problems are unavoidable, select the solution that provides the most beneficial method, based on objectives, effectiveness, safety, environmental protection, and cost.

Control household pests in recreation areas. Remove pest infested trees that could cause property damage or injury in developed recreation sites.

4000 Research

Inform and/or consult the appropriate division of the North Central Forest Experiment Station whenever National Forest System lands or waters are to be used for significant educational, administrative, or research studies and when an area has been nominated for study for consideration to be recommended as a Research Natural Area

4060 Research
Natural Areas

Locate potential candidate Research Natural Areas primarily through the Forest's Ecological Classification System. The objective is identify unique geologic, aquatic, Society of American Foresters cover types, and other biotic conditions.

5100 Fire
Management

Suppress all wildfires.

Review annually, and revise as necessary, agreements for fire detection and suppression of wildfire on National Forest System lands by cooperating firefighting agencies, including the cooperative agreement with the State of Michigan and local fire departments, which are listed in the Ottawa National Forest Fire Management Action Program.

Emphasize fire prevention. Cooperate with the Michigan Department of Natural Resources to reduce human-caused fire occurrence.

Maintain the Ottawa National Forest Fire Management Action Program in accordance with FSM 5121.1.

Guide fire detection, suppression, fire control strategies, equipment, and manpower placement in accordance with the Ottawa National Forest Fire Management Action Program.

Dispatch initial attack forces through the Forest dispatcher located at the Watersmeet Ranger District Office when a fire is reported.

Notify the State of Michigan of any wildfire and federal or private prescribed burning within the National Forest Protection area. Keep the State of Michigan informed on the commitment of firefighting equipment and personnel.

Review and coordinate the Ottawa National Forest Fire Program with the Michigan Department of Natural Resources.

5300 Law
Enforcement

Provide law enforcement commensurate with the frequency, severity, and type of violations committed.

Adjust Cooperative Law Enforcement agreements in accordance with tri-year evaluations of Forest law enforcement needs and the quality of service available

At all facilities, apply recommended security measures that are cost efficient in relation to risk and value of potential loss.

Emphasize prompt, thorough investigation and appropriate law enforcement action on major timber trespass cases

Minor cases of timber trespass, such as cutting or damaging trees in recreation areas, will be responded to with a level of investigation and enforcement action commensurate with the situation

Investigate fire trespass cases with qualified fire investigators.

Follow Good Host principles in law enforcement activities.

Refer all fish and game law violations to the Michigan Department of Natural Resources conservation officers.

Enforce bridge load limits and spring load restrictions through cooperation with local law enforcement agencies.

Emphasize the enforcement of road closures.

Surface
Ownership

Use landownership adjustment authority to modify and improve landownership patterns.

Adjust landownership where consolidation and acquisition is desirable and in areas where exchange would be in the public interest.

Satisfy one or more of the following purposes in land adjustments (purchase or exchange):

- Adjustment accomplishes objectives of public law or regulation.
- Adjustment is needed to meet demand for National Forest System resources.
- Adjustment results in more efficient landownership patterns.
- Adjustment results in lower resource management costs

Acquire only the interest needed to achieve land management objectives.

Land exchanges must be in the public interest. Cumulative effects of the exchange program will be monitored to see how the program is meeting the objectives of improving economic efficiency; enhancing wetland and riparian values, wildlife habitat, cultural resources, and public recreation needs; and minimizing floodplain risk.

Give priority to land purchase and exchanges to acquire land or interest in land that

- Is critical habitat of endangered or threatened fish, wildlife, or plant species.
- Is needed for the completion of activities or programs of national significance, such as the North Country National Scenic Trail.
- Is needed to protect wildlife, fish, and wetland values.
- Has cultural or historical values that are threatened or whose value would be enhanced by public ownership
- Is within proposed wilderness.
- Is needed for public recreation purposes
- Meet demand for Forest resources.

Acquire conservation easements rather than fee ownership to the extent practical where existing private land use is providing or can provide the desired condition for wildlife habitat, scenic river corridors, open areas, or other resource management objectives.

