Appendix J

RESPONSE TO COMMENTS

This appendix presents comments submitted during the 3-month comment period. The appendix is separated into four parts. Part 1 describes the analysis process; Part 2 summarizes the substantive comments in public concern statements submitted from individuals, agencies, and groups; Part 3 summarizes comments that were not considered substantive in nature, and Part 4 contains copies of the letters received from Federal, State, and local agencies who submitted comments, as required in FSH 1909.15 Section 24.1.

Part 1: The Analysis Process

Introduction

As a Federal agency, the Forest Service is required to solicit public comment on draft plans involving significant actions under the National Environmental Policy Act (NEPA). Further, the agency is directed to "assess and consider [the resulting] comments both individually and collectively." Comments are viewed as critical in shaping a responsible plan for management of the Hoosier that best meets the Forest Service's mission, legal mandates, the goals of NEPA and the National Forest Management Act (NFMA), and the interests of the American public as a whole. During the formal comment period, the public reviewed and commented on the Draft EIS and Proposed Forest Plan.
Appendix A includes a summary of public involvement activities and efforts made to engage the public in the forest plan revision process. This appendix includes a description of the comment analysis and response to comment process, and also a list of public concerns and our agency responses for the Proposed Forest Plan and Draft EIS. Copies of all documents received are available to the public at the Supervisor's Office in Bedford, Indiana.

NEPA regulations, 40 CFR 1502.9(b), require that "[f]inal environmental impact statements shall respond to comments," and an agency "shall discuss at appropriate points in the final statement any responsible opposing views which was not adequately discussed in the draft statement and shall indicate the agency's response to the issues raised." At 40 CFR 1503.4(a) the NEPA regulations state that:

> An agency preparing a final environmental impact statement shall assess and consider comments both individually and collectively, and shall respond by one or more of the means listed below, stating its response in the final statement.

Federal agencies may respond in several ways, including supplementing, improving, or modifying its analysis, 40 CFR 1503.4(a). Furthermore, NEPA regulations provide Federal agencies the discretion to summarize comments and responses when exceptionally voluminous, as is often the case in development of a programmatic EIS for a national forest and its resource management plan. Agencies must attach all substantive comments on the DEIS to the FEIS whether the comment is thought to merit individual discussion by the agency in the text of the FEIS (40 CFR 1503.4(b)).

There is no requirement in NEPA, NFMA, or their regulations to form an independent team to respond to public comments. In the development of this EIS for the revised Forest Plan, the Forest considered hiring a contractor to develop response to the comments, but the budget and time allowed for plan revision was not available to obtain a contractor to do this important work.

NEPA and its regulations do not require the Forest to respond to public comments on a letter-by-letter and point-by-point basis. To the contrary, NEPA regulations and Forest Service NEPA procedures (FSH 1909.15, Section 24) provide the Forest Service with discretion to respond to comments in several ways, including summarizing comments and responses that are exceptionally voluminous. Anticipating situations (like this forest plan revision EIS) where there would be a large number of comments received, the Forest Service NEPA procedures expressly state that "[c]omments that are pertinent to the same subject may be aggregated by categories" (FSH 1909.15, Section 24.2). The Forest received approximately 1,550 letters on the draft EIS for the revised Forest Plan. Many of the comments in these letters raised concerns about the same issue. Thus, it was more efficient and effective to address these multiple comments on the same issues with one response. This aggregation of comments also ensures that the Forest responds to the same or similar comments in an equitable and consistent manner. The Forest organized these comments by major resource or issue to allow the public to easily find a particular subject or issue of interest. This method of organizing and responding to comments fully complies with the letter and spirit of NEPA and NFMA.

Note that all comments have been treated equally during the process of identifying concerns - they are not weighted by organizational affiliation or status of the respondents, and it does not matter if an idea was expressed by thousands of people or a single person. Emphasis is placed on the content of a comment rather than on who wrote it or the number of people who agreed with it. The level of interest among the public can serve to provide a general context for decision-making. However, it is the appropriateness, specificity, and factual accuracy of each comment that provides the basis for modifications to planning documents and decisions. Thus, review and response to public comments on the draft EIS is not a vote-counting process in which the outcome is determined by majority opinion. NEPA encourages Federal agencies to hear the views of all interested parties. The analysis did not attempt to tabulate the exact number of people in favor of or opposed to any given aspect of the draft forest plan and DEIS.

NEPA and its regulations require agencies to review comments and respond to them. However, the nature and extent of the response is left to the discretion of the agency and depends on the type of concern that was identified.

Public comments on the draft EIS were of great importance in shaping the final decision. The EIS and record document the Forest's great effort to ensure that all comments were reviewed and addressed in accordance with the NEPA requirements described above. The detailed and thorough responses to the comments, 128 pages in all, provide evidence of this extraordinary effort to understand and address public input to the planning process. The Record of Decision, under Public Involvement, also describes how this public input helped shape the final decision on the revised Plan. We appreciate the time and effort the public expended in reviewing our documents and sending in their thoughts and concerns.

The Process

All letters, e-mails, faxes, and comment forms received as public comment on the Proposed Forest Plan and DEIS were compiled, organized, read, and analyzed. The "content analysis" process used allows systematic review of public comment on a proposed plan or project through the creation and use of a comprehensive electronic comment database. This method was developed and used by the Content Analysis Team of the USDA Forest Service. The method is particularly effective in analyzing voluminous comments both individually and collectively, as required by NEPA.

The process is comprised of three main components: a topical coding structure and standardized process for its application, a comment database and mailing list, and a set of summary reports. In the content analysis process, each letter, postcard, transcript text, or other document is assigned a unique tracking number. Each author or signatory to a comment letter is a "respondent." We entered all respondents' names and addresses into a project database and assigned each respondent a unique identifier number for tracking purposes. All respondents are linked to their individual comment in the database using these identifying numbers.

Some demographic information is also recorded in the database. This can include self-identified organizational affiliation or whether the response letter submitted is part of an organized response campaign.

The Forest assembled an analysis team that read all public response letters in their entirety and identified comments within them that relate to a particular concern, resource consideration, or proposed management action. The analysis team looked at each action or change requested by the public, and the reason(s) behind each request to best capture the full intent of the comment. Therefore, a comment letter may be divided into several comments because multiple points are presented or, alternatively, several paragraphs may form one coherent comment. Although simple statements of opinion without a rationale are captured in the process and entered in the project database, it is the strength of each rationale as a complete point that provides the planning team a substantive comment to consider.

Once stand-alone comments were identified, the planning team assigned each comment to a numerical code that identified the overall subject area. They used a systematic numerical coding structure that was specifically tailored to project documents. Each project-specific coding structure is a tool to help sort comments into logical groups by topics. The coding structure and other supporting documentation are available in the administrative record at the Supervisor's Office in Bedford, IN. After being coded, each response letter's set of coded comments was entered verbatim into the project database. This database serves as the complete project record.

The content analysis process also identifies letters that are submitted as part of an organized response (or "form letter") campaign and therefore contain identical text. These are grouped, and all mailing information for each respondent is entered into the project database, as well as an identifier code for the campaign. If respondents added original comments to the organized response letter they submit, these comments were identified, separately coded, and entered into the database.

The third phase of content analysis includes the composition of summary statements of public concern and the preparation of a narrative report. The planning team reviewed the entire comment database sorted by topic area, and then the team summarized comments into public concern statements that present similar points or positions. Each public concern statement was worded to capture the action that one or more members of the public felt the decision-maker should consider. Because each concern statement is a summary, it may represent one or many comments, depending on the actual comments submitted. Concern statements range from extremely broad generalities to extremely specific points because they reflect the content of verbatim public comments.

Public concern statements are not intended to replace actual comment letters or sample quotes. Rather, they help summarize comments on a specific topic in which a reader may be interested. They also make it possible to systematically respond to large numbers of comments because similar comments have been grouped together. The Forest received over 1,550 comment letters during the 3-month comment period. All original response letters in their entirety are on file at the Supervisor's Office in Bedford, Indiana.

The planning team and decision-makers determine whether comments are substantive and evaluate whether changes are needed to Forest Plan direction, alternatives, supporting analysis, or other Plan elements. Finally, planning team members wrote responses to comments and incorporated changes into the final Forest Plan and FEIS as appropriate.

Relative depth of feeling and interest among the public can serve to provide a general context for decision-making. However, it was the appropriateness, specificity, and factual accuracy of each comment that provided the basis for modifications to planning documents and decisions.

Therefore, consideration of public comment is not a vote-counting process in which the outcome is determined by the majority opinion. The National Environmental Policy Act (NEPA) encourages all interested parties to submit comment as often as they wish regardless of age, citizenship, or eligibility to vote. Respondents included businesses, organizations, individuals, and children.

The planning team members made no attempt to tabulate the exact number of people in favor of or opposed to any given aspect of the proposed forest plan and DEIS.

Public Comments Received

During the 3-month public comment period, the Forest received over 1,550 letters. These letters were from individuals, groups, and agencies. Many of these were form letters. Of the letters received, approximately 100 contained substantive comments. No elected officials commented on the planning documents.

Considering Different Types of Comments under the National Environmental Policy Act

Agencies have a responsibility under the National Environmental Policy Act (NEPA) to first "assess and consider comments both individually and collectively" and then to "respond… stating its response in the final statement." The content analysis process described above

considers comments received “individually and collectively” and equally, not weighting them by the number received or by organizational affiliation or other status of the respondent. Public concern statements summarize public comment and were the primary focus of our interdisciplinary team in considering comments.

The National Environmental Policy Act requires that after comments are considered, the Forest will formally respond to substantive comments. However, the nature and extent of each response depends on the type of concern identified.

Comments, or the concerns identified from them, were classified as either those that fall within the scope of decision-making for the plan revision or those that fall outside of the scope for any number of reasons described below. Counsel on Environmental Quality (CEQ) regulations define “scope” and require the Hoosier to explain why comments are determined to be out of scope. Generally, the scope of the plan revision included the range of connected, similar or cumulative actions, the alternatives, and the direct, indirect, or cumulative impacts to be considered in the EIS. If a concern was considered out of scope, an explanation is included in this document. Generally, the types of comments received, and concerns identified, that were considered out of scope include those that:

- Do not address the purpose, need, or goals of the Hoosier National Forest (e.g. propose an action in areas beyond Hoosier’s jurisdiction or that are not directly related to the action proposed in the plan, or relate to day-to-day operational issues such as law enforcement procedures or road maintenance);
- Address concerns that are already decided by Federal law or national policy;
- Suggest an action not appropriate for the current level of planning (site-specific decisions to construct new roads, campgrounds or facilities, to offer special use permits or the sale of timber resources);
- Propose untenable restrictions on management of the Forests or conflict with approved plans not being revised in the Forest Plan revision process;
- Did not consider reasonable and foreseeable negative consequences; or
- Point to only minor editorial corrections.

The Hoosier further classified comments within the scope of the plan as either substantive or non-substantive. Based on the Council of Environmental Quality’s regulations, a substantive comment is one that:

- Questions, with a reasonable basis, the accuracy of the information in the environmental impact statement;
- Questions, with a reasonable basis, the adequacy of environmental analysis as presented;
- Presents reasonable alternatives other than those presented in the DEIS that meet the purpose and need of the proposed action and address significant issues; or
- Cause changes or revisions in the proposal.

Non-substantive comments, or concerns identified from them, include those that simply state a position in favor of or against an alternative, merely agree or disagree with Forest Service policy, or otherwise express an unsupported personal preference or opinion.
The Hoosier is required to respond only to substantive comments or the concerns identified from them. However, to fully inform the public and to use this process as an educational tool, the Forest has chosen to respond to all public concerns identified during analysis of public comment, within and out of the scope, substantive and non-substantive alike. Responses to out

of scope concerns are generally restricted to describing why the concern is out of scope and does not merit further attention. A more elaborate answer may have been provided for clarity. Responses to substantive concerns are typically more extensive, complete, and, most importantly, explain if and where the concern may have resulted in changes to the plan or analysis. If several concerns are very similar, they have been grouped for response purposes. Public concerns that identified editorial or other errors in the presentation of information in the Draft EIS were used to revise text and make corrections for the Final EIS.

Substantive comments are addressed in Part 2 of this appendix, while nonsubstantive comments are considered in Part 3.

Public Concern Statements
Hoosier Draft Environmental Impact Statement
and
Proposed Forest Plan

The following acronyms are used throughout this appendix.

ATV	all terrain vehicle
CCDW	Charles C. Deam Wilderness
EIS	environmental impact statement
Forest Plan	(Hoosier) Land and Resource Management Plan
IDNR	Indiana Department of Natural Resources
MA	management area
MUSYA	Multiple Use Sustained Yield Act
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System
NNIS	nonnative invasive species
OHV	off highway vehicle
RFSS	Regional Forester sensitive species
SVE	species viability evaluation
VQO	visual quality objectives
Hoosier or the Forest	Hoosier National Forest

Part 2: Substantive Comments and Responses

Access

***PC #118**: The Hoosier should provide and improve parking and access on the Forest.*

- *A) Recreation access can be enhanced by adding four pull-offs along the Tower Ridge Road. The pull-offs should not have been removed as they were never intended to be part of the Wilderness.*
- *B) In consultation with IDNR, consider additional needs for access area needs and the possible decommissioning of roads. These are needed for maintenance, research, and hunter access.*
- *C) The Hoosier National Forest should use gated, dry weather temporary use roads to enhance recreation experiences on the forest by dispersing uses. Gating should be considered before decommissioning.*
- *D) The Hoosier National Forest should improve the existing entry points for the Deam Wilderness for equestrian users. An area accessible to all user groups serves to focus impacts at one location.*

Response to #118: Parking and access are provided in many areas of the Forest. Each year to the Forest attempts to improve parking and access through maintenance and construction activities.

#118 A) Parking along Tower Ridge Road was limited by the Forest's Land and Resource Management Plan, Amendment 3 dated June 1994 in the interest of promoting solitude, which is a major component of wilderness as defined in the Wilderness Act of 1964. In 1994 the Hoosier concluded an extensive public involvement process that involved a citizen's task force, public meetings, mailings, and an analysis of the management situation in the CCDW. Conclusions were that the Wilderness was being overused and that action was needed to reduce use. A strategy was implemented which included reducing access points. In keeping with the concept of wilderness, the CCDW is not managed for visitor convenience. For those visitors that do not desire the challenges offered by wilderness, approximately 300 pull-offs exist on the estimated 1,000 miles of road that crisscross the Forest. Some of these are within a mile of Tower Ridge Road. This strategy has been successful as monitoring indicates wilderness conditions have improved (USDA Forest Service 2004).

There is no evidence that the parking situation along Tower Ridge Road merits reconsideration. We continue to monitor recreation use of the Wilderness closely. No further action is appropriate or warranted in this programmatic analysis and decision.

#118 B) From 2001 through 2004 all roads under Forest Service jurisdiction were located using global positioning systems (GPS). This data was placed on to quadrangle maps and has been reviewed by Hoosier and IDNR personnel. The review included determining which roads to keep as system roads and which roads were no longer needed and would be allowed to revegetate. We will continue to work cooperatively with IDNR.

#118 C) As stated in the EIS, **Chapter 3, Transportation Network**, the Hoosier has 436 miles of seasonal, high clearance vehicle roads under Forest Service jurisdiction that are generally gated. Most of these gated roads are signed to welcome foot travel. Many of these roads

currently have pull-offs for visitor parking. In addition to these closed roads, there are 266 miles of trails throughout the Forest with numerous trailheads for visitor access and parking.

#118 D) Access along Tower Ridge Road is limited for the reasons stated in #118 A) above. There is one large parking area at the Blackwell Horsecamp and two smaller areas at the Grubb Ridge Trailhead and Hickory Ridge Firetower. The smallest parking area, at Grubb Ridge, has already been expanded for traffic safety and cemetery access. In keeping with the strategy of limiting use to provide an opportunity for solitude, we intend to keep parking capacity and entry points at the current level unless unforeseen circumstance warrant a reconsideration of this policy.

U.S. Department of Agriculture, Forest Service. 2004. Unpublished compilation of annual monitoring reports 1987-2003. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

***PC #123**: The Hoosier National Forest should block the illegal points of entry to the Deam Wilderness that occur along Highway 446.*

Response to #123: Roadside parking to access the Charles C. Deam Wilderness is prohibited only along Tower Ridge Road. Access points along State Highway 446 are not illegal if used by hikers only. The State of Indiana maintains an easement along State Highway 446. This easement varies from 120 to 250 feet in width. Access areas from State Highway 446 are within the State's easement and are not under Forest Service jurisdiction.

There is no evidence that the parking situation along State Highway 446 merits reconsideration. We continue to monitor recreation use of the wilderness closely. No further action is appropriate or warranted in this programmatic analysis and decision.

Alternatives

NEPA requires analysis of a broad range of reasonable alternatives, but does not mandate that any particular alternative be selected, nor dictate that any particular minimum number of alternatives be considered (40 CFR 1502.14). Guidance on what constitutes a reasonable range of alternatives is found at 40 CFR 1502.1, which speaks to analysis of reasonable alternatives to provide useful information for decision-making, and focusing upon "significant environmental issues and alternatives." Analysis of alternatives must be bounded by some notion of feasibility as time and resources do not allow consideration of every conceivable alternative that might be proposed.

