

Hoosier National Forest
Administrative Correction 6
September 2007

**Corrections to Forest-wide Guidance for Threatened and Endangered
Species and Regional Forester Sensitive Species and Appendix C**

Administrative corrections are defined at 36 CFR 219.31 and may be made at any time and are not plan amendments or revisions, and do not require public notice of the preparation of an environmental document under Forest Service NEPA procedures.

Administrative corrections include the following:

- (1) Corrections and updates of data and maps;
- (2) Updates to activity lists and schedules required by 36 CFR 219.30 (d)(1)-(6);
- (3) Corrections of typographical errors or other non-substantive changes; and
- (4) Changes in the monitoring methods other than those required in a monitoring strategy (36 CFR 219.11 (c)).

Administrative Corrections should be printed on salmon colored paper and distributed to all employees for inclusion in their copy of the Forest Plan.

The Federal Register published final rule 50 CFR Part 17, removing the bald eagle (*Haliaeetus leucophalus*) from the List of Endangered and Threatened (T & E) Wildlife species for the lower 48 states of the United States. This action was published on July 9, 2007 and became effective August 8, 2007. The bald eagle continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The bald eagle will remain on the Regional Forester's sensitive species list for at least the next five years (FSM 2670, R9 RO Supplement 2600-2000-1).

Direction contained in a July 17, 2007 letter from the Eastern Regional Office directed Forest to modify their plans as needed to align the language in the plan and its appendices with the current T & E and Regional Forester's Sensitive Species listing.

Administrative Correction 6 replaces pages 3-2 through 3-13 of the Forest Plan; and pages C-1 through C-4 in Appendix C to the Forest Plan.

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Chapter 3

MANAGEMENT DIRECTION

INTRODUCTION

This is the heart of the Plan. This section contains guidance needed to help meet goals and objectives. The Forest has identified environmentally sound management practices to help achieve these goals and assured the needs of the public are met. Some guidance is applied Forest-wide, while other parts are specific to individual management areas. This guidance sets the framework for making future site-specific decisions at the project level. The management area maps in Appendix J show the location of different management areas.

Guidance

The goals discussed in Chapter 2 necessitate different treatment in different areas of the Hoosier National Forest. Management direction provides guidance for managing resources and uses on NFS lands.

Guidance is the direction governing how and where management activities can take place. The guidance includes both standards and guidelines as prescribed by the implementing regulations for the National Forest Management Act (36 CFR 219.11[c]).

We present guidance in two sections. The first section is Forest-wide guidance, applicable to all but specifically noted exceptions. The second section presents guidance for specific management areas, but does not repeat Forest-wide guidance. It further refines Forest-wide guidance by providing additional considerations, restrictions, activities, and direction that are to be applied to meet the specific objectives of each management area. Consult both sections before determining which management activities are appropriate in a management area.

We incorporate by reference the direction and guidance from Forest Service manuals and handbooks. The plan is designed to supplement, not replace, direction from laws and regulations.

This document identifies management areas, outlines activities compatible in each one, and provides guidance toward designing projects. Final decisions, however, will be based on project implementation and additional site-specific analysis.

Standards and guidelines are the specific technical direction for managing resources on the ground. They provide another link in moving toward the desired condition.

Only measures that are specific to the Hoosier are included in the standards and guidelines. Laws, regulations, and policies that apply to the entire National Forest System are not reiterated in the standards and guidelines. In addition, desired conditions and objectives that have a prescriptive component are not reiterated in the standards and guidelines.

Guidance includes standards and guidelines.

* **Standards** are shown with an asterisk. These must be implemented to achieve Forest goals and objectives. Deviation from a standard requires an amendment to the Forest Plan.

Guidelines (shown without an asterisk) should be implemented in most cases to achieve the goals and objectives. Deviation from a guideline does not require a Forest Plan amendment, but the rationale must be disclosed in the project decision documents. In some cases a guideline grants permission.

Forest-wide Guidance

Conservation of Threatened and Endangered Species Habitat

Refer to Appendix C for more information on threatened and endangered species on the Forest.

- * Evaluate lands affected by Federal land adjustment activities and evaluate management activities to avoid or minimize effects on Federally designated threatened and endangered species habitat.
- * Identify lands with known threatened or endangered species habitat as a top priority for acquisition.

Determine and implement management activities that will maintain and improve habitat features for threatened and endangered species.

Locate new activities away from areas that might negatively impact any threatened or endangered species.

Indiana Bat

Management of Hibernacula

- * Establish a zone with a one-quarter mile radius around each known hibernacula of Indiana bats on the Forest. This zone may be irregular in shape to take into account likely flight paths, foraging habitat, and areas where Indiana bats are likely to swarm. Prohibit new construction activities within this zone.