Avoid encumbering land available for exchange with land uses that compromise land exchange opportunities.

In exchange of lands, give priority to the offering of:

- Land that is suited to and needed for community development and other public purposes.
- Lands whose retention would require unusually high investments for landline location, access, and other management activity.

Obtain access needed for Forest management purposes. Coordinate access needs with those of other public and private landowners

Subsurface
Ownership

Subordinate or acquire subsurface rights when all of the following conditions exist:

- Conflicts between surface values and mineral activities cannot be mutually resolved.
- The public benefits from the surface values exceed the cost of acquiring subsurface rights.
- The cost is consistent with budget priorities.

7100 Landline
Location

Prior to implementation of management projects, locate, survey, post, and mark adjacent National Forest System boundaries in accordance with standard Forest land surveying operations (see FSM 7153).

Locate, survey, post, and mark first those National Forest System boundaries where highest resource program benefits can be achieved, where National Forest System land adjoins corporate lands and lands administered by other public agencies, where further landownership adjustment is unlikely, where activities on adjacent private or other governmental lands may threaten the recreation experiences or resources of the National Forest System tract, and/or where adjacent landowners are likely to be sensitive to land management practices and ownership boundaries

Use the following priorities for completing land survey projects

1. Search for and monument corners.
2. Run compass boundary lines where National Forest System land adjoins corporate lands and lands administered by public agencies.
3. Reestablish corners
4. Mark lines and corners to standard.

7300 Buildings
and Structures

Provide buildings and structures needed to support resource management objectives.

7400 Public
Health and
Pollution
Control

- Water Supply Drinking water may be provided at developed recreation, interpretive, and administrative sites. If provided, it must meet federal and state regulations and be protected to ensure its continued quality.
- Solid Waste Dispose of refuse generated or deposited on National Forest System lands through community or areawide systems that meet federal, state, and local regulations.
- Cooperate and coordinate with local government agencies in the location and development of needed solid waste disposal facilities.
- Emphasize and promote use of carry-in/carry-out method of disposal.
- Waste Water Treatment Septic wastes from developed recreation, administrative, and interpretive sites will be treated at the site or transported off site to a federal and state approved wastewater treatment system

7700
Transportation
System

- Roads Maximize use of existing roads
- Emphasize the use of road design and construction standards that are no greater than needed to meet the intended use
- Locate and construct all roads on suitable sites maximizing economy of road haul, design, construction, and maintenance by minimizing cuts and fills (lays lightly on the land), providing for off-road drainage, and meeting visual quality objectives
- Coordinate transportation planning activities with state, county, township, and local government units. Review project proposals and plans jointly to determine leadership and funding roles and approvals.
- Coordinate road construction and road maintenance activities with state, county, township, and local governments where both agencies have an interest in the facility.
- Avoid construction of new collector roads; the collector system of roads is essentially in place.
- Reconstruct existing collector roads to the standard needed for land management practices considering safety, erosion control, improvement of load-bearing capacity, and reduction of travel and maintenance costs

Reconstruct short stretches of road to improve alignment and avoid private property.

In accordance with management prescriptions, provide road development and management including road closures that conforms to the appropriate Recreation Opportunity Spectrum (ROS) Class (see Forest Plan Appendix F) and special wildlife habitat management requirements for the management area.

Identify system road needs through a joint transportation planning effort involving District staff, Engineering, and other resource staff on a management or opportunity area basis utilizing the integrated resource management process. Document the final decision.

Identify all existing roads. Determine those needed for administration and public use. Obliterate unneeded roads in an orderly and cost-effective manner as projects are scheduled in those areas.

Place any road needed long-term on the transportation system. Use the transportation system planning process to identify and design transportation needs to serve long-term management.

For each arterial or collector road to be constructed or reconstructed (including Forest Highways that meet this definition), identify corridors up to 1/2 mile wide within which the road will be located.

Design and construct collector and local roads so they are suitable for transporting forest products and accommodating a planned motorized recreation use.

Arterial roads will be, as a minimum, designed and constructed for transporting forest products and accommodating planned motorized recreation use; will be open; and will be maintained for safe and moderately convenient travel suitable for passenger cars (maintenance level 3 or higher).