NFMA regulations also require the formulation of a broad range of reasonable alternatives with a primary goal of providing an adequate basis for identifying the alternative that comes nearest to maximizing net public benefits, 36 CFR 219.12(f). Thus, the evaluation of alternatives does not turn upon consideration of a single factor, nor does the analysis of alternatives revolve around a single output or resource. Developing alternatives myopically, *i.e.* focusing narrowly upon timber harvest, for example, would lead to an unmanageable number of alternatives in the development of a 10 to 15 year programmatic management framework. Instead, NFMA regulations allow for identification of major public issues and resource concerns to be addressed in plan development, 36 CFR 219.12(b). Public involvement played a key role in

identification of issues used to develop a reasonable range of alternatives for management of the Hoosier National Forest, *see* 36 CFR 219.12(f)(4).

In the EIS for the revised Plan, the Forest considered a broad range of alternatives to permit a reasoned choice. These alternatives sharply defined the trade-offs and issues involved in developing a programmatic management framework for the Hoosier National Forest. In developing the alternatives, the Forest--guided by public input--sought to identify a reasonable range of alternatives that would form the basis for an informed comparison and decision. The EIS documents the process of weighing the reasonable alternatives available to the agency to meet the purpose and need. The EIS and revised Plan are one step in a staged decision-making process, and this fact shaped the development of the alternatives for the programmatic EIS.

Alternatives that were infeasible, ineffective, or inconsistent with the basic policy objective described in the purpose and need were not analyzed in depth. NEPA does not require analysis of alternatives that would not meet the goals of the proposal or are inconsistent with the agency's basic policy objectives for managing the Forest. As one court wisely concluded, "[w]hen the purpose is to accomplish one thing, it makes no sense to consider the alternative ways by which another thing might be achieved." City of Angoon v. Hodel; *see also* Forest Service Handbook 1909.15 (Sections 3.51, 14.2) ("[e]nsure the alternatives, through their range, respond to stated issues and concerns," and "[a]lternatives must meet the purpose and need."). In short, NEPA requires that the Forest develop alternatives in reference to the general goals of the proposal to revised the 1985 plan, as amended.

The purpose and need for the Hoosier plan revision is to revise the existing Forest Plan (1985) to be in compliance with 16 U.S.C. Sec 1604(f)(5) and the National Environmental Policy Act. The revised Forest Plan will guide all natural resource management activities on the Hoosier for the next 10 to 15 years (Final EIS, Chapter 1). As noted above, this purpose and need statement was developed with input from the public and other agencies, as well as experience gained in the implementation of the 1985 plan, as amended. The Planning Team identified revision issues through public involvement and refined them during analysis (final EIS, Chapter 1). The final EIS, chapter 2, describes the five alternatives considered in detail and compares those alternatives using the key issue indicators. Thus, alternatives that did not meet the purpose in revising the Hoosier Forest Plan were not analyzed in detail. Chapter 2 of the final EIS also discusses alternatives eliminated from detailed consideration and the reasons for eliminating them, 40 CFR 1502.14(a). This section provides that agencies need only "briefly discuss" why alternatives were eliminated from detailed analysis. Likewise, alternatives that were not significantly distinguishable from alternatives actually considered in the EIS were not separately analyzed.

***PC #4**: Alternatives 1 and 2 would not meet the need to provide suitable habitat for all native species.*

A) The lack of management in these alternatives would result in a loss of species due to a loss of habitat.

B) Biological diversity will deteriorate to the point where many species will become threatened, endangered, or extinct.

Response to #4: The NEPA requires the consideration of a broad range of reasonable alternatives, including the No Action Alternative (Alternative 1). Additional alternatives were

developed based upon input during public scoping. Alternative 2 is a direct result of a proposal created by numerous environmental groups and submitted to the Forest Service. The five alternatives analyzed in detail (plus four other alternatives considered but eliminated from detailed analysis) provide a reasonable range of alternatives to allow for an informed decision as required by NEPA.

NFMA requires the Forest Service to provide for diversity of plan and animal communities in a multiple use context, 16 U.S.C. 1604(g)(3)(B). NFMA regulations at 36 CFR 219.19 state:

> "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support at least a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area."

The Forest has considerable discretion regarding how to provide for viability, so long as relevant factors are not overlooked; no clear errors of judgment are made; a rationale is provided for using the approach taken, and the plain language requirements of the planning regulations are met. The Forest used a Species Viability Evaluation process to determine which species best represented the principal habitat types found on the Forest. The result was 20 species to be used in conjunction with GIS-based modeling to evaluate the effects of each management alternative (**see EIS Chapter 3 – Species Viability Evaluation (SVE) Animals and Plants,** also refer to responses to PC's 14, 30, 46, 75, 80, 85, 103,and 109). The results show that Alternatives 1 and 2 present a high risk to species viability for several native species and that biodiversity would decrease under these two management alternatives.

***PC #7**: The Hoosier should not choose Alternative 2.*

- *A) It eliminates resource management on the Forest and decreases species diversity.*
- *B) It does not maintain suitable habitat for native species that use the Forest.*
- *C) It would result in species loss.*
- *D) It is not a legally viable alternative under the NFMA and NEPA processes.*
- *E) It is 4 percent less economically efficient than any other alternative.*
- *F) The loss of biological diversity would contribute to the listing of additional species as threatened and endangered.*
- *G) The continued loss of the oak-hickory component will affect wildlife species.*
- *H) This alternative provides more impacts to recreation which would have greater economic impacts.*

Response to #7: The genesis of Alternative 2 is found in the many administrative appeals of Forest project decisions requesting that we not manage forest resources (e.g. no vegetation management on the Forest). Public surveys have also told us that some persons strongly believe that there should be no commercial timber harvest or commodity development (e.g. oil and gas production) on national forests. More importantly, a citizens' group devoted considerable time and effort in developing and documenting a "no management" or custodial management alternative that forms the basis of Alternative 2.

The analysis of Alternative 2 discloses the anticipated environmental effects if the Forest were to take a minimal or custodial resource management approach over the next 10 to 15 period.

Analysis, supported by monitoring data, published scientific information, and consultation with State and other wildlife experts, indicates that the passive management of allowing only natural processes to continue under Alternative 2 would reduce plant and animal community diversity (*see* FEIS, chapter 3, SVE). Over time, key early successional habitat would be lost, affecting the viability of species dependent on such habitat. Thus, we agree with the comment that Alternative 2 would likely decrease NFMA diversity by not maintaining suitable habitat on the Forest for early successional species. Alternative 2 would likely result in the reduction or loss of viability of these species and could lead to further ESA listings; therefore it presents legal concerns, as the comment suggests.

***PC #8**: The Hoosier should choose Alternative 2.*

- *A) It is less expensive to implement than the other alternatives.*
- *B) It promotes unfragmented habitat for wildlife.*
- *C) It offers the best opportunity to protect an uncommon ecosystem - large, wild forest where nature's forces determine the landscape.*
- *D) It eliminates construction of new roads and requires decommissioning of many existing roads.*
- *E) Natural disturbance will create stands that are diverse in structure and age classes and therefore less vulnerable to insects, disease, and other natural incidents.*
- *F) Mature forests attract tourism and employers looking for natural amenities.*

Response to #8 A: The commenter is correct; Alternative 2 is the least expensive alternative to implement in the short term. However, Alternative 2 is not the most ecologically sound. The other alternatives more fully meet the regulations that require the Hoosier to "*maintain viable populations of existing native and desired non-native vertebrate species in the planning area*" (36 CFR 219.19). Furthermore, Alternative 2 would continue to contribute to the loss of oak-hickory across the Forest and would subsequently reduce the diversity of habitats and species. Stream and wetland restoration, as well as opening and pond maintenance activities, would not be allowed under Alternative 2, further reducing the diversity of habitats and species on the Forest.

8 B) and 8 C) All five proposed alternatives promote large areas of unfragmented habitat for wildlife. Even under the alternatives that propose the most vegetation management, Alternatives 3 and 4, approximately 44 percent of the Forest is considered unsuitable for timber harvest. This ensures that large areas of the Forest would be left to natural processes.

#8 D) No alternative includes any site-specific proposal for road construction. Decisions concerning road construction are deferred to the project level of decision-making where local resource information and expertise are available. The revised plan provides a programmatic framework for future decisions that may include some road construction. However, given that the Forest already has a road system and infrastructure, we do not contemplate a great amount of new road construction over the 10 to 15 year life of the revised Plan. Under Alternative 2, the ability to repair roads to reduce sedimentation and other problems caused by poor placement or general "wear and tear" would be limited. By not repairing these roads, parts of the Forest might have to be closed to public use due to hazards created by windstorms, fires, etc. Reduced access could also result in reduced use by forest visitors. Road decommissioning would occur more through regeneration of vegetation and allowing roads to become closed through plant growth versus physical decommissioning.

#8 E) Natural disturbances create diverse structure and differing age classes in forested stands. Wind events have resulted in areas with total blow down and other areas with only scattered trees damaged and blown over. During storms, trees are blown over, uprooted, or root heaved, and they sustain wounds and major branch breakage. Root-sprung trees and trees with major branch damage may not die immediately but may fall over or show decline symptoms over several years. The EIS analysis was developed with the understanding that natural disturbances introduce different structure to stands. However, natural disturbances do not make a stand less vulnerable to natural incident. Instead, stands tend to become more vulnerable than they would otherwise be to insect, disease, and mortality. Once stressed by a natural disturbance such as wind, there is greater potential for insect, disease, and wildfire than there would otherwise be.

#8 F) See #8 B). Diverse stands of healthy forest offer a variety of experiences and views that would attract tourism and employers. A great emphasis was placed on having a visually pleasing landscape. A Forest goal is to "Provide for a Visually Pleasing Landscape." And guidance is provided to do this. The effects of choosing Alternative 2 are discussed throughout Chapter 3 of the EIS. In all alternatives the amount of mature forest would increase substantially from the present condition, EIS – **Table 3.8**.

Also refer to the response to PC #9.

***PC #9**: With the strong emphasis on early successional habitat and management indicator species, Alternative 2, which allows for natural processes, is made to look inadequate when it comes to wildlife. The Hoosier should rely on natural disturbance regimes including drought, disease, beavers, and windthrow to create early successional habitat.*

Response to #9: Since the establishment of the Hoosier, thousands of acres of denuded lands have been restored to thriving mature forestland that provides habitat for wildlife, protection for forested watersheds, and outstanding recreational opportunities. Although the landscape of Indiana was largely forested before European settlement, there were still areas of prairie, wetland, and disturbed and open conditions. These conditions do not exist in quantities large enough to meet our legal mandate to "*maintain viable populations of existing native and desired non-native vertebrate species in the planning area*" (36 CFR 219.19). Alternative 2 prohibits vegetation management, prescribed burning, and wetland restoration. The result over the next 10 to 15 years would be a reduction of numerous types of habitats across the Forest and a loss of plant and animal community diversity. For these reasons, Alternative 2 would not provide adequate habitat for all native species of wildlife found on the Hoosier, and it presents a high risk to species viability. Alternative 2 focuses exclusively on providing habitat for species associated with late successional forests as opposed to requirements stated in 36 CFR 219.19 of maintaining habitat for all native and desired nonnative species. Scientists are discovering that many species associated with this habitat, such as worm-eating warbler, red-eyed vireo, black-and-white warbler, wood thrush, and ovenbird, also depend on early successional habitats. The current distribution of young forest and other open habitat may be at the low range of historic conditions and may be below what is needed to sustain desired [viable] populations of some wildlife species (Askins 2001, Thomson and DeGraff 2001).

The wildlife effects of Alternative 2 are disclosed in Chapter 3 of the EIS. These effects indicate a high risk to species viability for several native species. However, the EIS discloses that the alternative would maintain viability of late successional species. The analysis and scientific research also indicate that the continued lack of vegetation management on the Forest for another decade (as contemplated under Alternative 2) would likely result in viability concerns for early successional species. Both Forest

biologists and State wildlife experts agree on the scientific results and the Forest's findings. Monitoring information likewise supports this analysis. With regard to natural disturbances, the same modeling assumptions regarding disturbance (again based on past experience and data) were used for all alternatives. Thus, the alternatives were treated equally regarding disturbance. The commenter appears to disagree with the science that indicates that both the amount and quality of early successional habitat created by natural disturbance is insufficient.

***PC #10**: Alternative 2 should be modified to meet the original presentation of the "Conservationist's Alternative" as follows:*

A) Allow for maintenance of barrens with prescribed fire.
B) Allow for restoration of areas on the forest that once were naturally occurring wetlands.
C) Do not allow salvage logging.

Response to #10: Alternative 2 differs only slightly from the original presentation of the "Conservationist Alternative." To add the items noted would not appreciably change the outcome of the analysis of the alternative. Alternative 2 would provide habitat to maintain viable populations of late-successional forest species, but it would not meet the legal mandate to "*maintain viable populations of existing native and desired non-native vertebrate species in the planning area*" (36 CFR 219.19). Please refer to the response to #9. The presented "Conservationist Alternative" claimed to be a "result of research, discussion, and labor by the environmental community of Indiana," yet no scientific articles or research were referenced. Moreover, the EIS documents and describes science that presents evidence and results contrary to Alternative 2. The best available scientific information, as well as information provided by State and other resource experts, confirms that Alternative 2, even with natural disturbances, would not allow for sufficient early successional habitat. The lack of such habitat would cause viability concerns for early successional species. Scientific information also contradicts other aspects of the "Conservationist's Alternative."

Prescribed burning in barrens was included and analyzed in the other alternatives. Alternative 2 states that some amount of prescribed burning would take place to meet the requirements to maintain and provide habitat for endangered and threatened species.

There is no direction included for restoration of natural wetlands. Alternative 2 would allow salvage logging only to protect human health and safety, in developed recreation areas (MA 7.1). Forest managers concluded, based on monitoring and public comments regarding the public's desire to have access to the Forest, that limitations on salvage harvest were neither warranted nor appropriate. Multiple-use resource management mandated by NFMA and the Multiple-Use Sustained Yield Act concerns conservation of resources over the long term, and does not require preservation to create old growth forest. Much of the Forest will be managed in accord with Alternative 2, with minimal human intervention. Other areas, as envisioned by NFMA and MUSYA, are likely to experience some level of management (after site-specific analysis and decision) to move the land toward desired conditions. As appropriate, this may include salvage harvest in a sustainable fashion (again, after appropriate site-specific NEPA compliance) to recover resources, protect wildlife, and promote healthy forest conditions. Alternative 2 would artificially limit Forest managers' ability to move the Forest toward desired conditions by restricting salvage harvest.

***PC #11**: The Hoosier should choose Alternative 3.*

A) It balances multiple use concepts and provides compromises in management.

B) Implementation of an ATV trail system would provide another form of legal recreation on the Forest.
C) It would provide for more hardened pull-offs, which would reduce user conflicts.
D) This alternative provides increased income from ATV use, while providing a lower habitat risk than the other alternatives.

Response to #11: An emphasis of Alternative 3 was to provide more recreational opportunities on the Forest. Alternative 3 would allow for construction of an ATV trail system on the Forest, which would provide more recreational opportunities. Any money collected from ATV tags would be used to maintain and improve trails on the Forest. The commenter is correct: This alternative would provide more suitable habitat for all native wildlife species than Alternatives 1, 2, 4, and 5, and it presents a lower risk to species viability than Alternatives 1 and 2. Though many comments favored the use of ATV's on the Forest, many others did not. The controversy that arose following the 1985 Forest Plan and the public concern over developing an ATV trail system were great. Implementing an ATV trail system would result in impacts to fragile soils. Protection of fragile soil resources would be a concern due to high annual maintenance costs. Due to the highly unconsolidated ownership patterns of the Hoosier, opportunities to construct a trail system were limited. The consideration of constructing an ATV trail system and the analysis of such a system are included in the final EIS in Chapter 3.

***PC #13**: The Hoosier should choose Alternative 4.*
A) It incorporates more timber harvest and prescribed burning to provide biological diversity.
B) Aggressive manipulation strategies are needed to ensure the future of wild turkey and many other species dependent on similar habitats.
C) It takes a more aggressive approach in creating early successional habitat on the Forest.
D) This is the only alternative that begins to approach the habitat needs for early successional species.
E) It places more emphasis on the accelerated conversion of pine to hardwoods, which will rapidly convert these biological cool spots to native habitats and enhance habitat for Indiana bats and additional species.
F) It presents the best choice for the creation of a healthy diverse forest.
G) It does the most to slow the aging of the forest.
H) It provides resource professionals with the broadest range of management strategies to maintain watershed health.
I) The existing road system would be retained, resulting in benefits to public recreation and administrative access.
J) This alternative best meets the desired condition to reduce the loss of oak-hickory habitat.
K) This alternative has the greatest potential to provide for early successional habitat while providing for existing old growth components.
L) It presents the most positive impact on the local economy. Some of the costs to operate the forest are offset by the timber harvest.
M) This alternative provides a blend of even and uneven-aged management techniques that could be used to provide information for planning purposes.