- * Considering both public and private ownerships, maintain or promote at least 70 percent forest canopy cover within a one mile radius of known hibernacula of Indiana bats. Timber harvest should be conducted within this zone only during hibernation and is restricted to single-tree and group selection.
- * Implement prescribed fire within a five mile zone around hibernacula only when bats are unlikely to be swarming or staging. Burns should be conducted under conditions that will reduce or eliminate smoke dispersing into hibernacula.
- * Develop management goals and directives (conservation plan) for each known hibernaculum at micro-topographical level, taking into consideration current conditions and future restraints and/or challenges. A five mile radius should be included from the entrance of the known hibernacula.

Management of Roosting Habitat

- * Maintain a component of large, mature trees in harvest areas, retaining at least three live trees per acre greater than 20 inches diameter at breast height (DBH) of these preferred species (leave trees will be located along edges of the harvest area or in clumps to maximize their benefit to bats):
 - silver maple (*Acer saccharinum*)
 - bitternut hickory (*Carya cordiformis*)
 - shellbark hickory (*Carya laciniosa*)
 - shagbark hickory (*Carya ovata*)
 - white ash (*Fraxinus americana*)
 - green ash (*Fraxinus pennsylvanica*)
 - eastern cottonwood (*Populus deltoides*)
 - white oak (*Quercus alba*)
 - northern red oak (*Quercus rubra*)
 - post oak (*Quercus stellata*)
 - black locust (*Robinia pseudoacacia*)
 - American elm (*Ulmus americana*)
 - slippery elm (*Ulmus rubra*)
- * If a stand possesses no trees greater than 20 inches DBH, leave 16 live trees per acre (leave trees will be located along edges of the harvest area or in clumps to maximize their benefit to bats) of these preferred species remaining in the stand.
- * Shellbark hickory or shagbark hickory trees will not be harvested or killed for the purpose of timber stand improvement, unless the density of trees of these two species combined exceeds 16 trees per acre. If present, at least 16 live shagbark and shellbark hickory trees (combined) greater than 11 inches DBH must be maintained per acre.
- * Firewood cutting permits must clearly state that standing dead trees may not be taken unless specific trees are identified in the permit by the Forest Service. When approved for removal, standing dead trees would be designated by Forest Service personnel and described in the firewood cutting permit.

- * When demolition of abandoned buildings is considered, inspect buildings as necessary to confirm the presence or absence of maternal roosts prior to initiating operations. Delay operations until bats have departed buildings used as maternal roosts and provide suitable roost replacement.
- * Any hazard tree that has characteristics of a potential maternal roost tree (splintered bole that provides crevices, evidence of decay so that either their bark is exfoliating, it possesses cavities, or dead portions of the tree have been used, excavated, or occupied by species such as woodpeckers or other cavity nesting birds and, most importantly, exposure of the roost to sunlight) will not be removed until consultation with a Forest Service biologist has been completed. An exception is, trees may be cut that are an immediate safety danger to an individual.
- * Consultation will occur with the USFWS any time a hazard tree is identified as being used by bats.
- * Develop management goals and directives (conservation plan) for each known maternity colony at micro-topographic level, taking into consideration current conditions and future restraints and/or challenges.
- * Perform emergence counts on all trees targeted for removal during the bats' active period (April 15 – September 15) that exhibit maternity roost tree characteristics.
- * Any dead bats located on the Forest, regardless of species, should be immediately reported to the Bloomington Field Office (BFO) [(812)334-4261], and subsequently transported to the BFO. No attempt should be made to handle any live bat, regardless of its condition; report bats that appear to be sick or injured to the BFO.
- * Conduct pre-harvest environmental meeting with contractors and their employees onsite before any activities associated with timber harvest and/or removal; emphasize strict adherence to Standards and Guidelines; discuss life history and habitat needs of Indiana bats; adequately describe roost tree characteristics and the critical role they play for bats, and the subsequent importance in avoiding these trees during harvest operations.

All personnel tasked with the removal of hazard trees will attend training with a biologist to learn how to identify potential maternal roost trees.

When even-aged management is conducted, leave trees will be left along the edges of clearcuts or in large clumps (1/10th acre) to maximize their benefit to bats.

Retain dead and dying trees that have characteristics for potential maternal roost trees (leave trees) unless they are safety hazards. Characteristics for leave trees include evidence of decay so that either their bark is exfoliating, they possess cavities, or dead portions of the tree have been used, excavated, or occupied by

species such as woodpeckers or other cavity nesting birds and, most importantly, exposure of the roost to sunlight. In addition, retain any tree that has a splintered bole providing crevices that can be used as roosts by eastern forest bats.