Rebuild arterial and collector roads that are open to public travel as necessary to permit safe and moderately convenient travel on road surfaces suitable for passenger cars.

Repair or replace bridges and major culverts to state legal load-limit standards.

All temporary roads will be planned and constructed to be revegetated.

Accomplish revegetation of temporary roads to control erosion immediately following the closure of the road, preferably during the same growing season the disturbance occurs.

Revegetation of other temporary roads will be accomplished in a reasonable period of time, not to exceed 2 years, after the termination of the contract, lease, or permit.

Refer to 2500 Water and Soil Resource Management - Watershed Disturbance for additional direction and standards and guidelines.

Road fill will be removed from rivers, flood plains, and wetlands when road abandonment takes place to reestablish natural flow and riparian values.

Consider natural surface and subsurface drainage patterns in road location and designing.

In general, strive to avoid crossing perennial streams with temporary roads

Locate new roads outside riparian areas whenever possible. Relocate or remove existing roads occurring within these landscapes, if feasible, or manage the roads with seasonal closures.

Avoid constructing roads across other ownerships except when the existing road is on a suitable location, can serve Forest needs, and an easement can be obtained or when locations across National Forest System lands are not economical and difficult to meet resource management objectives.

Minimize the number of local roads with direct access to Sensitivity Level I and II arterial and collector roads, given considerations for cost effectiveness and visual quality objectives.

Avoid construction of roads over existing hunter or fisherman trail access where possible and efficient

The Forest Service will consider construction of local roads with appropriated funds in the following situations.

- Where multiple timber sales are planned to be operated in the same time frame using the same local road system.
- Where long-term multiresource needs require an initial investment that exceeds that justifiable for the initial project.

Road Design Standards

Design all roads to meet the following standards:

To cross riparian areas:

- The minimum possible area is used. Do not align roads to pass through the long axis of the riparian area.
- Suitable fish passage is provided.

- Water flows are diverted from roads and trails to minimize erosion and prevent sediment from reaching the stream.
- Approaches to stream crossings are stabilized during and after construction and revegetated to prevent erosion and possible sedimentation.

When riparian areas cannot be avoided:

- Roads will be designed, constructed, and maintained to minimize blockage of expected high water.
- Gravel or blacktop surfacing, sediment ponds, and other erosion control measures will be used where needed to prevent erosion/sedimentation from occurring.
- Minimize disturbance to streambeds when depositing fill material for bridges and culverts.
- Wherever possible, borrow material will be obtained from outside the riparian area.
- Unsuitable excavated material from road construction will not be deposited in lakes, streams, or wetlands.

Existing collector roads will be rebuilt to meet current or projected needs:

- To improve load-bearing capacity.
- To correct drainage problems.
- To reduce unsafe driving conditions.
- To reduce excessive maintenance.
- To increase design speed.
- To reduce user costs.

To construct local roads:

- Refer to Figures 4.2 and 4.3-Typical cross sections for local roads.
- Use the minimum amount of earthwork.
- Design speed will usually be less than 15 mph.
- Usually single lane except two lanes within recreation sites.
- Surface width will be 10 to 14 feet except within recreation sites 10 to 20 feet.
- Turnouts optional, usually not intervisible, depending upon traffic management.
- Minimum horizontal alignment is generally 100-foot radius.
- Maximum gradient is usually less than 12 percent
- Minimum clearing limit may be 0 to 3 feet horizontally beyond fill slope or cut slope.
- Disposal of construction slash and unsuitable excavation material is consistent with the visual quality objective of the area.
- Construct drainage as needed to minimize maintenance and to protect resources.
- Normally, natural revegetation is acceptable, except that large cuts and fills are seeded and mulched.
- Roads may be closed with natural materials or gates meeting standards of the Manual on Uniform Traffic Control Devices (FSH 7109.31). When gated, a parking space or turn-around will be provided.

- Apply surfacing as needed for intended use and local condition.