Response to #13: Congress has mandated that the Forest be managed for multiple uses, and the Forest has been delegated the responsibility of using scientific information to choose the appropriate balance of uses on the Forest. While developing the revised Forest Plan, the Hoosier was tasked with reconciling many diverse and polarized interests. The Forest has engaged in review, analysis, and public involvement to develop alternatives to manage the

Forest. The selected alternative strikes a balance between competing uses and interests. Because of the nature of planning, some people will be dissatisfied because their alternative was not selected. It is important to remember, however, that the selected alternative is a balance of views - it is no one person's or group's suggested alternative. The revised Forest Plan is dynamic and will be amended as information and the human environment change over time.

According to the outputs of the LANDIS and HSI models, Alternative 4 would provide the greatest amount of diversity of plant and animal communities in a multiple use context, including early successional habitat, diverse forest age classes, and oak-hickory (refer to EIS, Chapter 3). It would also provide resource professionals with the broadest range of management strategies. Congress has required the national forests manage NFS land according to multiple-use principles, and this requires compromise between competing views of how the Forest should be managed. The Forest has sought the views of a wide spectrum of interests (including environmental organizations as well as timber industry) and treated various interests equally. Considering divergent public views, the Hoosier crafted a balanced Forest Plan that meets the requirements of all appropriate laws and regulations.

Because there is no strong consensus among members of the public regarding the use of the Hoosier, the Deciding Official felt that there would be little public support for selection of an alternative as aggressive as Alternative 4.

#13A) The diversity of plant and animal communities in a multiple-use context is maximized by increasing the variety of treatments, as well as the acreage treated. Alternative 4 proposes the most vegetation management, but most alternatives propose similar types of treatments. All proposed alternatives would provide oak-hickory forests and early successional habitats, thus providing different amounts of biodiversity. Alternative 2 would result in less biological diversity than the other alternatives as vegetative treatment would be extremely limited.

#13C) Early successional habitat is only one type of habitat we hope to create under the revised Forest Plan. Stands of all native forest types and ages are required to maintain the complex biodiversity of central hardwood ecosystems.

#13 G) Alternative 4 would create the greatest amount of early successional habitat as shown in the EIS **Table 3.3**.

#13 J) Although it is true that this alternative would produce the greatest amount of oak-hickory forest type (135,340 acres after 150 year), the other alternatives, including Alternative 5, would result in oak-hickory forest. The Forest strives to maintain a variety of native forest types. In some cases, the land is not ecologically suited for the oak-hickory type. With intensive management, stands could move toward oak-hickory, but some stands may be better suited for late successional beech-maple. Such a determination would be made at the project level and would be site specific.

#13 K) As shown in the EIS, Alternative 4 would result in three percent of the forested acreage occurring in the 0 to 9 year age class. All alternatives except Alternative 2 would maintain or increase current Forest Plan levels of early successional habitat.

#13 L) Alternative 4 would provide the most net public returns to the local economy. Though an important variable, this is not the only decision criteria used in determining which alternative to select. It is also not to be confused with net public benefits, which include those benefits and

costs that cannot be quantified. It is only partially true, however, that timber harvests offsets the costs of Forest operations. A percent of the money paid for a timber sale can be reserved for projects in the timber sale area as described under **Effects of Alternatives – Alternatives 1, 3, 4, and 5 in the Social and Economic section** of the EIS. Under salvage sales, the Forest is also able to reserve a portion of the funds received. In either case, these funds are a nominal percent of the Forest's annual budget and do not significantly affect Forest operations. The money received from a timber harvest would never be the driving force or reason to conduct a timber sale on the Hoosier. In the past 4 years, the percent of the Hoosier's budget derived from timber has never exceeded four percent of the total.

#13 M) All alternatives except Alternative 2 provide a blend of treatments that could, if chosen, provide information for planning purposes.

***PC #14**: To ensure viable populations of ruffed grouse and American woodcock, and ensure the diversity of forest habitats for other SVE species, the Hoosier National Forest should choose Alternative 4 with the following amendments:*

A) Incorporate Management Area 3.3 in the Pleasant Run, Lost River, and Patoka purchase units as well as Tell City. The management areas should be at least 8,000 acres in size.
B) Convert acres designated as MAs 6.2, and 6.4 to MAs 3.1 and 8.3 (research area for early successional species).
C) Increase group selection harvest to 3 to 5 acres and even-aged management harvest to10 to 40 acres in size in MA 3.1.
D) Develop additional parking to the density of two per linear mile.
E) Allow for 80 to 120-year harvest rotation in areas suitable for timber management.
F) Designate some riparian zones to allow even-aged management to provide habitat for wildlife dependent on early successional mesic areas.
G) Reduce Visual Quality Objectives (VQO) distances along streams to a minimum of 200 feet.

Response to #14: Many native wildlife species require early successional habitats; in fact, some of the steepest declines in Neotropical migratory birds are those of grassland or shrubland species. The Hoosier completed a Species Viability Evaluation to ensure that the viability of all native species would be maintained by providing natural habitats that occur on the Forest. This "coarse-filter" approach is widely considered the most effective way of maintaining viable populations of native species. The ruffed grouse and American woodcock were selected as SVE species, and GIS-based HSI models were developed for these two species.

The revised Forest Plan is well balanced in consideration of the need for all wildlife species, including the requirement to sustain the diversity of plant and animal species associated with early successional habitats (**see EIS Chapter 3 – Species Viability Evaluation (SVE) Animals and Plants).** Congress has required the national forests to manage their lands according to multiple use principles, which by their very nature embody trade-offs. The emphasis of one resource management goal may therefore come at the expense of another. Management of early successional habitats on the Forest is necessary to maintain species viability and biodiversity, but that management must be balanced with competing uses and interests.

#14 A) and B) Alternatives presented in 14 A and B are not feasible. Lands set aside as MA 6.2 or 6.4 are for long-term planning. These lands provide for the continued development and enhancement of old-growth characteristics and habitat conditions for old growth species such as some forest interior birds. These areas also provide non-wildlife values such as solitude and

recreation values that are not compatible with active timber management. Therefore, the conversion of these lands into MAs with completely different desired conditions and goals would not be appropriate. Given this direction, there is not a large enough land area available in general forest conditions (MAs 2.8, 3.1, or 3.5) to incorporate an 8,000-acre MA 3.3 in the Pleasant Run, Lost River, or Patoka areas.

#14 C) *The Dictionary of Forestry* (Helms 1998) defines a group selection cut as approximately twice the height of the surrounding trees. This upper limit of three acres for a group selection cut was determined based on the average size of trees on the Hoosier. Among the citations we found in the scientific literature regarding group selection, the ecology of oaks, and the practice of silviculture, there was no data to support an increase in group selection harvest from 3 to 5 acres. Setting the upper limit for this type of harvest at 3 acres is appropriate to achieve the goals of uneven-aged management. To maximize oak-hickory regeneration and species diversity, even-aged management treatments have been increased to a maximum size of 10 acres in MA 2.8. The Final EIS, Chapter 3, as well as the revised Forest Plan, Appendix B, provide additional analysis.

#14 D) The Forest Plan is a programmatic document and is not site specific. The supporting narrative in the FEIS addresses potential effects at a programmatic level and addresses effects in enough detail for the deciding official to be able to make a rational choice between alternatives. The development of parking at a density of two lots per linear mile would be more appropriately addressed at the site-specific project level.

#14 E) Currently the majority of the stands suitable for timber harvest on the Forest are older than 80 years. Based on the amount of timber harvest proposed under the revised Forest Plan, the rotation age for the foreseeable future is well beyond 120 years. Without increasing the amount of timber harvest across the Forest substantially, we will not be able to allow for an 80-year rotation. Within MA 3.3, we intend to maintain a 100-year harvest rotation.

#14 F) and G) Visual quality objectives have been adjusted to allow vegetation management along some riparian zones to provide habitat for wildlife species dependent on early successional mesic areas.

***PC #15**: The Hoosier should not select the Preferred Alternative (Alternative 5).*

- *A) The prescription for timber management favors an increase in habitat for species not normally found in mature woodland environments at the expense of species dependent on mature hardwoods with substantial components of old growth.*
- *B) The uneven-aged management options will only hasten the conversion away from oak-hickory habitat.*
- *C) Intensive management practices would require substantial disruption to the ecosystem and wildlife in the form of road building and timber harvesting.*
- *D) It jeopardizes ecosystem sustainability, non-timber forest products, recreation, forest wildlife protection, and biodiversity.*
- *E) It is suitable for game species, which are not declining in population, but is a death sentence for species that require large, unbroken expanses of forest canopy.*
- *F) lack of habitat creation could prove unfavorable to species such as the ruffed grouse.*
- *G) It will result in a substantial decrease in the amount of young forest available.*
- *H) It fails to take an aggressive stand toward control of nonnative invasive species, and fails to restore ecological processes such as fire and disturbance through harvest on a scale that will maintain significant oak-hickory forest.*
- *I) This alternative focuses too much on early successional species.*

J) The forest age class distribution will exhibit an imbalance of age classes over the long term, as compared to the present forest conditions.

Response to #15A) The development of a Land and Resource Management Plan is a complex undertaking involving the synthesis of considerable scientific information and the reconciliation of widely divergent views on how the Hoosier should be managed. Many laws and regulations govern this process. The NFMA does not mandate that only mature woodland environments or old growth habitats be maintained. In fact, the desire to maintain a national forest solely in late successional habitat collides with the multiple use approach that Congress has endorsed for national forests in the NFMA. The NFMA regulations acknowledge that management is often needed to protect resources and enhance diversity.

The Forest is required to maintain viable populations of all native and desired nonnative species. This requirement dictates the need to provide early successional habitats, as well as late successional habitats, across the Forest. The selected alternative strikes a balance and provides habitats for all species found on the Forest. Contrary to what the commenter has stated, our models show that under all alternatives, the percentage of mature hardwoods (greater than 80 years old) will increase under all proposed alternatives (EIS, Table 3.8).

Direction in the Forest Plan allows the Forest to move toward a prescribed desired condition. The focus is what remains following the treatment and not what is taken off. Wood products are produced as a result of creating habitat for wildlife.

All alternatives are based on the best available scientific information. Other resource experts were consulted during the process, and alternatives were developed in a collaborative atmosphere with public input. Also refer to the response to PC # 16.

#15 B) Currently, there are 130,890 acres of oak-hickory on the Forest. Models project that under Alternative 5 this amount would decrease to 87,610 acres after 150 years. Though this is a significant decrease, Alternative 2 would result in loss of 24,040 more acres of oak-hickory than Alternative 5 would. Under the NFMA, the MUSYA, and other applicable Federal laws, the Forest Service administers NFS lands for multiple-use resource management, not just one resource or one species. Factors such as VQOs, wildlife habitat requirements, and riparian area values must also be considered when deciding between even and uneven-aged management. The selected alternative strikes a balance between and among competing uses and interests.

Programmatic forest plans do not mandate timber harvest method for any particular site. The revised Plan simply projects the “proportion of probable methods of timber harvest” as required by NFMA, 16 U.S.C. Section 1604(f)(2). The selection of actual timber harvest methods is deferred to the project level of decision-making, with consideration of local resource information and further NEPA compliance, as appropriate.

#15 C) Any disruptions of the ecosystems would be mitigated to the extent possible. Potential disruption to the ecosystem is best handled at the site-specific level of analysis and with NEPA compliance. Wildlife varies in its response to management activities such as roads and timber harvest. Wildlife that prefers continuous forests with closed canopies can be negatively impacted by these activities. On the other hand, the habitat edge created by roads and timber harvest benefits many other wildlife species, such as the indigo bunting, white-eyed vireo, song sparrow, and several species of forest bats. For more information regarding the effects of these activities on wildlife, refer to Chapter 3, **Animal Communities** in the EIS.

#15 D) As discussed in the FEIS, the selected alternative promotes ecosystem sustainability, recreation, forest wildlife protection, biodiversity, and non-timber forest products. This alternative strikes a balance among these and other resources and makes conservation and recovery of Federally threatened and endangered species a top priority.

#15 E) and F) As discussed repeatedly in the FEIS, the Hoosier is required to maintain viable populations of all native and desired nonnative species. This requirement includes game and nongame species, as well as species associated with old-growth habitats and early successional habitats. As stated earlier (PC # 14), many native wildlife species require early successional habitats. Considering Indiana ecosystems that have declined by greater than 98 percent, grasslands, savannas, barrens, shrublands, and wetland habitats top the list. The analysis conducted by the Hoosier revealed that these habitats were not well represented on the Forest and that the viability of species that use these habitats may be at risk.

It is relevant to note that conservation of forest interior birds is an issue of continuing import; however, the conservation of species associated with early successional habitats or canopy gaps is also a necessity. Cerulean warblers are a species of high conservation concern, and the species has been proposed as a Federally listed threatened species. Like some other songbirds, ceruleans need large blocks of forest, but not unbroken canopies. All the research published regarding this species emphasizes the importance of canopy gaps. Furthermore, other birds such as hooded warblers, cedar waxwings, and northern flickers also need canopy gaps. The needs of these species, as well as species listed on the Audubon Watch List that require shrublands, grasslands, and young forests such as bell's vireo, blue-winged warbler, Nashville warbler, prairie warbler, horned lark, bobolink, and loggerhead shrike, must be considered during Forest Plan revision. These habitats only persist with active management including timber harvest and prescribed fire.

Additionally, several recent studies provide evidence that some forest interior species may, in part, depend on early successional habitats during the post-fledgling period and during migration. These studies are cited in the text of the EIS. The selected alternative provides a blend of habitat types across the Forest. This will ensure that all species--including those that require large, unbroken expanses of forest canopy and those that require young forest--will have suitable habitat.

#15 G) Currently the Forest has approximately one percent of the landbase in the 0 to 9 year age class. The selected alternative, Alternative 5, is projected to maintain this percentage of young forest, not decrease it over the 10 to 15 year life of the revised plan (**Table 2.7**, EIS).

#15 H) The selected alternative will equip resource managers with a variety of management tools such as the use of pesticides and prescribed fire to aggressively treat nonnative invasive species. This alternative would result in a decrease in the oak-hickory component on the Forest in the long term.

#15 I) Because the Forest recognizes the important contributions that early successional species and communities make to biodiversity, early successional habitat continues to be a strong emphasis in the revised Forest Plan. A lot of discussion on the necessity of early successional habitats has been included in the Forest Plan revision process, because these habitats are limited on the Forest. Several species are dependent on early successional habitats, and it is critically important that this habitat be provided across the landscape to ensure species viability.

#15 J) A balance of age classes was a consideration when alternatives were developed, as discussed in Appendix B of the revised Forest Plan. The present forest condition is imbalanced if one considers age class distribution. Though the age class is not balanced, the Forest has identified a management framework that will allow for sustainable, multiple-use management of natural resources that maximizes net public benefit.

***PC #16**: The Hoosier should choose Alternative #5, the Preferred Alternative.*

- *A) It uses timber harvesting as a tool to enhance habitat for endangered species, promotes greater diversity, converts more CO_2 to oxygen, and provides more jobs.*
- *B) It promotes grouse habitat creation.*
- *C) It creates a balance of habitats of different ages and sizes and will ensure the long term maintenance of biological diversity across the Forest while providing wood products and recreation opportunities.*
- *D) The 40 percent managed with timber harvest will provide more oxygen and remove more carbon dioxide gases than the remaining unmanaged forest.*
- *E) It provides higher benefits to society than Alternative 2.*

#16A), B), and C) The Forest Service fully recognizes the importance of using timber harvest as a tool to enhance habitat for some wildlife species, including endangered species; to increase biodiversity across the landscape; and to provide wood products for the community. The revised Plan provides a programmatic framework for sustainable multiple use of the Hoosier. The revised plan does not authorize, mandate, or carry out any site-specific activities, but simply allows for possible future management actions as tools to move areas toward desired conditions. The alternatives were developed to achieve the goals of conserving threatened and endangered species habitat, maintaining and restoring sustainable ecosystems, maintaining and restoring watershed health, protecting our cultural heritage, providing for visually pleasing landscape, providing for recreation use in harmony with natural communities, providing a useable landbase, and providing for human and community development. The selected alternative represents a balance between and among all of these components. The selected alternative will result in habitats of different ages and sizes and will ensure the long-term maintenance of biological diversity across the forest while providing wood products and outstanding recreation opportunities. In addition, a number of jobs will be created under this alternative (see Chapter 3 of the EIS, **Human and Community Development, and Tables 3.64, 3.65**, and **3.68**).

#16D) We further agree with the commenter that harvested areas can produce more oxygen then unharvested stands. Younger trees use more carbon dioxide and give off more oxygen than older trees. As trees age, they begin to decay and the process is reversed. Decaying trees use oxygen and release carbon dioxide (Temperate Forest Foundation 2005). However, harvested stands are likely to be burned. Fire is a dynamic form of decomposition in ecosystems, consuming a portion of the forest biomass and releasing nutrients. Much of the carbon emitted from burning biomass is in the form of CO_2. After the fire, the system recovers toward pre-burn conditions, accumulating CO_2 once more. See the response to PC #3 (under Analysis) for more information on CO_2 storage and release.