When possible, delay removal of hazard trees until bats are likely to occupy hibernacula, between September 15 and April 15.

If potential primary roosts are located during single-tree and group selection harvest planning, design harvests to create gaps that border these trees so as to improve their suitability as roosts.

When there are not at least three standing dead trees greater than 11 inches DBH per acre during single-tree or group selection harvest, consider girdling live trees.

In the event that an occupied primary roost is located on NFS land, designate a zone extending in a radius of 300 feet from the roost. Prohibit land management activities within this zone during the breeding season (April 15 – September 15).

Restrict prescribed burning within a radius of one mile from occupied roosts during the breeding season.

Management of Foraging Habitat

- * When conducting uneven-aged hardwood timber harvests or conducting hardwood timber stand improvements, maintain at least 60 percent canopy cover on a stand-by-stand basis. Design boundaries of timber harvest areas to be irregular in shape so as to enhance foraging by bats.

Management of Water Sources

When conditions allow and need is determined, create shallow water extensions of existing waterholes and ponds to enhance insect diversity and abundance for foraging bats.

Gray Bat

- * When caves are found to contain gray bats, coordinate with the USDI Fish and Wildlife Service and other appropriate groups or agencies to determine if access to caves needs to be restricted.
- * Establish a zone with a one-quarter mile radius around each known hibernacula of gray bat on the Forest. This zone may be irregular in shape to take into account likely flight paths, foraging habitat, and areas where gray bats are likely to swarm. Prohibit new construction activities within this zone.
- * Considering both public and private ownerships, maintain or promote at least 70 percent forest canopy cover within a one mile radius of known hibernacula of gray bats. Timber harvest should be restricted to single-tree and group selection within this zone. Implement vegetation management to maintain or improve bat habitat for staging, swarming, roosting, or foraging. Implement prescribed fire within this zone only when bats are unlikely to be swarming, hibernating, or staging.

Fanshell

- * Prohibit any activity that might negatively affect the known but limited population in the East Fork of the White River, or any population located in the future.
- * Prohibit the application of pesticides within the riparian corridors of the sixth level watersheds of the East Fork White River where the species has known occurrences. Currently, known sites in sixth level watersheds that contain some parcels of NFS lands are the E. Fork White River – Henshaw Bend and the E. Fork White River – Poplar/Willow Creeks.

Rough Pigtoe

- * Prohibit any activity that might negatively affect recovery of the rough pigtoe in the East Fork of the White River or any population located in the future.
- * Prohibit the application of pesticides within the riparian corridors of the sixth level watersheds of the East Fork White River where the species has known occurrences. Currently, known sites in sixth level watersheds that contain some parcels of NFS lands are the E. Fork White River – Henshaw Bend and the E. Fork White River – Poplar/Willow Creeks.

Maintain and Restore Sustainable Ecosystems

Manage Vegetation to Provide Diverse Ecosystems

- * Prohibit adverse modifications to the landscape within 660 feet of known active osprey nests and heron rookeries. Seasonally restrict management activities within ¼ mile of known osprey nests and heron rookeries to avoid disturbance during nest building, egg laying, incubation, and fledgling stages.

Design projects in a manner that ensures management activities would not adversely affect habitat of sensitive species, unless there is a higher priority concern, such as habitat for threatened and endangered species.

Avoid planting, seeding, or introducing nonnative species.

Consider planting mixed species where suitable to reduce insect and disease damage, increase visual variety, and add habitat diversity.

Where possible, restore native ecosystems.

Retain where appropriate large diameter trees and mature or over-mature stands around ponds, lakes, wetlands, and stream shorelines.

Wherever appropriate, manage cliff faces, springs, caves, barrens, and glades as special habitats to protect or enhance physical, historical, and ecological characteristics.

Leave downed logs, limbs, and other scattered ground materials resulting from vegetative management or natural causes on the site where appropriate.

Use sanitation and salvage harvests to remove dead, dying, diseased, or potentially affected trees except in Management Areas 5.1 and 8.1.

Skid roads should be designated by Forest Service personnel and should not exceed a gradient of 35 percent.

Where applicable, clearcutting may only be used where it has been found to be the optimum method of regeneration to meet multiple-use objectives and is essential to meet forest plan objectives, involving one or more of the following circumstances:

- To establish, enhance, or maintain habitat for threatened, endangered, or sensitive species.
- To enhance wildlife habitat or water yield values or to provide for recreation, scenic vistas, utility lines, road corridors, facility sites, reservoirs, or similar development.
- To rehabilitate lands adversely impacted by events such as fire, windstorms, or insect or disease infestations.