To construct temporary roads:

- Refer to Figure 4.3-Typical cross section for temporary roads.
- Lay lightly on the land with a minimum of earthwork.
- Available only during period of use for which it was constructed, most commonly during timber sale
- Obliterated after use.
- Design speed is usually less than 10 mph.
- Single lane.
- Normally, native surface.
- Surface width will be 10 to 14 feet.
- Minimum horizontal alignment.
- Maximum gradient is usually less than 12 percent
- Clearing width is generally less than 24 feet
- Residue disposal is consistent with the visual quality objective of the area.
- Do not block natural and installed drainages.
- Install drainage as needed to protect resources.

To obliterate temporary roads:

- Remove drainage structures and all fills associated with drainages to original elevations to permit normal maximum flow of water.
- Eliminate road ditches and shape disturbed areas
- Return the area to vegetative production.
- Provide cross drainage and stabilize exposed surfaces to minimize movement of sediment from road to stream
- Seed and mulch as needed.
- Effectively block the road to normal passenger vehicle traffic.

Road
Maintenance

Provide maintenance, resource protection, and drivability commensurate with road use, the recreational setting, and experiences associated with the management area.

Maintain roads for safe and moderately convenient travel suitable for passenger cars (at least maintenance level 3) if passenger car travel is intended, for limited passage of traffic (maintenance level 2) if passage of vehicles is limited, or for basic custodial care to keep drainage functional and the road stable (maintenance level 1) if closed to vehicular traffic (see FSM 7721.11)

Provide adequate safety, regulatory, directional, and informational signs for the traveling public.

Install signs in the following priorities:

1. Warning and regulatory signs on arterial roads
2. Warning and regulatory signs on collector roads.
3. Route markers on arterial roads.

4. Directional signs on arterial roads.
5. Route markers on collector roads.
6. Directional signs on collector roads.
7. Route markers on local roads.
8. Informational and geographic identification signs on arterial and collector roads, especially those with high recreation use (see Manual on Uniform Traffic Control Devices (FSH 7109.13) and Sign Handbook (FSH 7109.11)).

Road Closure

Roads may be closed to public use, restricted by vehicle type, or restricted by season of use.

Close all new and existing local roads as necessary to meet road density requirements of 1 mile per square mile of open roads to passenger vehicles (2- and 4-wheel drive) in areas of the Forest where management is to provide habitat for wildlife species requiring remoteness. Emphasis will be on closing these roads during the fall hunting seasons (September through December)

Control access to winter or winter/dry weather roads where needed to prevent damage to the roadway and to protect the resources. Control as necessary during periods of use by a temporary device such as a gate. Control access between periods of use by blocking the road with a ditch, berm, large boulders, stumps, gate, or other means.

1900 Land and
Resource
Management
Planning

Vegetation
Management

If vegetation management is planned for the area, ensure diversity of vegetation on the management area.

Provide a mix of openings, regeneration, old growth, mast, wetlands, forage, thermal cover, and other vegetation types, interspersed to meet objectives within the range of composition desired for the management area

Where possible, space habitat components throughout the management area, considering desired future condition, existing vegetation, and adjacent lands

Manage timber stands to retain selected inclusions of hemlock, oak, cedar, paper birch, black cherry, and aspen. The preferred method for leaving trees in clearcuts or regenerated shelterwood cuts is in groups. Thin around the residual wildlife trees to promote crown development and general tree vigor. Individual leave trees in the above areas must be windfirm and resistant to sunscald or dieback under exposed conditions. On appropriate soil-sites at final harvest, plan for regeneration of inclusions of these species.

Consider management for red oak where adequate regeneration or seed trees are present.

Consider artificial regeneration to red oak on suitable sites to meet wildlife needs.

Regenerate paper birch where site conditions are suitable to retain the type, where such stands are visible from travel routes, and within and adjacent to use areas

Manipulate the vegetation canopy in and along streams to provide water temperatures within the prescribed ranges for the fisheries objective

Avoid falling snags unless there is good reason for taking one out, such as to remove a safety hazard or in site preparation for artificial regeneration.