#16E) The determination of how valuable an alternative is to the public is a complex issue, and over 500 pages of information were devoted to explaining the positive and negative effects of the various alternatives. Forest values are not just costs and revenues. Net public benefit is defined by 36 CFR 219.3 as the overall long-term value to the Nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (cost), whether they can be

quantitative criteria or a single measure of index. The maximization of net public benefit to be derived from the management of the forest is consistent with principles of multiple-use and sustained yield. A variety of wildlife habitats are provided by a diversity of age classes and tree species. Timber sales are the most economically viable means of achieving desired conditions and animal diversity. Non-priced benefits provided by timber sales include young forest, habitat diversity, and visual variety.

***PC#17**: The Hoosier should choose an alternative that blends Alternatives 3 and 5. Alternative 3 considers 55 percent of the Forest available for timber harvest as opposed to 41 percent in Alternative 5.*

Response to #17: We considered the suggestion to combine Alternatives 3 and 5 to allow for a greater percentage of the Forest to be "available" for timber harvest. The comment did not provide any detailed scientific information or rationale as to why this alternative should be considered. However, we did consider the suggested combination of alternatives, but concluded that the lack of public consensus does not support an increase of the acres considered suitable for timber harvest. Surveys have shown that there is no consensus among members of the public as to how the Hoosier should be managed. In light of this lack of consensus, the decision maker did not feel that the public would support increases in the acreage available for timber harvest.

The selected alternative identifies 41 percent of the Forest as suitable for timber harvest. This suitability analysis is required by NFMA, 16 U.S.C. Section 1604(k), and its regulations at 36 CFR 219.14. The revised plan does not authorize any site-specific harvest of timber. The suitability determination does not mandate any particular level of harvest over the 10 to 15 year life of the revised plan.

***PC #18**: The Hoosier's alternatives are inadequate.*

A) No alternative was considered that analyzed various routes or levels of difficulties for ATVs.

B) There was not an alternative considered that provided a middle ground between Alternative 5 and the other alternatives.

C) No alternative addressed high-clearance vehicle use by four wheel drives.

D) The Hoosier National Forest mischaracterized the authority cited in the DEIS (Fogg 2002). There is no support for agency rationales that there would be no four-wheel drive opportunities unless those opportunities are rugged and technically challenging.

Response to #18: We believe that the range of alternatives presented in the analysis is adequate and provides a full range of possible management emphases for the Forest. We formulated the alternatives to respond to issues from public scoping and provide efficient resource production. The range of alternatives also includes the analysis and modeling of the benchmark alternatives, which provide baseline data to formulate and analyze the alternatives presented. Included in these was the minimum level management alternative which was displayed as Alternative 2. A maximum amenity benchmark alternative and a maximum timber benchmark alternative were also modeled and included in the analysis. Analyzing these benchmark alternatives greatly expanded the range of alternatives considered. The benchmark alternatives are described and discussed in **Appendix B** of the EIS.

Alternatives are developed in response to issues presented during public input. The public involvement process is described in **Appendix A** of the EIS. Alternative 1 presented the No Action Alternative or status quo. Alternative 2 represented little to no management of the

Forest. Alternative 4 was the most aggressive alternative analyzed in detail, and Alternative 3 falls in between Alternatives 1 and 4. Alternative 5 has the same treatments as Alternative 1 plus implementation of MA 3.3. An alternative between Alternatives 1 and 5 would shown very little difference in effects.

#18 A) and B) The EIS analyzes the net public benefits provided by each of the five alternatives considered in detail and the environmental effects of implementing them. Site-specific concerns such as various routes or levels of difficulties for ATV's would be considered in project-level, site-specific NEPA analysis.

#18 C) A vehicle analysis was completed as part of the EIS, Chapter 3, **Provide for Recreational Use in Harmony with Natural Communities, Trails, Vehicle Analysis**. Through the vehicle analysis, a four-wheel drive vehicle trail system was eliminated from consideration in the alternatives. The most limiting factor in the analysis was the availability of a block of NFS land that was large enough to support construction of a trail system. Providing a trail system that challenges both the rider and vehicle would not be in accordance to Region 9 guidance.

#18 D) We respectfully disagree with the commenter's opinion that the analysis presented by Fogg was mischaracterized. Fogg (2002) stated that only a finite amount of activity can be placed on any given piece of land (**Final EIS, Chapter 3, Provide for Trails, Vehicle Analysis**). The Forest already provides opportunities for four-wheel drive vehicles that are not rugged and challenging, as four-wheel drive vehicles are allowed to use roads open to the public.

***PC #20**: The Hoosier must consider an alternative that manages for forest interior species, emphasizing projects that reduce fragmentation.*

A) Develop and consider uneven-aged management alternatives.

B) Do not attempt to use "patch clear-cutting" in place of group selection. Group selection does not use area regulation; it uses diameter distribution regulations.

Response to #20: All proposed alternatives would manage and provide habitat for forest interior species. Even under alternatives that propose the most vegetation management, over 40 percent of the Forest is considered unsuitable for timber harvest. Where timber harvest is a suitable activity, even-aged and uneven-aged management techniques are considered under Alternatives 1, 3, 4, and 5. Alternatives 1, 3, and 5 propose more treatment acres of uneven-aged harvest than even-aged treatments. Within MA 2.8, even-aged management treatments have been increased to a maximize size of 10 acres. This should result in less fragmentation of the Forest and a decrease in edge effects that would be created by smaller treatments.

The type and size of a timber harvest would be a project-level decision. *The Dictionary of Forestry* (Helms 1998) defined patch clearcutting as an even-aged harvest method, but group selection is an uneven-aged method, and the objectives are different. Clearcutting is based on area regulation and tries to create even-aged stands. The goal of group selection is not to create an even-aged stands, so we do not use area regulation but rather regulation of the age class distribution.

Typically, the width of a group selection cut is approximately twice the height of the surrounding trees. The three-acre limit in the Hoosier Plan was based on the average tree height on the Forest.

Thus, the EIS contains an alternative that emphasizes forest interior species. Although the revised plan does not mandate how, when or where timber be harvested on any particular site, it does set forth analysis of a variety of possible harvest methods, including uneven-aged harvesting. The Final EIS and revised plan use commonly accepted definitions for technical terms such as clearcutting, patch clear cutting, and group selection. With public involvement, the Forest developed and analyzed a broad range of multiple use alternatives to permit a reasoned choice.

Please refer to the response to #14.

Analysis

***PC #1**: The Hoosier National Forest should address the survey commissioned by Congressman Frank McCloskey in 1990 that found that people are opposed to logging on the Hoosier National Forest.*

Response to #1: We received many comments that directed us to include findings from the 1990 survey conducted by Senator McCloskey. The survey found that 69 percent of the people of this region were opposed to commercial logging in the Hoosier National Forest. The results were gained in response to the question, "Do you favor or oppose the harvesting of timber for sale from the Hoosier National Forest?" The survey reportedly found 79 percent of the people then between ages 18 and 34 years were opposed to logging the Hoosier. We were unable to find any specific information regarding this survey other than the results. We cannot ascertain what discussion led up to the question, how those surveyed were picked, where they lived in relation to the Forest, or any information regarding the methodology of the survey, all of which makes it difficult to rely this 16 year-old survey. Public opinion and input is considered as part of the NEPA process, and Appendix A of the Forest Plan lists the many opportunities for public involvement. While public opinion is considered and addressed, the analysis relies on data and science.

The Social Impact Assessment (2000) conducted in conjunction with the Forest Plan revision process considered socioeconomic and cultural factors of interest near the Forest as well as indicators of individuals' values, beliefs, and views of the national forest. The social assessment was implemented in the region in and near the Forest. The assessment built on previous work conducted during the development of the 1990 Draft EIS and Management Plan, presumably including the McCloskey survey. The social assessment found that there is a high degree of diversity of both communities and individuals in the nine-county area around the Hoosier. This diversity makes it hard to predict how Forest stakeholders will accept land management decisions. The survey found that the views were almost equally divided into three perceptions: preservation, conservation, and increased use. The findings of the assessment can be found in the EIS, **Chapter 3, Provide for Human and Community Development**. **Table 3.60** in the EIS specifically displays the results of the surveys in relation to the three perceptions held by those surveyed.

***PC #2**: The Hoosier National Forest's analysis of standards and guideline is inadequate.*

A) The Forest Plan should ensure that standards and guidelines are enforceable under the Administrative Procedures Act.

B) The EIS should display the differences between the existing plan, the proposed plan, and the alternatives.

C) The EIS should display the differences between standards and guidelines in the existing plan, the proposed plan, and the alternatives.
D) The EIS should identify which standard and guideline is being referenced in the analysis.

Response to #2: We respectfully disagree with the commenter's inference that standards and guidelines are unenforceable. Standards and guidelines are a key component of the forest plan direction. NFMA Section 1604(i) requires that project decisions be consistent with the binding provisions of land management plans. If a project cannot be conducted within these parameters, the Forest does not allow the development to move forward without amendment of the revised Forest Plan direction.

As is sometimes the case, it appears that the commenter confuses enforceability with effectiveness. The comment suggests that the standards and guidelines must be judicially enforceable to be effective. This conclusion is based on the false premise that if binding direction is not judicially enforceable, then the Forest Service will not properly employ the direction to mitigate resource effects.

Chapter 3 of the Final EIS discloses the impacts of programmatic management framework of the revised Forest Plan, including Alternative 1, which is the 1985 Forest Plan as amended. Therefore, the comparison that the commenter requests is already complete. The commentor provided no evidence of how the programmatic EIS was inadequate in its comparison of the No Action (existing plan), proposed plan, and alternatives. The disclosure in this programmatic analysis is commensurate with the broad-scale decision that is at issue in this level of staged decision making. As the Supreme Court recently noted in Department of Transportation v. Public Citizen, the EIS is required to contain only information that is useful to the decision at hand.

The analysis was completed under the assumption that all applicable standards and guidelines would be implemented under each proposed alternative. Therefore, no individual standards and guidelines could be referenced because they were all considered in the analysis.

***PC #3**: The Hoosier should consider the cumulative impacts of land use on climate.*
A) A number of studies link forest cover with regional climate conditions.
B) Increases in CO_2 as a result of timber harvest, road building, and burning could result in global climate change.
C) Assess how much carbon is being stored in the forest and how the proposed actions will release this.

Response to #3 A) Currently, there is no reliable way of predicting future changes or the effects of climate change. Therefore, an adaptive management approach should be employed in conjunction with a forest management approach that provides for a diversity of species to add to the resiliency of the forest to respond to any changes in conditions.

#3 B) Related to CO_2 emissions, carbon release is the product of burning ancient fossil fuels (coal and oil) tied up over thousands or millions of years deep in the earth. Any activity that completely disturbs both soil and vegetation layers (till farming, dozing and clearing, road and structure construction, dams, and draining of wetlands) disrupts the natural balance of carbon sequestration by above-ground vegetation and below-ground soils. Research specific to various vegetation types indicates that carbon is sequestered both above and below ground, depending on the ecosystem type, soil conditions, and climate.

#3C) Both above- and below-ground carbon was significantly reduced during the exploitive era following European settlement. Indiana suffered a century of overgrazing, poor farming, and nearly complete removal of timber resources. This early cultural landscape change caused severe soil erosion and a dramatic loss of overall biomass. Since this exploitation, all of the acres that comprise the Hoosier have seen a long period of slow vegetation recovery, primarily in the form of tree growth. Livestock is no longer grazed on the Forest, and ground cover biomass is recovering. The goals of the revised Forest Plan will continue to increase grass and forb ground cover associated with healthy ecosystems and should increase biomass above and below ground, thus increasing or having no net loss in CO_2. Also, while prescribed burning releases CO2, the resulting response to biomass should compensate for the temporary loss. Prescribed burning ultimately reduces the amount of carbon released because the absolute magnitude of wildfires decreases, even when some natural communities slowly return to greater fire frequency. The combustion of ground cover fuels is followed by biomass regrowth and an increasing uptake of carbon below ground in the deep roots of prairie grasses and wildflowers.

According to the 2003 FIA (Forest Inventory Analysis), live biomass in Indiana is 228 million dry tons. Within the nine counties that comprise the Forest, there are approximately 60 million dry tons, and on the Hoosier there are an estimated 1 million dry tons of biomass. FIA data from timber inventories for the State and NFS lands over the past four decades indicate a continuous increase in net timber volume. Average annual net growth exceeded harvest by a 2.5 to 1 margin between 1986 and 1997. During the 12 years between inventories, an average of 18 million new growing stock trees were established each year in Indiana.

The Forest Plan projects a maximum removal of 57 MMBF on six percent of the Forest with a dry biomass of approximately 472,800 dry tons. Over that time, growth will continue.

On average, approximately 2,000 acres per year would be burned and one ton per acre of carbon would be removed in the form of carbon monoxide, carbon dioxide, and other gases, equaling approximately 2,000 tons per year or 20,000 tons per decade. The ash and other byproducts created by the burns would remain on site, were not projected to be carbon lost since the ash would not leave the site and would be readily available for nutrient absorption and incorporation.

The comment does not present any scientific information concerning carbon sequestration that the agency overlooked or ignored. The effects analysis in Chapter 3 discloses, at the programmatic level, the broad-scale effects of the proposed programmatic direction and is in essence a cumulative effects analysis. The Forest has used high quality scientific information available in the development of the effects analysis. The ecological restoration and forest health emphasis of the selected alternative would be expected to have some beneficial effects on carbon sequestration. The focus of the revised plan is improving the condition of the land, not commodity production or development. The revised Plan was developed with analysis of carbon effects at the programmatic level. The effects of the Hoosier's Forest Plan on global climate are beyond the scope of the proposal, analysis, and decision. As the Supreme Court recently noted in Department of Transportation v. Public Citizen, the EIS need only include information in that is useful to making an informed decision.

***PC #5**: The Hoosier National Forest should prepare a Supplemental Draft EIS.*

A) The Draft EIS states that Alternative 2 is similar to the Minimum Management Benchmark but that Benchmark alternative is not displayed in the analysis.

B) The public has no idea what costs are considered in the Present Net Value analysis.

C) *Non-priced forest benefits are not included as an important factor in weighing alternatives, which has led to bias.*
D) *The true costs to society of extractive programs and the true benefits of standing forest protection have not been considered.*
E) *Non-priced values like bequest, options, and existence values have not been included; had they been, the outputs would be dramatically different.*
F) *By comparing and contrasting the different environmental and social costs, the Forest Service might decide that Alternative 2 or a variation is the preferred alternative.*
G) *The DEIS fails to adequately disclose the irreversible economic, social, and environmental consequences that could occur through implementation of the alternatives.*
H) *The DEIS fails to disclose the methodology and assumptions in the models used.*
I) *Models need to be rerun to include the effects of Management Area 3.3.*
J) *The requirements of 36 CFR 219.12 (f) regarding the range of alternatives have not been met.*
K) *The analysis of Alternative 2 is biased because it does not analyze the effects of decreased occurrences as a result of fewer roads.*
L) *The DEIS does not meet the requirements in the USDA Information Quality Guidelines.*
M) *The analysis of the impacts of pesticide use on the forest is inadequate. The impacts are not disclosed.*
N) *The Hoosier National Forest must analyze the effects of off-road vehicles (two-stroke engines) on air quality.*
O) *The Hoosier National Forest must analyze the effects and impacts of leaf blowers used on the Forest.*
P) *The Hoosier must analysis the effects of prescribed burning on air quality. Burning produces a plethora of noxious chemicals.*

Response #5A and B) The minimum management benchmark is discussed in Appendix B. This Appendix also discusses what components are considered in the present net value analysis.

Response #5C, E), and F) Various non-priced benefits, or benefits that are difficult to price are cited in the Final EIS in Chapter 3, **Provide for Human and Community Development**. Viewing or observing wildlife and other aspects of nature, trail use, solitude, knowledge that the forest is there (and will continue to be there), clean water, and air, improved quality of life, the rural character of the area, scenery, dispersed recreation, wildlife habitat and population viability, family togetherness, forest smells, sounds of nature, the natural environment, natural processes, production of blackberries and raspberries, wildflowers, and public health are among the benefits mentioned. So the decision maker weighs non-priced and difficult-to-price benefits. The EIS also notes: “Some of the cumulative effects of the alternatives are small enough that they warrant no further consideration.” Some aspects mentioned as fitting in that category are lifestyles and attitudes. Credible Forest-level data on the value of ecosystem services, for example, are lacking, and there is no consistent procedure for establishing these and many other values for a variety of benefits. In addition, under Outputs to be Valued in Market Assessments, FSM 1971.62 says: “Determine values only for outputs that the Forest Service sells or potentially could sell, if the law or Forest Service policy permitted.” The environmental effects of the alternatives have been disclosed, and those are “environmental costs.” “Social costs” are real and important, but the ability to quantify them is limited similarly to that of non-priced benefits. Unlike the activities of some other governmental agencies, the activities suggested in the alternatives are of types that are unlikely to have long-lasting, appreciable social effects.

Neither NEPA, NFMA nor their regulations require quantification of non-valued environmental benefits. The comment does not indicate how these benefits would have altered the decision or analysis. Indeed, the decision maker has weighed non-quantifiable factors, as well as economic, biological, and physical factors, in reaching a decision that maximizes net public benefits. Sustainable resource management in a multiple use context will always involve factors that cannot be measured or valued with exactitude; these considerations were part of the development and decision making for the revised Hoosier Plan.