- To preclude or minimize the occurrence of potentially adverse impacts or disease infestations, windthrow, or other factors affecting forest health. To provide for the establishment and growth of desired trees or other vegetative species that are shade intolerant.
- To rehabilitate poorly stocked stands due to past management practices or natural events.

Accomplish regeneration primarily through natural means. Planting or seeding may be used if adequate stocking, desired species composition, or acceptable genetic quality cannot otherwise be achieved. Refer to Appendix B for minimum stocking standards following timber harvest for even-aged management and uneven-aged management using group selection.

As needed, use salvage to reduce hazardous fuels from disturbances such as storm events, fires, and insect or disease infestations.

Consider the experience of trail users when conducting activities near and along trails.

Regional Forester Sensitive Species

- * Aerial flights associated with national forest projects will not be permitted within ¼ mile horizontal distance and 500 feet vertical distance of any known active bald eagle nest.

When vegetation management is planned within one mile of a body of water greater than 40 acres, the Indiana Department of Natural Resources, Division of Fish and Wildlife will be consulted about protection of potential bald eagle nesting, roosting, and feeding areas.

Human entry within ¼ mile horizontal distance of an active bald eagle nest during courtship, nest building, incubation, or brooding periods will be discouraged.

- * Prohibit adverse modifications to the landscape within 660 feet of known nests of sensitive raptor species. Seasonally restrict management activities within ¼ mile of known sensitive raptor species nests to avoid disturbance during nest building, egg laying, incubation, and fledgling stages.
- * Prohibit timber harvests within a distance of 100 feet from the top and base of large cliffs or overhangs (see Appendix A, Glossary) except for the salvage of dead and dying trees, or sanitation harvest. Trees harvested outside but near this zone would require directional felling away from the cliff area. These rock outcrop habitats are not limited to solid cliffs and may include discontinuous rock faces (i.e. fractured cliffs, discontinuous large blocks).
- * Prohibit planting of exotic or nonnative invasive plants within or near barrens, glades, and other sensitive plant communities.

When evaluating the need for harvest within 50 feet of a perennial or intermittent stream, consider the presence of sensitive species and potential effects.

In areas potentially affected by land exchange, surface-disturbing activities or vegetation management, assess the need for and, as needed, conduct surveys or inventories for Regional Forester sensitive species.

Maintain or enhance barrens or glades habitat. Removal of woody vegetation by burning, cutting, or mowing may be desirable to maintain or enhance these areas.

Avoid soil-disturbing activities in barrens or glades unless required to meet management objectives (i.e. provide for management access, put in fire lines for prescribed burns, or remove tall fescue or other nonnative invasive plants).

Identify other areas that are not barrens or glades, that harbor botanical Regional Forester sensitive species requiring full sun.

Nest Boxes and Other Structures

For conservation and educational purposes, supplement natural cavities with nest boxes for cavity-nesting mammals and birds. Use nesting platforms or other structures as appropriate.

Forest Openings

Whenever possible, create and maintain larger openings or opening complexes to provide habitat for species that are area sensitive.

Generally manage forest openings to provide early successional habitat to benefit wildlife species, provide habitat for native plant communities, add visual variety, and provide for recreation opportunities. Manage the edges of most forest openings as shrubby edge or thickets. Develop and maintain other areas, or portions of shrubby areas, in native forbs and grasses.

Where possible, improve wildlife forage and native plant diversity on transmission lines and pipeline right-of-ways.

Where conditions allow, locate openings away from heavily traveled roadways.

Consider public access and recreation when establishing openings.

Mow openings from August to October when possible to minimize disturbance to nesting birds while maintaining some herbaceous food and cover over winter.

Restore native plant communities and replace exotic pasture grasses and other nonnative plants wherever possible.

Retain standing dead trees in created openings as needed, in conjunction with opening development and maintenance.

Caves and Other Karst Features

- * Prohibit timber harvesting and prescribed burning within 200 feet of cave entrances, direct drainage inputs, such as sinkholes and swallow holes, and any streams flowing into a known cave, except for research purposes.
- * Do not discharge drilling muds into a karst hydrologic system.
- * Do not conduct surface disturbing activities on any slopes steeper than 30 percent adjacent to cave entrances without use of mitigation measures.
- * Do not promote caves as available for general public use unless the Forest develops adequate protection measures to control and manage this use and can clearly establish that no substantial risk, harm, or vandalism of the cave would occur.
- * Do not conduct seismic surveys within 200 feet of known cave passages or conduits.
- * Location of caves on NFS lands will not be disclosed.
- * Cave management will be integrated into general land management practices to protect cave resources from subterranean and surface impacts.
- * Inventory and evaluate caves in accordance with the Federal Cave Resources Protection Act, Forest Service Manual direction, and Memorandum of Understandings with other organizations.
- * All caves and karst features shall be excluded from leasing and mineral activities and no drilling will occur within the boundaries of any cave. Boundaries are defined as the area within the known cave plus a buffer zone of 200 feet around the cave.