Eastern hemlock and hemlock/hardwood clumps, particularly with yellow birch present, are excellent choices for leave groups and offer long-term opportunities for cavity and nesting habitat.

2400 Timber
Management

Silvicultural
Systems

Harvest cutting methods must be consistent with the silvicultural system for the desired forest type to be managed

Continued on next page

If there are several potential stands of old growth in an area, select the combination of stands for old growth management that provides good spatial distribution within the management area. Favor the following locations in management of old growth stands:

- Where opportunities are greatest to provide habitat for old-growth dependent wildlife.
- Where access is poor for intensive management.
- Where site productivity is relatively poor.
- Where land is considered not suited for timber production.
- Recreation use areas other than intensively developed sites.
- Water-influenced landscapes, including riparian areas.
- Sites in foreground areas of the Ottawa National Forest visual management system sensitivity level 1 and 2 travel routes.

Adjacent
Stands

Adjacent stands classified as suitable forest land will be managed using uneven-aged management practices.

Sale
Preparation

Design sale packages of size and product mix to meet the needs of prospective purchasers, market conditions, and available logging technology and to meet the integrated resource management direction for the management area.

Lay out payment unit boundaries to ensure that the entire unit will be subject to the same operating season.

Limit complete vegetation removal, such as whole tree removal, to soils with sufficient nutrient content and/or storage capacity to support the new stand of vegetation and maintain soil productivity.

Plan and locate system roads prior to sale layout.

Emphasize harvesting methods that leave slash at the stump on Landtype Associations 1, 14, 14a, 15, 17, 18, and 19, even if it means requiring processor operations to haul slash back onto the harvested area.

Plan and document temporary roads and landings during sale layout.

Generally, the following operating seasons will be applied when estimating limitations on timber operations, assuming average weather conditions and the use of rubber-tired skidders.

- Year-round - Landtype Associations 1, 14, 15, and 17, except lowland mineral, organic, and wet alluvial soil-sites.
- Year-round except for spring breakup - Landtype Association 14a, except lowland mineral, organic, and wet alluvial soil-sites.

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Wildlife habitat improvement will be accomplished through the integration of vegetation/wildlife management practices to the maximum extent possible.

Place very low priority on direct habitat improvement that could be obtained with integrated practices unless the project can be accomplished with minimal investment, such as with volunteers or cooperating agencies or groups or as specified in the integrated resource management prescription for the project.

Direct habitat improvements, other than those accomplished through commercial timber sales, may be scheduled where analysis indicates a need that cannot be met through commercial timber sales. Approval will be on a project plan basis.

Inventories for potential direct wildlife habitat improvement projects will emphasize endangered and threatened species, wetlands, and fisheries habitat. Other projects will often qualify for funding under the 1976 amendment to the Knutson-Vandenberg Act and these funds will be used where appropriate.

Habitat improvement projects will emphasize using natural materials and will have a natural appearance when completed.

If vegetative management is planned for the area, manage permanent upland openings in forest areas. Recognize the home range needs of the selected species such as sharptailed grouse and other wildlife species and the contribution of adjacent private lands when considering the spatial distribution of such openings.

Re-treat or maintain selected old fields, historic grassland ecosystems, old logging camps, old homesteads, orchards, and other clearings greater than 1/2 acre in size to the standard that the dominant vegetation is either understory shrubs, grasses, or forbs. Use chemical treatment, chemical and hand tool treatment, chemical and mechanical treatment, or prescribed fire to maintain permanent upland openings.

Freshly disturbed soil areas, such as landings and unsurfaced road beds, may be left to revegetate naturally or revegetated as follows:

- Perform erosion control on erosive sites
- Avoid seeding so as to favor natural regeneration of native herbs and shrubs, except as noted below
- Seed to warm-season native grasses within Landtype Associations 1, 14, 15, 17, and 18.
- Seed to ladino clover or ladino clover-annual rye mixture within winter deer range and areas where a higher quality protein forage may be worth the added investment of seed and/or site preparation.
- Where seeding is practiced, avoid seeding 20 percent to 50 percent of the disturbed area to provide for dusting habitat and to favor partial revegetation of native herbs and shrubs.

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