#5 D) **Appendix B** of the EIS contains a list of some of the non-priced benefits that were incorporated into the analysis and models. There are many benefits of forests, but individual trees do not live forever. By properly managing the forest, we can have healthy standing forests, adequate habitat to sustain viable population of native species, and economic benefits instead of an aging forest of tree species that do not provide desired habitat for many species (without harvesting, species such as oak and hickory are expected to continue to decline). This is disclosed in Chapter 3 of the EIS.

#5 G) Irreversible commitments of resources are addressed in the EIS in Chapter 3, **Irreversible or Irretrievable Commitment of Resources.** Irreversible commitments in the analysis refers to a resource commitment that "results from actions that alter an area and prevent it from returning to its natural condition for an extended period of time or one that utilizes nonrenewable resources." Partly due to the nature of actions allowed by the Plan and partly due to the renewable nature of resources such as vegetation, the EIS near the end of Chapter 3 rightly notes only the unlikely development of fossil fuels and the use of common variety minerals in administration of the Forest as irreversible commitments. The programmatic revised Plan does not contain any site-specific proposals for development of minerals.

#5 H) Methodology and Assumptions of the SPECTRUM model can be found in **Appendix B** of the EIS. The EIS noted numerous documents as supplying information about the assumptions of the LANDIS model (Gustafson *et al*. 2000, He *et al.* 1999, Mladenoff and He 1999, and He *et al*. 1996).

The models used in development of the revised plan were designed to assist planners in the task of alternative development and effects disclosure for programmatic land use plans. The Hoosier applied the models and results in accord with their intended purpose and within their design limits. Information concerning the assumptions, limits, and design criteria of the models used in this analysis were available to the public and is contained in the planning record. Neither the comment nor any other source provided scientific information or critique of the use of SPECTRUM and LANDIS models in the revision of the Hoosier Forest Plan. The best available scientific information concerning these models and their limitations was used in development of the revised plan. The quality of scientific information used in development of the alternatives was of particular concern to the Forest.

#5 I) As stated in the EIS, the models have been rerun to include the analysis of effects of implementing MA 3.3 in Alternatives 3, 4, and 5.

#5 J) The range of alternatives, including those considered but not analyzed in detail, is sufficient for the decision maker to formulate a reasoned decision concerning a programmatic (no site-specific decision being made) Forest Plan for the Hoosier. Appendix A and Chapter 2 of the EIS describe the public involvement process used to guide the identification of issues and development of alternatives. An agency's discussion of alternatives must be bounded by some

notion of reasonableness (practicality) and feasibility. The Forest is required to set forth only those alternatives necessary to make a reasoned choice.

Based on this comment, we reviewed the requirements of NFMA regulations at Section 219.12(f) and the alternatives in the EIS for the revised plan and concluded that all the elements of this provision have been satisfied. Alternatives presented to the Forest by the public were given consideration (as documented in FEIS, chapter 2). The comment does not provide evidence or information as to what aspect of alternative development or analysis is flawed or inadequate.

#5 K) In many places in the Final EIS, Alternative 2 is noted as having less effect on specific resources than the other alternatives. As noted in the EIS, there are also negative effects of doing little to nothing to manage the forest. Specifically, analysis regarding roads in Alternative 2 can be found in chapter 3, **Transportation System**. Alternative 2 would result in less roads available for use in the next 10 to 15 years. The disclosure of the effects of fewer roads, both beneficial and adverse, under Alternative 2 is appropriate for the programmatic level of decision-making. Site-specific effects are not required to be disclosed where the decision does not include any site-specific proposal for action.

#5 L) See response to PC #79, under the Analysis subheading.

*Responses to 5 M through P request information that is better addressed at the site-specific, or project level of analysis. The final EIS in Chapter 1, under **Planning Document**, informs readers that the revised Forest Plan doe not mandate any site-specific decision, nor does it contain a commitment to propose or select any specific project. Subsequent environmental analysis, including public involvement, will occur prior to any ground disturbing, site-specific project proposal.*

#5 M) The impacts of pesticide use are disclosed sufficiently for the programmatic decision to be made. The programmatic revised Forest Plan does not authorize any use of pesticides on the Forest. EPA and other agencies have rigorously investigated the effects of any chemical that the Hoosier would consider using. Any use of pesticides would require a prior site-specific environmental analysis.

#5 N) and O) Effects of emissions related to two-stroke engines is included in **Alternative 3** under **Recreation**, Emissions. Effects of leaf blowers would assume the same direction and regulations. Their effects are expected to be even smaller and more localized than the analysis regarding ATV use.

#5 P) Chapter 3 of the EIS under the subheading **Air Quality** discloses the effects on air quality from prescribed burning, as well as the benefits and objectives of such burning. The revised Forest Plan does not contain any site-specific proposals, and thus contain no site-specific analyses. The disclosure of potential air quality effects from the programmatic forest plan direction is appropriate for forest plan level decision-making.

***PC #6**: The Hoosier should not increase logging by 31 percent from the previous forest Plan.*

Response to #6: The Hoosier does not propose to increase logging by 31 percent from the previous plan. Alternative 1 represents the same number of acres proposed for treatment as were proposed in the 1991 Forest Plan amendment. The increase in the timber volume that may be harvested is a result of growth of the forest since the last plan and an increase in the

landbase. Since the previous plan was approved, very little on-the-ground implementation has occurred. The trees have continued to grow and therefore will have a greater timber yield. With the increase in landbase, the computer models have included new areas that may have had higher yield than predicted in the previous analysis.

The table below provides a comparison of the acres analyzed in the EIS for the 1991 amendment to the 1985 Forest Plan and the acres analyzed in the revised Forest Plan EIS. Some of the smaller differences, for instance the change in MA 8.3 acres, may be attributed to better mapping techniques and technological advances.

MA	1991 Plan	Alternative 1	Change
2.4	13,972	16,900	+2,928
2.8	97,232	102,127	+4,895
5.1	12,953	12,953	0
6.2	19,303	18,564	-739
6.4	24,563	23,321	-1,242
7.1	6,150	6,291	+141
8.1	88	88	0
8.2	11,415	18,274	+6,859
8.3	630	632	+2
9.2	1,586	0	-1,586
Total	187,892	199,150	

The information disclosed in the programmatic EIS is a projection of what may occur over the 10 to 15 year life of the revised plan. As noted above, the 1985 plan, as amended, projected harvest levels that were never realized due to a variety of factors. The revised plan does not mandate any site-specific harvest, nor does it determine where, when, or how timber will be harvested at the site-specific level. The information concerning harvest level is provided for planning purposes, e.g. see NFMA, 16 U.S.C. 1604(f) requirements to estimate a timber harvest schedule and identify possible methods of harvesting over the life of the plan. Timber harvest decisions, including affirmation of the suitability of particular acres for harvest, are deferred to the site-specific level of decision-making. Numerous Federal district courts have reviewed the programmatic timber decisions made in national forest plans and affirmed the agency's staged model of decision making.

The commentor is concerned that there is a proposal to increase harvest level by 31 percent, when in reality no site-specific proposal to harvest timber is contained in this analysis or decision. The actual level of harvest over the life of the plan is influenced by budget, weather (ice and windstorms, for example), changes in agency policies and priorities, and other factors.

***PC #12**: The Hoosier's proposal for Management Area 3.3 is inadequate.*

- *A) The implementation of Management Area 3.3 would serve to isolate species that are dependent on early successional habitat and are not able to move freely to this type of habitat.*
- *B) To ensure maintenance of viable populations of early successional species, this MA should be enlarged and dispersed throughout the Forest.*
- *C) This MA should occur in the Pleasant Run Unit because the Hoosier National Forest originally justified the acquisition of areas around Maumee and Browning Hill for reasons of preserving ruffed grouse habitat.*

D) Implementation in this manner does not benefit early successional species across the forest.

E) This Management Area would become the focal point of grouse hunters which could lead to potential over-harvest.

Response to #12: Management Area 3.3 was established to provide habitat for species associated with early successional forest habitats to allow us to meet our obligation to ensure species viability as part of the Forest Plan revision. This MA has not been established to provide habitat solely for ruffed grouse. The ruffed grouse was included in the suitable viability evaluation because this species' habitat requirements have been well documented. By providing suitable habitat for this species, the best available scientific information and consultation with wildlife experts, including Indiana DNR biologists' suggests that we will also provide habitat for other species associated with early successional habitats.

The viability of early successional forest species may be ensured by directing a portion of our even-aged harvest to MA 3.3. We propose this not only to provide an area discretely managed to benefit early successional forest species but also to similarly benefit late successional forest interior species where this harvest might otherwise occur. Furthermore, by directing harvest to the Tell City Ranger District, these habitats will be enhanced by approximately 1,600 acres of windthrow resulting from recent severe storms within this MA. Though we use the ruffed grouse as an SVE species, this directed approach to management should ensure habitat availability for other early successional forest species, such as these currently noted on the Audubon Watchlist: the golden-winged warbler, Bell's vireo, and the blue-winged warbler.

Use of a 100-year rotation will sustain approximately 10 percent of MA 3.3 in a 1 to10 year-old forest age class. This amounts to about 1,300 acres of even-aged management per decade. This will leave an additional 1,500 acres of even-aged management per decade (or over 50 percent) to be applied across the landscape (including the northern section of the Brownstown Ranger District) in areas suitable for timber harvest. This would amount to 2,850 acres of uneven-aged management per decade across the landscape and up to 5,000 acres of openings. Implementation in this manner will benefit all species of early successional species across the Forest and will ensure that viable populations are located across the landscape. Concentrating a portion of our even-aged management into one MA will ensure that species that are non-migratory, like the ruffed grouse, are not isolated from additional patches of early successional habitat and will be able to readily disperse.

The 1982 Planning Rule (under which the revised Forest Plan was developed) states: "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area (36 CFR 219.19). This requirement for species viability is placed within NFMA requirements to provide for diversity of plant and animal communities within a multiple use context. Further, the NFMA states with regard to plant species diversity: "Forest planning shall provide for diversity of plant and animal species and tree species consistent with the overall multiple-use objectives of the planning area." Management Area 3.3 and the direction for it are well balanced in consideration of the need for sustaining the diversity of plant and animal species including early successional species.

Early successional forest habitats, as well as populations of species associated with these habitats, have declined on the Hoosier as a direct result of the 1985 Forest Plan not being fully implemented. Although ruffed grouse breeding populations in Indiana are at the lowest level in 27 years, this has little to do with hunting pressure. A loss of habitat due to forest succession and the lack of active forest management on public lands in the core and remnant range of the

ruffed grouse in Indiana are the primary reasons for declines. The long-term viability of this species is dependent on active management designed to provide appropriate habitat across the landscape. Loss of early successional habitat is common across the southern tier, including the Shawnee National Forest in Illinois. The *Hoosier-Shawnee Ecological Assessment* addressed the decline of habitat.

Also refer to the response to PC #64, under the subheading Analysis.

***PC #78**: The Draft Environmental Impact Statement violates NEPA.*

A) By not indicating any science, studies, or monitoring to support claims that a shift in forest composition would occur without implementing even-aged management.

***PC #79:** The Hoosier National Forest DEIS violates the USDA Information Quality Guidelines.*

A) By not indicating any science, studies or monitoring to support claims that a shift in forest composition would occur without implementing even-aged management.

Response to #78) Overall, the programmatic EIS prepared in conjunction with the revised Forest Plan addresses three questions, in order. First, the agency conducted scoping to solicit public input as well as internal agency views of the proper purpose (also known as "need for change") in revising the plan. Second, given the identified purpose, the Forest collaboratively developed a reasonable range of alternatives to meet that purpose. Third, the Forest took a hard look at the effects of the various alternatives. The level of disclosure of effects appropriately corresponds to the nature of the programmatic proposal embodied in plan revision. This general approach, comprehensively addressing these three basic questions in order, corresponds to the views of the Seventh Circuit and Federal District Court for the Southern District of Indiana in their review of Federal agency NEPA documents, see Hoosier Environmental Council v. Corps of Engineers, 105 F. Supp. 2d 953, 1000 (S.D. Ind. 2000).

Response to #78A) and #79) Much of the 43 pages of Chapter 7 in the final EIS is science relating the shift in forest composition in terms of age and species. Specifically the references include:

Johnson, Paul S.; Shifley, Stephen P.; Rogers, Robert. 2002. The ecology and silviculture of Oaks. CABI Publishing:New York, NY. 461 p.

Parker, George R.; Ruffner D.M. 2004 Current and historical forest conditions and disturbance regimes in the Hoosier–Shawnee Ecological Assessment Area. Pages 23-58 In: Thompson, F.R. III, ed. The Hoosier-Shawnee Ecological Assessment, Final Technical Report NC-244. St. Paul, MN: U.S.; Department of Agriculture, Forest Service, North Central Research Station. 267 p.

Thompson, F.R. III: DeGraaf, R.M.> 2001. Conservation approaches for woody early successional communities in the eastern United States. Wildlife Society Bulletin. 29:483-494.

Yahner, R.H. 1995. Eastern Deciduous Forest: ecology and wildlife conservation. Minneapolis, MN: University of Minnesota Press. 295 p.

***PC #80**: The Hoosier must address the decline of oak-hickory habitat on the Forest.*

- *A) This will affect the supply of hard mast, soft mast, brooding and bugging areas, and important nesting sites.*
- *B) The oak-hickory forest is vitally important to many wildlife species, including the red-shouldered hawk and broad-winged hawk.*
- *C) This should include the effects of deer browse on oak-hickory regeneration.*
- *D) This should include the effects of the lack of prolonged drought resulting in increased maple regeneration.*
- *E) The DEIS must address the continued decline as influenced by fire suppression.*
- *F) The successional change from oak-hickory to beech-maple should be addressed.*

Response to #80A), B), E) and F) The decline of oak-hickory habitat on the Forest and successional change to beech-maple were addressed in the EIS (see Animal Communities – Historical Context, Importance of Oak-Hickory Forests to Animal Species; Alternatives and the Effects of Management on Animal Communities - Alternatives 1, 3, 4, and 5 – Uneven aged Management Techniques, Prescribed Fire, Oak-Hickory Regeneration, Species Viability Evaluation (SVE) Analysis – Animals, Cumulative Effects of All Alternatives; Species Viability Evaluation (SVE) – Plants - Summary of Effects from the Analysis; Plant Communities – Fire History, Early Successional Habitats; Alternatives and the Effects of Management on Plant Communities – All Alternatives, Cumulative Effects, Alternatives 1, 3, 4, and 5 - Even-aged Management, Un-even aged Management, Cumulative Effects; Alternative 2 – Cumulative Effects; and Fire and Fuels).

#80 B) Soft mast was not addressed in the Draft EIS, but has been discussed briefly in the Final EIS, Alternatives and the Effects of Management on Animal Communities - Alternatives 1, 3, 4, and 5 – Even aged Management Techniques and Prescribed Fire. All these are components of the overall habitat quality. Red-shouldered and broad winged hawk were not considered individually but are included in the suite of species for their habitat requirements.

#80 C) Deer browsing can impact regeneration of numerous tree species including oak, hickory, beech, and maple. The effects of deer browsing are discussed in the EIS (Alternatives and the Effects of Management on Animal Communities - Alternatives 1, 3, 4, and 5 – Even aged Management Techniques and Prescribed Fire, Cumulative Effects of All Alternatives).

#80 D) The Hoosier is not aware of any data that supports the statement that lack of a prolonged drought results in increased maple regeneration on the Forest. Surveys conducted by Purdue University of regenerating hardwood clearcuts in the Hoosier have not noted an increase in maple regeneration due to drought conditions. Yellow poplar has been the only species that has been notably impacted by drought conditions, and abundance of this species has decreased within these stands as a result of such conditions.

#80 E) Natural and anthropogenic influences had a dramatic effect on the environment. *The Hoosier-Shawnee Ecological Assessment* documents the effect of natural and human disturbances. Specifically, Parker and Ruffner discuss the human influences on vegetation through fire use and agricultural clearing across the region until the early 1800's when European settlers arrived. The historical influences of Native Americans and natural influences are well documented throughout Chapter 3 of the EIS.

***PC #81**: Targeting a limited species component such as oak and hickory could be detrimental to the long-term health of the forest. This would bring disastrous ruin in the event of a blight, disease, or insect infestation that targeted these species.*

Response to #81: The Forest does not intend to limit management to only oak and hickory. While oak and hickory are important species, they are not the only species of concern. The oak–hickory type represents a complex community, and when we state "oak–hickory type" we are referring to that community. To maintain this type will, in many cases, require disturbance. The benefits to maintaining this type on the flora and fauna is discussed in the EIS Chapter 3.

Other communities are also considered to provide a balanced holistic approach. A balanced and diverse forest is one that not only has differing forest types, but also has differing age classes, stocking levels, and compositional makeup. Such a balance will help buffer the forest in cases of blight, disease, or insect infestations.

The published scientific information (which forms the foundation of this revised plan) indicates that diversity of plant and animal communities enhances ecological function and integrity, resulting in a more resilient and healthy ecosystem. As disclosed in the EIS, the effects of no action, a minimal or custodial approach to management, on oak hickory community restoration are well documented by monitoring and published scientific information.

***PC #90:** The Hoosier should make guidelines requirements.*
A) This will conform to the NFMA.
B) Discretionary guidelines are meaningless.