Cease drilling operations and notify the authorized officer when anyone encounters previously undiscovered voids (more than 12 inches) within 300 feet of the surface.

Do not allow sediment from access roads and other activities to wash into caves or karst features.

Examine and inventory to the extent possible each cave and karst feature. Prepare management prescriptions and plans describing considerations and criteria for protection of cave resources whenever feasible.

Where practical and beneficial, restore cave and karst hydrologic systems choked with debris from non-natural causes or sediment.

Take corrective action if damage to karst or other resources exists and is likely to continue.

Whenever possible, remove non natural debris from sinkholes to improve water quality entering directly into karst systems.

Gating of cave entrances will only be considered as a last resort on a case-by-case basis for safety, and after evidence demonstrates this to be the only option to protect cave species and other resources.

Under normal circumstances, do not place signs with cave names or other information that would reveal cave locations outside of caves. Small signs or registers inside caves (20 to 100 feet) that discuss cave conservation or safety are acceptable.

The Forest will be careful not to promote or dissuade the recreational use of caves; unless it becomes necessary to control access to protect cave resources.

Information on caving basics, ethics and safety, and locations of broad regions of karst topography may be provided. Information about a particular cave may be exchanged with individuals who demonstrate a pre-existing personal knowledge of a cave's location, extent, and layout.

Aquatic Habitat and Species Management

Manage vegetation canopies in and along streams and other aquatic habitats to maintain appropriate water temperatures and chemistry for fish and other aquatic species.

Incorporate habitat needs of animal and plant communities associated with wetlands into wetland design (islands, peninsulas, and standing live and dead trees). Consider the habitat needs of waterfowl, aquatic flora and other wildlife.

As opportunities arise, restore or enhance fisheries habitat in lakes, ponds, and streams by introducing large woody debris and maintaining or improving streambank and shoreline stability. Trees should be removed from dams of maintained lakes and ponds.

Avoid blocking fish passage in streams.

Consider improvement and enhancement of aquatic habitats in all management activities associated with lakes. Incorporate consideration of habitat needs of animals attracted to lakes into lake design including islands, peninsulas, and standing live and dead trees. Determine the type of access and boat and motor restrictions on lakes on an individual basis.

Maintain or enhance the habitat quality of waterholes as necessary.

Where other objectives do not conflict, reduce aquatic vegetation to 20 to 30 percent coverage on lakes and ponds for the purpose of fisheries.

Maintain, enhance, or create ephemeral wetlands where feasible to provide breeding sites for reptiles and amphibians, as well as to provide drinking sites for bats.

Special Areas and Research Natural Areas

Consider nominating newly acquired land as Special Areas if those areas have significant natural characteristics or represent relatively undisturbed examples of important forest ecosystems.

Pest and Nonnative Invasive Species Management

- * Evaluate pest and nonnative invasive species problems and use integrated pest management to control them, as needed. This includes manual, mechanical, chemical, and biological control methods.
- * When applying pesticides, identify measures required to reduce off-site movement, drift potential, and adverse effects on threatened and endangered species and their habitat, sensitive species and their habitat, human and wildlife health, non-target vegetation, water quality, and any other relevant environmental elements.
- * Pesticides will only be applied in accordance with State regulations.
- * Include appropriate clauses for the prevention or treatment of nonnative invasive species in Forest contracts and permits.

For projects having moderate to high risk of introducing or spreading nonnative invasive plants, incorporate nonnative invasive species assessments in project planning and include nonnative invasive species prevention and treatment methods in project development, analysis, and implementation.

Generally prioritize nonnative invasive species management as follows:

1. Prevention of new infestations
2. Early detection and treatment of new infestations
3. Treatment of sites with the greatest potential for spreading such as trailheads, boat ramps, parking lots, recreation areas, and administrative sites
4. Protection of known endangered, threatened, and sensitive plant and animal sites susceptible to harm from invasive species
5. Protection of Forest special areas and Research Natural Area
6. Containment and control of established infestations

Fire and Fuels Management

- * Suppress all wildfires on NFS land.