Response to #90: We believe the commenter has misconstrued the wording relating to guidelines. Guidelines cannot be ignored; they must be followed when feasible. If they are not, the reason why must be explained in the project-level NEPA document and the impacts of those actions must be disclosed. Most guidelines were written because the protection they provide is important, but it was recognized there might be instances where the implementation of such mitigations would not be feasible. However, the decision maker must explain, fully examine, and document the impacts of not following the guidance as set forth. There is no specific information provided in the comment with regard to how the guidelines are legally insufficient (i.e. violate NFMA) or will not provide adequate resource protection. The comment presumes that discretionary guidelines will not be followed. This is speculation or opinion; there is no evidence that the guidelines will not be followed and fully implemented during project implementation. The guidelines provide efficient resource protection, but allow adjustment to meet site-specific conditions. The guidelines are an important part of the revised Forest Plan, and when combined with standards and other plan direction, that provide an excellent programmatic framework for future site-specific decisions. The revised Forest Plan is a dynamic document; standards, guidelines, and other elements will be changed as necessary to meet changing conditions.

The NFMA, 16 U.S.C. Sec. 1604(c), refers to "standards and guidelines," but the only subsequent use of the term "standards" is as a term-of-art referring to a technical requirement for timber stands (Section 1604(m)). A basic principle of the NFMA planning regulations is the "[e]stablishment of quantitative and qualitative standards and guidelines for land and resource planning and management" (1982 version 36 CFR 219.1(12)). The terms "standard" or "guideline" are not defined in the planning regulations (see Section 219.3). The terms only appear in the definition of "management direction:" "A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for

attaining them." (Section 219.3) Likewise, the terms appear infrequently throughout the remainder of the NFMA planning regulation (see, e.g. 219.16 (specific reference to timber utilization standards), 219.27(c)(2) (generic reference to environmental standards), 219.27(a)(10) (specific reference to road construction standards)). Thus, the NFMA regulations (1982) use the terms in different applications but do not precisely specify the meaning of the terms, nor are standards or guidelines required to be expressed in quantifiable terms.

***PC #91**: The Forest should improve the quality of the maps.*

Response to #91: The Forest developed the maps with enough detail for the deciding officer to make a rational choice between alternatives. This is a programmatic, not site-specific document, and a different level of detail is appropriate. The supporting narrative in the Final EIS also provides sufficient level of detail for the deciding officer to make a rational decision. The NFMA does not require acre-by-acre specificity with regard to mapping and inventories. Neither the NFMA nor its regulations prescribe any particular type, scale, or quality of mapping. To the contrary, the Act and its regulations allow considerable discretion and rely upon the technical expertise of local officials with regard to the maps provided with the revised Forest Plan. The decision not to develop a map with the greater specificity or resolution that the commenter seeks is within the discretion provided to the local interdisciplinary team and decision maker.

***PC #92**: The Hoosier should make the biological assessment available for public comment.*

Response to #92: A biological assessment (BA) has been completed and will be available as part of the Project Record. The Forest completed the BA in January of 2005 and revised it in June of 2005. The final BA was submitted to USDI Fish and Wildlife Service on July 1, 2005. The BA is included n the planning record and is available to the public. Effects on wildlife are also disclosed in the final EIS in Chapter 3.

***PC #93**: The Hoosier should conduct a new analysis of potential roadless areas in a Draft Supplemental EIS.*

- *A) The DEIS has hardly any information on the roadless analysis, and did not incorporate the analysis by reference.*
- *B) Maps of the areas considered were not included.*
- *C) Due to lack of following proper procedures many areas were improperly eliminated.*
- *D) The Forest Service ignored what Congress has done in designating Wilderness in the Eastern United States.*
- *E) The Forest Service used the wrong regulation to develop the Regional Guidance.*
- *F) The criteria used by the Forest Service in the Regional Guidance have not undergone public scrutiny.*
- *G) The Forest Service improperly applied 'outstanding' opportunities for solitude criteria.*
- *H) The Forest Service improperly disqualified areas that did not have a 2,500 acre core area.*
- *I) The Forest Service improperly disqualified areas based on current management activities.*
- *J) The Forest Service improperly applied the one-half mile per thousand acre road density criteria.*
- *K) The Forest Service was arbitrary and capricious in its disqualification of areas due to outstanding mineral rights.*
- *L) Hickory Ridge, Mogan Ridge, and Nebo Ridge areas should be remapped to meet the road density criteria.*

M) Consider a combination of the Mogan Ridge and Mt. Pleasant area.
N) The Hoosier has not addressed whether the RARE II criteria has been met for the Mogan Ride area.
O) The Hoosier should review the Mogan Ridge area to determine if it remains essentially roadless and undeveloped.

Response to #93A) through K) The roadless area analysis was completed as a separate document and is included in the project record. The EIS summarized findings from the roadless area analysis, which was incorporated by reference into the EIS, **Appendix D**. Proper procedures were followed in determining that no areas were eligible for further study. Maps were made available to the public during public involvement for the analysis regarding potential roadless areas. The Forest followed a roadless inventory process that applied all agency and regulatory requirements. The process is documented in **Appendix D** of the EIS. The Draft EIS and the Final EIS as well as the supporting project file demonstrate the thoroughness of the inventory process. The process we used to inventory NFS lands for potential roadless areas was sound and comprehensive. The criteria and direction used in determining eligible roadless areas was developed at the National level. Regional direction supplemented the national direction. Direction from the Eastern Wilderness Act was considered in the analysis.

#93 L) The Nebo Ridge area was mapped three separate times during the analysis process. The planning team was able to map the area such that road density was less than one-half mile of improved road per thousand acres. However, due to the shape and small size of Nebo Ridge after remapping, Nebo Ridge still did not meet roadless characteristics. The remapping of Mogan Ridge and Hickory Ridge was reviewed during the analysis process as well. Due to the quantity of non Forest Service jurisdiction roads, Forest Service improved roads, and their location, new boundaries would not have been sufficient to meet roadless characteristics.

#93 M) The Planning Team analyzed combining Mogan Ridge with Mount Pleasant during the analysis process. However, a section of Management Area 2.4 separates the two areas. Even if the Management Area 2.4 prescription were changed, it would create only a narrow strip connecting the two areas. Forest Service direction states that cherry stem boundaries (narrow strips) into or through areas is not appropriate (Jacobs 1997). These narrow boundaries serve only to connect areas and serve as travel corridors that do not meet the intent of wilderness.

#93 N) and O) Mogan Ridge was evaluated utilizing the criteria in Forest Service Handbook 1909.12 chapter 7. Mogan Ridge no longer qualifies as an Inventoried Roadless Area as documented in **Appendix D** of the EIS.

***PC #46**: The Hoosier should adjust the species considered in the species viability evaluations*
A) Remove Henslow's sparrow from the species viability evaluation list. A grassland species was never historically present on the Hoosier. Management should be directed at forest species.
B) Ruffed grouse should not be included as they are at the extreme southern end of their range, and can be found in old growth forest. This species should not be considered a priority and should not be a justification for logging areas to create better habitats.

Response to #46 A): Some commenters believe that southern Indiana was a pristine wilderness prior to European settlement. However, research has shown that the landscape was largely forested, yet its diversity included areas of prairie, wetland, and disturbed and open forest (**see EIS Animal Communities – Historical Context and Hoosier-Shawnee Ecological Assessment**). The best available scientific information on the historic range of the Henslow's

sparrow was sought and used in the analysis. There is no known scientific information that opposes the determination made in revision of the plan that the sparrow may have inhabited the Forest areas. Such a landscape supported grassland species and may have supported populations of Henslow's sparrow. The breeding distribution of this species ranges from Wisconsin and southern Minnesota west to central Kansas; south to northeastern Oklahoma, southern Missouri, southern Indiana, southern Illinois, northern and central Kentucky, northern Tennessee, West Virginia, northern Virginia, northern Maryland, and central and eastern North Carolina; north to northern New York; formerly to Vermont; west and north to Michigan, southern Ontario, and formerly to southern Quebec (Burhans 2002). This species historically breeds in tallgrass prairie habitat, but it may also breed in other grasslands, including hayfields, pastures, and meadows.

We are required to maintain viability for all native and desired nonnative species on the Forest. The Hoosier applied a coarse-filter management approach to address species viability and biodiversity at the ecosystem and landscape scale by ensuring the maintenance of principal habitats on the Forest. Grassland habitats are currently found on the Forest, and to meet legal mandate, we must perpetuate these habitats to ensure species viability. Henslow's sparrow was selected as an SVE species because the species is area sensitive and requires large grasslands. Providing suitable habitat for this species should result in habitat for other species associated with grasslands.

Henslow's sparrows have exhibited steep population declines over the last several decades over much of the species' range (Webster 1998, Burhans 2002, Bechtoldt and Stouffer 2005) as a result of loss of grasslands from woody encroachment and conversion to other land uses. This habitat by its nature is ephemeral and the result is that Henslow's sparrows frequently move their breeding territories in response to changes in availability of suitable habitats. Currently, most birds are found in the southern half of the State (Webster 1998). Regardless of the sufficiency of the historical data concerning the distribution of this species, the Hoosier is legally obligated to provide habitat for this species.

#46 B) The historic range of the ruffed grouse extended through Kentucky, south beyond Tennessee, and into the Piedmont Region of northern South Carolina and Georgia. The ruffed grouse is a habitat specialist and is only common on extensively forested landscapes that include numerous young, even-aged hardwood stands (less than 15 years old). The ruffed grouse, particularly with respect to breeding habitat, is an obligate associated with dense stands of very young forest, interspersed with trees of varying ages.

The EIS makes a pertinent distinction; it does not prioritize management for the ruffed grouse. Rather the intent of the revised Forest Plan is to ensure that the suite of species associated with early successional forest, many of them Neotropical migrant songbirds, are ensured a place on the Forest for their future and the future enjoyment of those who value these species. Because of the unequivocal association of the grouse with early successional forest and the extensive local data available, this species was used to model the consequence of various management alternatives. The continued population declines of the suite of songbirds associated with early successional forest is the subject of several scholarly reviews (**see EIS, Appendix J**).

***PC #55**: The graphs depicted on pages 3-98 through 3-137 of the DEIS have some inherent perception problems with the Y-axis scales used for potential acres of habitat available. Other than Henslow's sparrow (under Alternative 2) only habitat acres for*

chats, American woodcock, and ruffed grouse approach zero under the alternative evaluations. The presentations are deceiving unless one considers the y-axis scale.

Response to #55: According to our Habitat Suitability Index (HSI) models, there is currently an abundant amount of suitable habitat for many species. To help visualize the change in the amount of habitat from the current condition, one should note the Y-axis for these species does not approach zero. This is not an attempt to deceive the reader, but to make the change in the quantity of habitat more visible. The acres of habitat in each suitability class are displayed in the table following each graph. This information should leave no doubt in the reader's mind as to how much habitat is available for each species under each alternative, alleviating any perception problems with the scale of the Y-axis.

***PC #64**: The Hoosier species viability evaluation mentions the natural periodic fluctuations in population of ruffed grouse which are not fully understood and cannot be factored into any management regimes.*

Response to #64: Yes, ruffed grouse populations, like the well-known patterns of snowshoe hare and lynx populations, tend to exhibit cyclic fluctuations in density. However, like the hare and lynx, this is most clearly associated with northern latitudes. However, Indiana DNR collected data regarding the grouse and their experts have noted the fluctuation of population as a concern as well. For more information and analysis results please refer to Chapter 3 of the EIS.

As stated in the EIS, there have been some periodic fluctuations in the grouse breeding population density along established routes; however, a general downward trend is very evident as forests in the state of Indiana continue to mature. Reaching their peak densities in 1979-1981, grouse populations have been steadily declining since the mid-1980's (a time that directly correlates to a decrease in active vegetation management on the Hoosier).

***PC #109**: The analysis for Indiana bat is inadequate.*

- *A) The analysis should consider summer habitats required by females for maternity roosts (e.g., roost trees, protection from disturbances, and foraging habitat).*
- *B) The analysis should consider summer roosting and foraging needs of males.*
- *C) The analysis of roost habitat should consider existing and potential roosts in upland and riparian areas and the issue of bats using the trees while the sale is being cut, loyalty to roosts, stress of finding new roosts, and the impacts of removing trees next to roosts or potential roosts.*
- *D) The analysis should consider the e-mail message from Dr. John Whitaker that was sent to the Forest on September 6, 1999.*
- *E) The analysis should consider the impact logging will have on opening up areas; opening up areas allows other species to compete with Indiana bats for insects.*
- *F) The analysis should address the short term impacts of removing pine stands on Indiana bats.*
- *G) Habitat needs for Indiana bats are much more complex than indicated in the DEIS. The models did not consider the bats need for a continuous supply of roost trees.*
- *H) Mist net surveys in the Hoosier found males in unthinned pine plantations, indicating this is important roosting habitat for males.*
- *I) Any correlation between the habitats remaining after commercial logging isn't and cannot be based upon the best available science regarding the needs for the species.*

J) The analysis fails to recognize the importance of closed canopy habitat for foraging habitat for colonies.

K) Preharvest surveys should be required for threatened or endangered species and habitat.

L) There is no consensus in Indiana bat literature that manmade disturbance will improve bat habitat in comparison to an unmanaged mature forest Therefore it is inappropriate to conclude that the proposed activities would benefit the Indiana bat.

Response to #109: The Hoosier has consulted with the USDI Fish and Wildlife Service prior to implementing the Forest Plan. This process is designed to conserve listed species, assist with species' recovery, and help protect critical habitat. A biological assessment (BA) was prepared and submitted to the USDI Fish and Wildlife Service as a part of the consultation process. Section 7(a)(2) of the Endangered Species Act states that each Federal agency shall, in consultation with the Secretary (Secretary of the Interior), insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

Because of the emphasis given to the Indiana bat with respect to land management practices, the BA serves as an additional source that should be consulted when considering the issues related to the Indiana bat and land management on the Hoosier. The BA thoroughly addresses the potential impacts of the selected alternative to the Indiana bat as well as other Federally listed species. The EIS contains a short summary of the analysis conducted in the BA. The information contained in both the EIS and BA was considered during the development of the revised Forest Plan.

#109 A), B), C), E), F), I), and K) Impacts to summer roosts for both females and males, as well as foraging patterns, and the effects of removing pines are considered in the Chapter 3 Affected Environment section titled – **Indiana Bat**, and in the **Alternative and the Effects of Management on Endangered and Threatened Species – Indiana bat** section.

#109D) The e-mail from Dr. Whitaker which is referred to in this comment (8/6/99) was in response to a specific question asked by Jim Bensman of Heartwood. Dr. Whitaker's email is in reference to known Indiana bat maternity roost trees being deliberately cut down. The Hoosier does not capriciously remove known maternity roost trees. The revised Forest Plan contains several standards and guidelines to manage for known maternity roosts and roost recruitments (Chapter 3, **Forest Plan**). It is the intention of the Forest to protect all known roosts, maternity and otherwise, whenever possible. The only circumstance in which we would consider removing a known maternity roost tree would be if it poses an immediate safety hazard to the public. Regardless of why the tree is being removed, consultation with USDI Fish and Wildlife Service must occur.

The email in question does not contain any information that is not available in other published literature regarding the importance of retaining known roost trees, the importance of providing a continual supply of suitable roost trees, and the fact the Indiana bats exhibit loyalty to their roosting and foraging areas. The e-mail has been considered, and the opinions expressed in the message have been incorporated into the body of information already available from other sources. Dr. Whitaker, as an expert on the roosting behavior of Indiana bats, participated in the development of the Habitat Suitability Index model of the Indiana bat used in the Species Viability Evaluations for the revised Forest Plan.

#109 G) The HSI model developed in collaboration with regional experts familiar with Indiana bat habitat requirements places a priority on the evaluation of maternal roosting habitat. Specifically, this model incorporates four factors:

1. Roost trees –incorporates two parameters: snag suitability by diameter of tree and snag density as a function of tree age.
2. Solar radiation – identifies canopy gaps across the landscape.
3. Water sources – evaluates the proximity of roost trees to a source of water.
4. Foraging habitat – characterizes the interspersion of canopy gaps and roosts This model was reviewed and approved by a panel of regional experts actively engaged in Indiana bat conservation. Please refer to the EIS section on **Species Viability Evaluation (SVE) Analysis – Animals,** Appendix H, and the Biological Assessment for more information.

#109 H) The loss of pine with implementation of the alternative is discussed in the EIS. In addition, the USDI Fish and Wildlife Service has acknowledged that replacement of this habitat type (pines) with the Indiana bat's preferred habitat type will ultimately benefit the Indiana bat (USDI Fish and Wildlife Service 2001). Roost selection is more dependent on location than species. Pine plantations are known to provide poor foraging habitat (Tibbets and Kurtz, 2003). The BA states that the quality of pines as either alternate or primary roosts may be substantially less than that of native hardwoods. The bark is generally thin and forms poor sheaths.

We feel that a more appropriate interpretation of the occasional use of pines by male Indiana bats is that this indicates a less specific approach to the selection of roosts by males than displayed by colonially roosting females. The recovery of this Federally endangered species, and the maintenance of biodiversity on the Forest, depends on the conservation of native habitat.

#109 K) Pre-harvest surveys are not required on the Forest but are encouraged whenever feasible. However, the assumption is made that habitat for Federally threatened or endangered species occurs throughout the Forest. Standards and guidelines have been developed for each of these species to ensure that important habitat requirements are provided on the Forest.

#109 L) Please refer to PC #103, regarding natural disturbance on the Forest.

PC #131*: The Hoosier should use different terms to describe suitability of the forest. Suitable and tentatively suitable are deceptive and a give a false impression of what is available for harvest.*

Response to #131: We are unable to find the use of the term "tentatively suitable" in the analysis. 36 CFR 219.14 directs that "During the forest planning process, lands which are not suited for timber production shall be identified." Lands that are not suited for timber production are defined as:

(a)(1) The land is not forest land as defined in 219.3
(a)(2) Technology is not available to ensure timber productions without irreversible resource damage
(a)(3) There is not reasonable assurance that the land can be adequately restocked
(a)(4) The land has been withdrawn by an Act of Congress, the Secretary of Agriculture or the Chief of the Forest Service.

36 CFR 219.14 (c) further provides direction for lands that are "tentatively identified as not appropriate for timber production." However, the term "tentatively suitable" can not be found in the analysis.

***PC #22**: The Hoosier should include clear standards and guidelines that will not invite confusion, misinterpretation, and mistrust.*

A) Vague, broad statements that give no boundaries on agency action do not comply with the requirements of the law.

B) The public needs to have a good idea of what is being planned and is enforceable.

Response to #22: We believe that the standards and guidelines as written for each of the 11 management areas reflect the different direction provided (revised Forest Plan, Chapter 3). Each MA is defined by a desired condition that in conjunction with management direction sets clear boundaries and limits on actions that may be taken in those areas. We respectfully disagree with the comment that the existing standards and guidelines are vague and do not provide any boundaries to management. NFMA and its regulations allow for considerable discretion to the Forest to draft standards and guidelines to meet local conditions. There is no indication in the information provided in this comment that the Forest Plan standards and guidelines violated NFMA or its regulations.

For further discussion of standards and guidelines and their enforcement, please refer to the response to PC # 9D.

Biodiversity

***PC #65**: The Hoosier National Forest DEIS does not adequately address biodiversity. The needs for all species, not just birds, need to be considered. This includes but is not limited to: mammals, invertebrates, plants, insects, microorganisms, reptiles, and amphibians.*

Response to #65: NFMA does not specify a particular level of diversity or require any particular measure of diversity. Indeed, the Committee of Scientists formed to advise the Secretary of Agriculture on the 1982 NFMA regulations concluded that it was impossible to write specific regulations which would provide a specified level of diversity. Providing for diversity of plant and animal communities was one of the most perplexing issues they dealt with in drafting their report. *See* 44 Federal Register 26600-26601; see also the Chief's Decision on administrative appeal #91-13-00-0147) of the 1991 significant amendment of the Hoosier National Forest Plan. That appeal decision provides background on the NFMA diversity requirement, which is an important foundation to this decision and is hereby incorporated by reference. The Seventh Circuit has said "[w]e have previously acknowledged that the NFMA grants the Forest Service considerable discretion: 'the drafters of NFMA diversity regulations themselves recognized that diversity was a complex term and declined to adopt any particular means or methodology of providing for diversity" (Indiana Forest Alliance v. Forest Service, quoting Sierra Club v. Marita). The Court noted that the Forest Service was "entitled to use its own methodology to fulfill its obligations unless it was irrational."

Thus, NFMA simply requires the Forest Service to integrate diversity of plant and animal communities with other multiple uses in the development of forest plans. The diversity provision must be read together with other provisions of NFMA when developing a multiple-use plan. Diversity is one of a multitude of factors that must be considered in a forest plan. *See* Chief's Decision (August 19, 1994) on administrative appeal #91-13-00-0147 of the Hoosier's amended Forest Plan.

NFMA does not require that diversity may be accomplished only by attempting to re-create what may have been natural forest conditions at a particular time in history. Congress carefully set the NFMA diversity provision, 16 U.S.C. Sec. 1604(g)(3)(B), in the context of multiple-use management. Many Federal courts have acknowledged that diversity of plant and animal communities is a complex scientific matter. For that reason, Congress provided discretion to the agency to provide for diversity in a multiple-use management context.

The development of the revised plan included considerable attention to NFMA diversity in its multiple-use context. Desired condition, management direction, and monitoring--all aspects of the revised plan--consider and acknowledge the importance of diversity. Most of the Hoosier is cut-over land, and the government did not acquire it until after it had been subject to forces such as clearing, farming, and grazing for nearly 100 years. We recognize the role the Forest plays and have set aside large areas as mature forest and areas for forest-interior species. Courts have recognized that, although it is important, NFMA diversity is not an overriding or controlling principle in forest planning. It is an important goal to be pursed in the context of developing an overall multiple-use plan; Congress made this quite clear in Section 1604(g)(3)(B). This involves balancing, compromise, trade-offs between species, and, unfortunately, some dissatisfaction among some groups or interests whose alternative mix of uses (or the lack thereof) are not chosen. We have collaboratively developed a plan that is within the discretion delegated to the agency under NFMA Section 1604(g)(3)(B).

Considering the controversy surrounding national forest planning, one sage noted that the Forest Service is faced with the nearly impossible task of serving many different interests in the development of a 10 to 15-year multiple-use plan. Experience has shown that despite the best efforts of the Forest, some interests will simply not accept an alternative that is substantially different from the one they proposed. After considerable public involvement and analysis of NFMA diversity, the interdisciplinary team examined and evaluated alternatives; then the line officer selected an alternative that attempts to strike a reasonable balance between and among competing uses. Some will disagree with the Forest's balance of uses in this 10 to 15-year plan, but Congress has delegated this decision to the Forest Service. Nowhere is this deference more distinct than in the NFMA requirement to "provide for"--not maintain, preserve, or improve, but simply "provide for"--plant and animal community diversity, 16 U.S.C. Sec. 1604(g)(3)(B). After much study, we have struck a balance that "provides for" diversity, focusing on forest health and sustainability.

The revised Forest Plan and EIS emphasize the importance of employing a forest management regime to provide habit for a diversity of wildlife species including birds, mammals, invertebrates, reptiles, and amphibians, as well as maintaining natural plant communities such as barrens.

The Forest is not required to conduct a viability analysis for every species, as there is no such requirement in NFMA or its regulations. Furthermore, the Hoosier considered the recent decision by the USDA Under Secretary for Natural Resources which set forth "basic principle on viability" (see Appeal Decisions for Arapaho and Roosevelt National Forests, Rio Grande National Forest, and Routt National Forest, http://www.fs.fed.us/emc). As noted in the Under Secretary's decisions:

> "There are thousands of species of wildlife on the national forests; trying to provide for diversity and viability on a species-by-species basis is virtually impossible. Instead, the

scientific community has widely accepted the use of a coarse filter/fine filter process to address biodiversity issues…."

The Hoosier applied a coarse-filter management approach to address species viability and biodiversity at the ecosystem and landscape scale by ensuring the maintenance of principal habitats on the Forest. The Hoosier-Shawnee Ecological Assessment is an example of this approach on the Hoosier. Because the Forest recognizes the important contributions that early successional and oak-hickory communities make to biodiversity at the landscape scale, these habitat types continue to be a strong emphasis in the revised Forest Plan.

Economics

***PC #25**: The analysis must include information about revenue and cost components that lead to the negative financial efficiency for all alternatives.*

Response to #25: Refer to the EIS Appendix B, Part 8 and the tables displayed there. Revenue and cost components have been incorporated into the models and included in the analysis. This information is contained in the project record.

***PC #44**: The Hoosier presented an inadequate analysis of economic impacts.*

- *A) The effect of below cost timber sale on private landowners was not considered.*
- *B) The impacts of timber harvest to supplement the Knudsen-Vandenburg (KV) and Salvage Sale fund were not considered.*
- *C) The trees have greater economic value when they are standing.*
- *D) The claims that vegetation management goals are not economic and that timber sales are the most efficient way to build roads that provide other benefits are in violation of the Forest Service's rules and regulations that state how and why the agency's actions must make economic and financial sense.*
- *E) Since 96 percent of timber cut in Indiana comes from private lands, there is no need to produce economic returns from public lands.*
- *F) Logging does not create a net increase in jobs since more revenue is received from recreation values.*
- *G) The economic impacts to water quality need to be addressed.*
- *H) The economic benefits of non-timber resources were not included in the analysis.*

Response to #44 A) The commenter was not clear about the inadequacies regarding the effects of below cost timber sales on private landowners.

Below-cost timber sales are a major concern. The real measure of the worth of the timber program is not net cost versus revenues, but costs versus public benefits. Some of these benefits can be measured as receipts; others are the dollar value of benefits for which revenues are not received, such as improved wildlife habitat, fishing and bird watching opportunities, and hunting. The commenter is correct that the major output of the Forest is not commercial timber. However, managing vegetation helps attain other Forest goals. Selling timber and managing vegetation are the primary tools for providing wildlife habitat (cover types and age classes), creating diversity in the visual appearance of the landscape, improving the overall forest health, producing timber products, providing jobs, and providing additional recreational opportunities by increasing Forest access.

The Forest Service offers timber based on a fair market value. The minimum price that the Forest Service will accept for a timber sale is based on the rate for which timber products have sold in the past for a given geographic location.

The effects of timber management were considered at length in the EIS, Chapter 3 under **Provide for Human and Community Development**. In particular refer to Tables 3.64, 3.65, 3.66, 3.67, and 3.68.

The economic analysis provided in the EIS is adequate for the programmatic level of decision making. Additional NEPA compliance with public involvement is undertaken at the site specific level of decision making. The key to understanding the economic analysis is to recognize that the revised plan is focused upon providing a healthy, sustainable forest. The condition of the resources--what is left on the land after proposed management--is of paramount concern, not commodity production.

#44 B) Knutson-Vandenberg and Salvage Sale Funds are not used to supplement timber sales. Knudsen-Vandenberg funds are collected to finance improvement activities needed to protect and improve the future productivity of forest resources on timber sale areas. Knudsen-Vandenberg funds have been used to complete prescribed burns for regeneration of hardwoods within pine and hardwood stands, stocking surveys, exotic plant eradication, dispersed parking, trail enhancement, low water crossing, and much more.

Over the past 10 years, K-V funding has accounted for less than one-half of one percent of the total Forest budget.

Salvage sales evolve rapidly. The salvage sale fund program provides the means to sustain ecological values and to expedite efficient recovery of the forest resource value and volume from trees killed or damaged through catastrophic events.

The Salvage Sale Fund is a special fund available to prepare and administer qualifying timber sales.

#44 C) The value of standing trees and the habitat they provide is discussed throughout the EIS.

#44 D) Please refer to the response to #44 A. Timber harvest is a tool that can used to provide many outcomes. A driving force behind the timber harvesting proposed in the revised Forest Plan is to create and maintain suitable habitat for wildlife. Timber sales provide both positive and negative outcomes. Roads are often constructed to reach an area being harvested and remove the timber. If a road is needed for another reason, the site-specific analysis discloses that need. The EIS, Appendix B has numerous tables that provide information concerning benefits. A discussion on roads can be found in the **Providing a Usable Landbase** section of the EIS.

#44 E) and F) The small acreage on the Hoosier renders the Forest incapable of meeting a significant part of the forest product demand in Indiana. The 11 million board feet of timber offered from 1984 to 1985 was only 3 percent of the entire timber volume sold in Indiana. The market share proposed under this plan would amount to less than two percent of the annual sale of wood harvested in Indiana. Though the timber industry would benefit from products removed from the forest, the industry does not need timber from NFS lands to survive. This does not diminish the need to manage the Forest to provide diverse communities of plants and

animals and to ensure a healthy forest. As noted above, the condition of the land is the paramount concern in management decisions, not market share.

#44 G) and H) Impacts to water quality are addressed in the EIS, Chapter 3, Maintain and Restore Watershed Health, and the economic costs and revenue created by timber and recreation and the jobs they create is discussed in the EIS (Table B.10 – B.13).

PC #45*: The Hoosier should consider the positive economic benefits of utilizing Indiana's natural resources.*

A) Consistent and predictable timber management activities may encourage more people to undertake careers in forestry science, applied forestry, or forest product manufacturing.
B) A sustained and consistent activity may provide the critical mass necessary to significantly improve Indiana's forest industry.
C) The absence of timber sales on the Hoosier National Forest has impacts to local economies in south-central Indiana.

Response to #45A) Enrollments in schools that prepare students for a career in forestry are directly proportional to the number of jobs available. Purdue University has seen a decline in enrollment over the last decade. Though management on the Forest may have had a small part in that, it is likely that this decline in enrollment is a national problem.

#45 B) Although Indiana ranks 35th of the 50 States in forested area, the State places 16th nationally in forest-based manufacturing employment, with over 54,000 employees (Bratkovich 2004). Sustained and consistent activity on the Forest would help maintain and improve the State's standing.

#45 C) The economic value and jobs created by timber sales is discussed in the EIS, Chapter 3, specifically in Table 3.68 and also in Appendix B tables B.6 and B.11.

PC #136*: The Hoosier should address the issue of below cost timber sales.*

Response to #136: As stated in the EIS, the objective for managing vegetation on the Hoosier is not economic. At times the need to manage an area in an environmentally conscientious manner will cost money. Also refer to the response to PCs # 44 and 45.

The economic considerations associated with a project proposal will be evaluated, as appropriate, during NEPA compliance at the site specific level. The Forest has used the best available information to disclose the economic effects at the programmatic level. As the comment on the draft EIS and proposed plan indicates, there has been no attempt to ignore or disguise the potential for some vegetation management to be below cost so that w may attain a management goal or objective or move the Forest toward a desired condition.

PC #138*: The Hoosier needs to disclose where timber receipts go. Some go to the Treasury, some to the Forest; the public is not presented a clear picture of where the receipts go.*

Response to #138: A lengthy discussion of where and how the national forest timber receipts are dispersed is in Forest Service manuals and handbooks including FSM 6500 and FSH 2409 and FSH 6509. Timber sale receipts go to numerous funds depending on the timber sale. There are publications describing how, when, why, and how much of a timber sales goes to which fund. The purpose of the planning effort is not to discuss where timber receipts go but to discuss the environment and social effects of forest management.

General Management

***PC #139**: The Hoosier needs to provide more land in MA 2.8 or 3.3. This would provide more biodiversity and have a greater impact on the local economy.*

Response to #139: During completion of the analysis, 14 different management areas were considered with only 11 being applied in the Forest Plan (MA 9.2 is used but no acres are currently allotted). Various mixes of management area acreages were analyzed (see the description of alternatives in Chapter 2 and the consequences of those mixes in Chapter 3 of the FEIS) to determine the effects on the resources present, including biodiversity and local economies. As also noted in Chapter 3 of the FEIS, some trade-offs are involved in selecting an alternative. The selected alternative provides for prudent management, ecological restoration, forest health, and NFMA diversity. The balance sought by providing acreages in the various management areas reflects a range of reasonable alternative approaches to addressing the stated purpose and need.

***PC #93**: The science is not conclusive on the extent or causes of oak-hickory decline, or how much the use of fire and clearing by Native Americans contributed to the current distribution. Natural disturbances may have played a greater role than acknowledged.*

Response to #93: Natural and anthropogenic influences certainly had a dramatic effect on the environment. The Hoosier-Shawnee Ecological Assessment documents well the effects of natural and human disturbances. The article by Parker and Ruffner discusses how people influenced the vegetation through fire and agricultural clearing across the region until the early 1800's when European settlers arrived. The historical influences of Native Americans and natural forces are well documented throughout Chapter 3 in the DEIS. Influences of fire are referenced in **Historical Context – Forest Succession**, in the discussion of alternatives, and in **Plant Communities – Affected Environment**.

We agree that the causes and solution to oak and hickory decline represent an area of great scientific complexity. Long-established principles of administrative law allow Federal judges to defer to agencies in areas of complex scientific matters, such as the appropriate silvicultural analyses on the national forests. The Seventh Circuit Court of Appeals has noted that the role of the court in review of NEPA claims is to ensure that the agency has adequately considered and disclosed environmental effects of its actions and that its decision is not arbitrary or capricious. The Forest has sought out the best information available and consulted with recognized experts on this issue. We have listened to the public, as well as State and other resource experts, and considered the work on this issue on other national forests. The revised plan was collaboratively developed with the best available scientific information, including the potential role played by natural disturbance.

***PC #101**: The Hoosier should not continue to suppress all wildfires. Wildfires are not common on the Forest and pose little threat due to their low intensity. The Hoosier has a stated goal of increasing biological diversity; natural disturbances such as fire play a role in achieving that goal.*

Response to #101: Natural disturbances, such as fire, played an important role in shaping the ecosystems on the Forest and are an important component in maintaining diverse, viable, and

healthy ecosystems. We propose to use prescribed fire, where feasible, to maintain the role of fire in our ecosystems. Prescribed fire is used after the effects of implementation have been analyzed and when fuel moisture, weather conditions, and fire behavior fall within prescribed parameters and when sufficient personnel are available to ensure control and containment.