Whenever possible maintain or restore ecosystems to a pre-fire suppression condition.

Consider prescribed fire, mechanical treatment, and isolation in addition to timber sales and other utilization options as tools for fuel treatment after natural disturbance events.

Use prescribed fire to accomplish silvicultural objectives such as oak regeneration.

Where possible, use natural or existing man made barriers for fire control and as boundaries on prescribed fire.

When using prescribed fire in riparian areas, use backing fires when possible and avoid lighting directly in the riparian area.

Avoid using tilled fire lines in riparian corridors.

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Appendix C

FEDERALLY ENDANGERED AND THREATENED; SENSITIVE SPECIES; MANAGEMENT INDICATOR SPECIES

Federally Endangered, Threatened, and Proposed Species

As a Federal agency, the USDA Forest Service has defined responsibilities in supporting recovery objectives for Federally listed endangered, threatened, and proposed species. Populations of these species will receive individualized attention. Management activities that may affect Federally listed species occur in consultation with the USDI Fish and Wildlife Service. If additional species that occur on the Hoosier become listed as endangered or threatened, the Hoosier will consult with USDI Fish and Wildlife Service as appropriate (50 CFR 402.16).

The USDI Fish and Wildlife Service have identified five Federally listed species as having part of their range on the Hoosier National Forest. Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), rough pigtoe mussel (*Pleurobema plenum*), and eastern fanshell mussel (*Cyprogenia stegaria*) are listed as endangered. The USDI Fish and Wildlife Service delisted the bald eagle (*Haliaeetus leucocephalus*) in August 2007.

Indiana bat is widespread in Indiana and occupies much of the eastern half of the United States, from Oklahoma, Iowa, and Wisconsin east to Vermont, and south to northwestern Florida. Although there are a limited number of occurrence records for this species on the Hoosier National Forest, its habitat occurs throughout the Forest. Gray bat and eastern fanshell are of limited distribution in Indiana. There are only three known records of gray bat and one of the eastern fanshell on or near the Hoosier National Forest. There is evidence that the rough pigtoe mussel occurs or occurred in the Wabash and East Fork White Rivers in Indiana.

MANAGEMENT DIRECTION

Conservation Plan for Federally Threatened, Endangered, and Proposed Species

This Plan fulfills Endangered Species Act Section 7(a)(1) obligations for conservation of threatened, endangered, and proposed species. The Hoosier National Forest is committed to conserving, protecting, and maintaining habitat for Federally listed species. The Conservation Plan of the Hoosier National Forest is, first of all, this Land and Resource Management Plan. The foundation of the Hoosier National Forest's Conservation Plan is the allocation of land into management areas that have the ecological conditions needed by particular species. A primary purpose of management area allocations is protection of biological diversity, including the conservation of

threatened and endangered species. Management area desired conditions and guidance aid in conserving threatened and endangered species by providing a variety of ecological conditions.

Management Area (MA) MA 2.8 and 3.3 provide benefits for a variety of users and resources. These management areas allow for vegetation management, which serves a variety of wildlife purposes, including the maintenance or enhancement of roosting habitat for the Indiana bat. MA 5.1 and MA 6.2 provide isolation, opportunity for natural succession, and areas with limited modification. Areas with such characteristics provide important habitat for wildlife, including threatened and endangered species. MA 6.4 primarily provides for natural succession to an old growth (climax) condition and limited modification. The direction for MA 8.1 (Research Natural Areas) includes "providing habitat for endangered species." MA 8.2 areas are Special Areas, and their management emphasizes the protection, perpetuation, or restoration of their special features and values. Special features include barrens, caves, and rock outcrops. The 632-acre Paoli Experimental Forest, which provides opportunities for studying the effects of specific management actions, is presently the only area designated 8.3. Taken together and with other Forest Plan guidance, the management areas provide a variety of habitats for various wildlife and plant species, with emphasis on threatened and endangered species. Approximately 60 percent of the Forest is in areas not appropriate for timber harvesting.

Recovery plans have been prepared for eastern fanshell mussel, gray bat, Indiana bat, and rough pigtoe mussel. The USDA Forest Service will work with the USDI Fish and Wildlife Service to identify and meet recovery objectives for the species on the Forest.

The purpose and goal of any conservation plan is recovery of each species such that there is no longer a need to list it as endangered or threatened under criteria found in Section 4(a)(1) of the Endangered Species Act, as amended. Actions of the Hoosier National Forest are directed toward conservation of listed species and, whenever possible, contributing toward recovery objectives outlined in approved recovery plans.

Relationship to Other Documents

To meet the consultation requirements under Section 7(a)(2), the Hoosier National Forest completed the Programmatic Biological Assessment for Land and Resource Management Plan Hoosier National Forest (Biological Assessment) in April 2000. The Fish and Wildlife Service responded with their Biological Opinion on the Land and Resource Management Plan Hoosier National Forest, Indiana on July 31, 2001. This Biological Opinion provided terms and conditions to ensure that actions carried out under the direction of the Forest Plan would minimize the potential for incidental take. The Biological Assessment included a list of management activities with amounts (acres, miles, etc.) estimated to occur in the next five years.

Species-specific recovery plans provide additional guidance for conserving and recovering each endangered or threatened species throughout its range. Each recovery plan has been developed by a team of scientists who are experts on the species being addressed. The Hoosier National Forest encompasses only a small part of the range of each of the four endangered or threatened species, so all recovery objectives may not be applicable to the Forest.

The Biological Assessment and subsequent includes analysis and direction related to bald eagles which were delisted in August 2007. The direction still applies to the species.

Direction

The Endangered Species Act provides authority for the Hoosier National Forest to be involved in and further the protection and recovery of threatened and endangered species. Section 7(a)(1) states, "All other Federal agencies shall, in accordance with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act."

Section 2(b) of the Endangered Species Act states, "The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for conservation of such endangered species and threatened species..."

The policy of Congress, according to Section 2(c)(1), is "that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of this Act."

Biological evaluations or assessments will be conducted as part of site-specific analyses for known populations of Federally listed endangered, threatened, and proposed species (FSM 2672.4). Guidelines and mitigating measures are implemented if a determination is made through a biological evaluation or assessment that a species may be affected.

If it is determined that an endangered, threatened, or proposed species may be affected by a management decision, evaluation criteria will be established in consultation with the USDI Fish and Wildlife Service as early in the process as possible. These criteria will identify: (1) what (if any) additional information is needed and (2) what mitigation measures or course of action is most appropriate for conservation of the species involved. The Forest Service is responsible for collecting additional information if needed.

Current management direction for the Hoosier is not likely to adversely affect gray bat, eastern fanshell or rough pigtoe mussel, or bald eagle (delisted in August 2007), as determined by the July 31, 2001 biological opinion from the USDI Fish and Wildlife Service - Bloomington Field Office. That Biological Opinion also concluded that continued implementation of the Forest Plan was "not likely to result in jeopardy" to the Indiana bat.

Some conservation actions may change if a species recovers and is delisted. The Conservation Plan will evolve as the Forest learns more about individual species, their limiting factors and habitat requirements, and the effects of various activities on these species. The following paragraphs provide direction in various aspects of the management of the Hoosier National Forest with regard to threatened and endangered species.

- Consult with USDI Fish and Wildlife Service to ensure that activities planned and

implemented on the Hoosier National Forest meet both the letter and intent of the Endangered Species Act, as amended.

- Cooperate with experts in other agencies, universities, organizations, and Forest Service research to identify objectives and projects that will conserve, protect, and recover populations and habitats of threatened and endangered species.
- Provide training and continuing education to Hoosier National Forest employees to ensure our workforce has the best scientific information available upon which to base decisions concerning threatened and endangered species on the Forest.
- Provide accurate and current information about the threatened and endangered species' life history requirements, habitat needs, threats to survival, and population and habitat status on the Hoosier National Forest, in Indiana, and across the species' ranges to ensure a sound basis for decision-making.
- Provide the public opportunities to learn about and appreciate threatened and endangered species so they will understand the importance of activities designed to maintain, protect, and recover these species and their habitats.
- Devise and implement a plan to guide the silvicultural management of the Forest that is based on sound principles of ecosystem management and works within the capabilities of the land to sustain natural resources, provide biodiversity, including habitat for, and populations of, threatened and endangered species.
- Acquire lands that provide habitat for threatened and endangered species through exchange with, or purchase or donation from, willing landowners.
- Ensure compliance with all laws, regulations, and policies pertaining to endangered and threatened species on the Hoosier National Forest.
- Cooperate with the USDI Fish and Wildlife Service law enforcement and other law enforcement agencies in enforcing laws and regulations pertaining to endangered and threatened species.

The Hoosier will report accomplishments that aid in the conservation of threatened and endangered species in the annual Monitoring and Evaluation Report.

Regional Forester Sensitive Species

As of October 20, 2003, the Regional Forester has designated 741 species as sensitive in the Eastern Region. This list updated the February 29, 2000 Regional Forester sensitive species lists for both animals and plants. These are plant and animal species for which population viability is recognized as a concern, as evidenced by a downward trend in population or habitat capability.

Regional Office staff maintain the Regional Forester sensitive species list, which is located on the internet site at: http://www.fs.fed.us/r9/wildlife/tes/tes_lists.htm. The current list for the Hoosier National Forest and any future updates are posted there.

In August 2007 the USDI Fish and Wildlife Service delisted the bald eagle. Forest Service directions (FSM 2670, R9RO Supplement 2600-2000-1) states that a delisted species be added to the Regional Forester sensitive species list and remain there for at least five years after delisting. Bald eagle will be added to the Regional Forester sensitive species list during the annual update.

Based on the October 2003 list, the Hoosier has 119 species as Regional Forester sensitive species. Of these species, 89 are animals and 30 are plants.

Another 8 animals and 40 plants that are sensitive species within the Eastern Region occur on the Forest. Risk evaluations for those species determined that they were not at risk or there is no concern about their continued viability on the Forest, and therefore, these 48 species are not designated as sensitive for the Hoosier.

Regional Forester sensitive species are designated and considered to be at risk, if they:

- Are candidates for listing under the Endangered Species Act;
- Have been delisted under the Endangered Species Act within the last five years;
- Have The Nature Conservancy species status ranks of G1-G3, T1-T3, N1-N3;
- Or are considered to be at risk based upon their state status ranks (S1-S3) and their respective forest risk evaluation.

Species listed as Regional Forester sensitive species must have at least one documented occurrence within the proclamation boundary of an Eastern Region national forest or grassland and be recognized as a valid species by taxonomic experts. The Regional Forester sensitive species list has been routinely and periodically maintained through a species risk evaluation process.

Direction and methods for maintaining and updating the Regional Forester sensitive species list is contained in a Region 9 supplement to the Forest Service Manual (FSM) 2670. The Forest Service Manual 2670 provides direction for sensitive species protection and management. The primary purpose of this direction is to be proactive and prevent each species from any loss of viability and ensure that any actions are not likely to cause a trend towards that species being listed as Federally endangered or threatened. In addition, it provides a basis for establishing sound management priorities for all Forest wildlife and plants.

As part of site-specific analyses, biologists will conduct biological evaluations to review and evaluate possible effects on sensitive species (FSM 2672.4). Project level analyses would identify and provide other necessary guidelines and mitigating measures not previously mentioned under Forest-wide guidance or management area guidance.

Management Indicator Species

Management Indicator Species Selection Process

The National Forest Management Act directs the Forest Service to select and track species that are of special interest or indicative of management trends. These species are called management indicator species (MIS). These MIS are selected on the basis of being likely candidates to provide information on the effects of management activities.

Forest biologists reviewed 31 species identified as MIS in the 1991 Forest Plan Amendment along with the list of proposed MIS species developed in 1994 with the following criteria in mind:

- The diversity of habitats found on the Hoosier,
- Current forest issues,
- Feasibility and cost associated with monitoring populations across the forest,
- Ability to assess the effects of management activities listed in the alternatives on the selected species as well as the effects of additional species that utilize similar habitats, and
- Recommendations of the species viability evaluation panels.

The lack of creel surveys on the forest limited the selection of fish species, and the lack of surveys covering the three terrestrial species limited their selection. Because breeding bird survey routes have already been established on the Forest and breeding bird data has been consistently collected over the last ten years, bird species were chosen as MIS. After this selection, another criterion that was reviewed was whether a bird species was included in Cornell Lab of Ornithology's "Birds in Forested Landscapes Program." Data could be collected for this program with little additional cost, and could provide data regarding the specific habitat requirements of high-priority forest birds across the landscape.

Management Indicator Species Selected

The following five species were selected as MIS to cover a range of habitats, as well as a range of response to the issues presented in the Forest Plan: yellow-breasted chat (*Icteria virens*), American woodcock (*Scolopax minor*), Louisiana waterthrush (*Seiurus motacilla*), wood thrush (*Hylocichla mustelina*), and Acadian flycatcher (*Empidonax vireescens*).

Yellow-breasted chat and American woodcock are MIS of early successional hardwood habitats. The effects of forest activities on these species indicate the effects on wildlife associated with early successional upland hardwood forest, open lands including old fields, and herbaceous open lands. The remaining species are associated with mature forests of varying tract sizes ranging from wood thrush on small tracts, to Louisiana waterthrush, to Acadian flycatchers which require much larger tracts of forest interior habitat. These species represent the effects on forest interior and forest fragmentation. Response to fire would vary among the species.

Table C.1 shows the management indicator species selected and the associated habitat conditions or life history traits for each.