Wildfires are generally ignited and burn outside of the parameters under which we would use prescribed fire. Wildfires are easier to control when small, but if left to burn, the difficulty of control and containment increase exponentially with size. The Hoosier may have a difficult time controlling wildfire if weather conditions change drastically during the period of burning. The interspersed nature of national forest ownership with private lands obligates us to control all wildfire to prevent damage to private lands or structures.

The Hoosier policy is to suppress all wildfires. The Forest Service will continue to take action and work collaboratively with other landowners to reduce the wildfire risk to communities, municipal watersheds, and at-risk Federal lands. The Hoosier's scattered checkerboard ownership makes it important that the Forest suppress wildfires before they spread to adjoining private land and threaten community property and assets. FSM 5131.31, Analysis Requirements for Wildland Fire Situation Analysis, states as an objective that the Forest Service "must minimize the threat of fire escaping onto non-federal lands."

***PC #151**: By allowing MA 6.2 and 6.4, to convert to "natural appearing forests of shade-tolerant species," these areas may not appear so natural if fire is not part of the successional process.*

Response to #151: We agree. Where fire was a natural disturbance in these areas and where feasible, prescribed fire will be used in MAs 6.2 and MA 6.4 to help maintain viable and healthy ecosystems.

***PC #153**: The Hoosier needs to temper recreation needs on the Forest, with the need to protect the resource. Not all human demands can or should be met.*

Response to #153: We agree. Standards and guidelines found in the selected alternative and other Forest Service guidance are designed to do just that. For example, trails will be built and maintained to standard to protect soil and water resources. We also agree that not all human demands can or should be met. The overall role of the Forest is described in the Forest Plan under the **Role of the Forest**. The role of recreation on this Forest is identified in Chapter 2 of the selected alternative, and is based on providing a balance of recreation use and protection of the resources. Requests for more opportunities have been denied in the past either because there were environmental concerns or because the Forest did not have the resources to adequately build and maintain those opportunities. For example, the Forest frequently receives requests for more trails, but it only provides new trails in accordance with the current trail plan and after an environmental analysis (USDA Forest Service 2002).

The Forest has carefully analyzed projections of recreation demand and viewed demand in light resource capabilities. Resource sustainability, in a multiple-use context, is key to management decision-making. Monitoring will track and evaluate the effects of recreation, and additional administrative action will be taken if resource sustainability is threatened.

U.S. Department of Agriculture, Forest Service. 2002. Trail program Hoosier National Forest. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421]. 32p.

***PC #94**: The Hoosier should not isolate protected areas with no linkages to other areas. These areas should not be available for salvage logging.*

Response to #94: The intent of salvage logging is to remove down and damaged trees. These situations arise from natural events. Past salvage operations have ranged from removing a few trees to re-open roads and recreational areas to harvesting thousands of acres of trees blown over and damaged. A recent wind event damaged trees on thousands of acres. Salvage efforts do not isolate areas, but are one of the management tools needed to restore areas damaged by insects, disease, and other natural causes.

The revised Forest Plan does not contain any site-specific proposals for salvage logging. It does not make decisions about how, when, or where salvage will occur, if any, over the 10 to 15-year life of the revised plan. These determinations are deferred to the site-specific level of decision-making, where local resource information and expertise are available to evaluate a particular proposal.

***PC #95**: The management objectives associated with the goal for Maintain and Restore a Sustainable Ecosystem are arbitrary and capricious and not site specific*

Response to #95: The entire Final EIS analysis and Forest Plan are not intended to be site specific. Chapter 1 of the Forest Plan explains that the document is intended to be strategic and programmatic and does not make project-level decisions. Please refer to the Forest Plan, Chapter 1, **Implementing the Forest Plan**. Site-specific analysis and project-level decisions will be tiered to the Final EIS and Forest Plan.

After reading the comment, it is unclear if the commenter felt that all direction related to the goal of Maintain and Restore a Sustainable Ecosystem were arbitrary and capricious or just the guideline regarding prescribed fire that occurred directly above the comment in the original letter. The guideline states “use prescribed fire to restore ecological processes and provide habitat for RFSS (Regional Forester Sensitive Species) and other wildlife and plant species.” A minimum of five prescribed burns is projected to occur in barrens communities (average of one site every other year). The number of prescribed burns is used as an example and is based on experience and the ability of the Forest to complete this type of task. Site-specific analysis would be conducted prior to implementation of any projects.

***PC #229**: The Hoosier has been unnecessarily restrictive in the case of drainage of Federal minerals. The Presidents Energy Policy states that Federal lands will generally be available for oil and gas leasing. Though Federal minerals should be protected from drainage, the term drainage has a specific technical and regulatory definition.*

***PC #230:** By precluding all other leasing of Federally owned oil and gas within the Forest, many adjacent private landowners may be unable to fully develop their properties. This would limit their ability to produce the portion of their resources that are in close proximity to Federal mineral ownership.*

Response to PC’s #229 and 230: These comments resulted in modifications to the guidance in the Forest Plan. The direction regarding minerals was changed to prohibit surface occupancy and disturbance when the Federal government owns the subsurface mineral rights but to allow for leasing with no surface occupancy in Management Areas 2.8 and 3.3. This will allow adjacent landowners in these areas to obtain Federal minerals with a return to the treasury from

the extraction of these products. The programmatic effects of this change include the need for the Hoosier to be vigilant in its coordination with the BLM concerning prevention or minimization of effects on resources when mineral activity is adjacent to the Forest. One potential programmatic effect is increased noise near some of the Forest boundaries. The modified guidance limits the need for guidance related to Federal minerals.

Forest Openings

***PC #62**: The Hoosier National Forest should continue to manage forest openings and conduct prescribed burning. These play an important role in providing biodiversity.*

A) The maintenance period should be extended from August to March to accommodate chain-saw work to retain the openings integrity.

Response to #62: We agree. Forest openings and prescribed burning are vital to maintaining species viability and biodiversity (see response to PC #4, 9, 12, 13, 14, 15, 16, 27, 30, 46, 65, 85, and 104). Specifically, openings help sustain biologically diverse forest ecosystems by providing habitat for early successional shrubland species.

Forest Plan guidance was changed to read that mowing done for opening maintenance be conducted during the fall (August to October) to minimize disturbance to nesting birds while maintaining some herbaceous food and cover over winter. This is a Forest-wide Guideline and does not preclude the Forest from doing other types of opening maintenance such as prescribed burning or chainsaw work to set back woody encroachment at other times of the year. Specific openings management is more appropriately addressed at the site-specific project level, and each site would be evaluated on an individual basis. This flexibility allows us to make local decisions based on site-specific conditions and concerns, while still providing overall guidance to manage and protect the natural resources for which we are responsible.

***PC #58**: The Hoosier should incorporate the following into the opening management program.*

A) Time mowing to keep NNIS from producing seed to help limit the spread.

B) Forest openings should be increased to 4 to 5 percent of landbase.

C) Greater emphasis should be placed on maintaining larger openings of 10 to 30 acres in size.

Response to #58 A) Forest Plan guidance regarding forest openings recommends opening maintenance be conducted during the fall when possible to minimize disturbance to nesting birds. This guideline does not preclude the Forest from deviating from this timeframe because of other resource needs, including the timing of mowing to reduce NNIS plant seed production or seed spread due to equipment operation. Future site-specific projects for opening management would evaluate these sites on an individual basis. Decisions would consider what NNIS plants occur within openings and their relative abundance in determining the timing of mowing operations. Whenever project level NEPA documents substantiate and make changes to the recommended timeframe, the decision maker would fully disclose the analysis and rationale for not following this guidance.

#62 B) The acreage dedicated to forest openings was misprinted in the 2005 DEIS. The 1985 Forest Plan as amended actually allowed up to 3 percent of the suitable landbase to be in forest openings. Currently the Forest maintains approximately 1.6 percent of the landbase in forest

openings. The figure has been adjusted to read up to 3 percent which is what is allowed for in the 1985 Plan. This change applies to Alternatives 1 and 5.

#62 C) The Hoosier agrees that larger openings should be maintained whenever possible. Management area guidance states that fewer larger openings are preferred as opposed to more, smaller openings. Refer to Forest Plan, Chapter 3, MA 2.4 2.8, 3.3, 6.4, 7.1, and 8.2.

***PC #61**: The Hoosier National Forest opening management program should be discontinued.*

- *A) Studies have shown that the Hoosier acts as a population sink for several species of Neotropical migrants by subjecting them to heavy cowbird predation via overly plentiful forest openings.*
- *B) A significant suite of species, many of which are Neotropical migrants, appear to be restricted to the area of relatively extensive forest, and openings disrupt the extensive forest habitat.*
- *C) Maximizing habitat diversity by ensuring the presence of a mosaic of successional stages within each forest compartment probably compromises diversity on a regional scale.*
- *D) Edge and early successional habitats are not in short supply in the Midwest.*
- *E) Natural disturbance events regularly create openings throughout the forest.*

Response to #61: The role of wildlife openings is very scientifically complex, and the Forest reviewed the best scientific information available on forest openings when determining the programmatic direction in the Forest Plan. This direction is based on monitoring information, scientific reports, and coordination with State wildlife experts. Long-established principles of administrative law allow Federal judges to defer to agencies in areas of complex scientific matters, such as the appropriate wildlife habitat and viability requirements on the national forests (Sierra Club v. Marita).

Many native wildlife species require openland habitats. Some of the steepest declines in Neotropical migratory birds are grassland or shrubland species. In fact, North American Breeding Bird Survey data shows grassland and early successional breeding birds have been experiencing much greater declines than woodland breeding birds. One of the underlying premises of this comment seems to be that wildlife openings are not necessary as private or other lands provide this type of habitat (although the commentor has not included data to support this suppostion). A lengthly discussion on the importance of openings, young forest habitats, and early successional shrubland habitat is included in the EIS, Chapter 3, Animal Communities. The cummulative effects section includes a discussion of the type of habitat available on private, State and Federal lands in Indiana. This discussion reveals that private lands are providing very little early successional habitat for wildlife species (a little over one percent is in the seedling stage). Although land that is developed in agriculture, rural home sites, or other such developments may be open, they do not provide quality early successional habitats for most wildlife species.

After almost 20 years of management under the 1985 Forest Plan as amended, only about 1.6 percent of the Hoosier is in permanent wildlife openings, and most of the NFS land is forested. Management of some openland habitat is important to contribute to maintaining viability of those species which use early successional habitats. Standards and guidelines are found throughout the revised Forest Plan and provide guidance related to managing vegetation to provide aquatic habitat and species management, pest and nonnative invasive species management, watershed health, and diverse ecosystems. These standards and guidelines are designed to

prevent or minimize adverse impacts to other resources when conducting forest management activities, such as maintaining wildlife openings.

Though this commenter has concern over wildlife species associated with large forested blocks, other commenters have indicated concern for species associated with early successional or edge habitat. The conservation of all native species is important, and in fact is mandated to maintain their viability. The selected alternative provides a blend of habitat types across the Forest. This ensures that all species will have suitable habitat. This includes those that require large, unbroken expanses of forest canopy and those that require openings. The effects of forest fragmentation are well recognized and may be especially strong on species that have historically been dependent on large areas of contiguous forest. Current management restricts the location of permanent openings. Openings will not be created in MAs 5.1, 6.2, 6.4 (although existing openings can be maintained), 8.1, 8.3, 9.2, or 9.3. This management will result in relatively extensive forests within these MAs to meet the habitat needs of some wildlife species.

***PC #229**: The Hoosier has been unnecessarily restrictive in the case of drainage of Federal minerals. The term drainage has a technical and regulatory definition that is very specific.*

***PC #230:** By precluding all other leasing of Federally owned oil and gas within the Forest, many adjacent private landowners may be unable to fully develop their properties. They would be prohibited from producing the portion of their resources that are in close proximity to Federal mineral ownership.*

Response to PC #229 and #230: These comments have been noted. The direction regarding minerals has been modified to prohibit surface occupancy when the Federal Government owns the subsurface mineral rights. This will allow adjacent landowners to obtain Federal minerals with a return to the treasury from the extraction of these products. Changes have been made to the direction for the Selected Alternative.

Insect and Disease (Pesticide)

***PC #60**: The Forest Plan should present a course of action for the potential for catastrophic pest or pathogen outbreaks in the Charles C. Deam Wilderness because wild turkeys use these areas.*

Response to #60: Objectives stated in FSM 2324.11 allow indigenous insects and plant diseases to play, as nearly as possible, their natural ecological role within wilderness. Policy in 2324.12 states: Do not control insect or plant disease outbreaks unless it is necessary to prevent unacceptable damage to resources on adjacent lands or an unnatural loss to the wilderness resources due to exotic pests.

The FEIS and management direction in Management Area 5.1 considers the possible control of insect and plant epidemics that threaten resource values on private or public lands bordering the wilderness.

***PC #67**: The Hoosier did not present any discussion of the very serious threats to oak-hickory such as oak wilt, sudden oak death, and gypsy moth.*

Response to #67: Insect and diseases are discussed in the EIS, Chapter 3, **Maintain and Restore Sustainable Ecosystems**. A much more thorough discussion of native and exotic insects and diseases is available in the Hoosier-Shawnee Ecological Assessment. Scarbrough and Juzwik (2004) discuss oak wilt, sudden oak death, European gypsy moth, and much more. Although there will likely be other insects and diseases that the Forest must be prepared to combat in the future, the principal tool in combating future outbreaks will be Integrated Pest Management (IPM).

The Forest Plan is a programmatic document, and does not contain any site-specific proposals to treat insect and disease. Such proposals are made and analyzed at the project level of decision making using site-specific information. If outbreaks occur, managers will consider biological and chemical pesticides to reduce the adverse effects of pests at this site-specific level. Managers will use the most economical methods that are specific in reaching their target. Monitoring of forest health is a key part of adaptive management on the Forest.

***PC #68**: The Hoosier should consider the use of herbicides.*

- *A) Herbicides are used to control and treat nonnative invasive species.*
- *B) They control stump sprouting.*
- *C) Do not limit herbicide use by habitat type prior to site-specific analysis.*
- *D) Allowing NNIS to grow and not be removed would do greater harm to the ecosystem than herbicide use.*
- *E) Machine or hand control would not be as effective.*

Response to #68 A) We agree that using herbicides is an effective method for control of NNIS. Please refer to the EIS, Chapter 3, **Nonnative Invasive Plant Species**. The EIS, Appendix F, Pest and Nonnative Invasive Species Management, describes the process used on the Hoosier and some of the more common anticipated applications.

#68 B) Comment acknowledged. Recent timber stand improvement (TSI) projects have not used herbicide treatments for the control of stump sprouting. A more likely use would be the application of herbicides in basal bark, stem injections, stem cuts, and stump treatments for control of nonnative invasive tree species.

#68 C) Generally, the Forest Plan does not include limitations according to habitat type prior to site-specific analysis. Refer to the EIS, Appendix F, **Pest and Nonnative Invasive Species Management**. Commonly used applications would include both aquatic and terrestrial herbicides.

The sole exception and restriction is for the sixth level watersheds of the East Fork of the White River, where the Federally endangered fanshell mussel and rough pigtoe have known occurrences. The Forest would not apply herbicides within the riparian corridors in these sixth level watersheds. See the EIS, Chapter 3, **Alternatives and the Effects of Management on Animal Communities, Fanshell Mussel and Rough Pigtoe**. The Forest Plan also includes this direction (see Chapter 3, Forest-wide Guidance, Fanshell and Rough Pigtoe).

#68 D) and E) In some cases, NNIS populations may have reached the point where the only feasible method to control larger infestations is herbicide use. Furthermore mechanical techniques could stimulate further spread by sprouting or dispersal of plant fragments for some invasive plants, so herbicide use might be necessary to eradicate the species regardless of the size of the population. See EIS, Chapter 3, **Nonnative Invasive Plant Species**. Site-specific projects for control of NNIS would select the best techniques using an Integrated Pest

Management (IPM) process. The IPM approach requires that the Hoosier carefully evaluate the effectiveness, specificity, and environmental and economic effects of the individual applications. Where warranted, the Forest would apply herbicides if non-chemical methods are ineffective or impractical. See **Pest and Nonnative Invasive Species Management**.

As noted above, the programmatic Forest Plan does not contain any site specific proposals for treatment of insects or disease on the Forest. The Forest Plan sets direction to guide future site specific decision making, but does not mandate the use of herbicides or any other particular form of treatment, at any particular location. Such site specific determinations are made during project level decision making, with appropriate NEPA compliance and public involvement, and are based upon site-specific resource information. Environmental assessments and impact statements prepared at the project level include consideration of a reasonable range of alternatives, including a no action alternative.

***PC #163**: The Hoosier should not use herbicides as they damage the soils.*

Response: to #163: The programmatic environmental effects of pesticide use are disclosed in the EIS, Chapter 3, Alternative and Effects of Management on Soils, Alternatives 1, 3, 4, 5, Pesticide Use. The level of disclosure here is limited to the programmatic proposal to revise the Hoosier Forest Plan; thus the analysis is commensurate with the decision being made. As the Supreme Court recently noted in Department of Transportation v. Public Citizen, only information that is useful to making an informed decision needs to be included in this EIS analysis. The documentation, including a considerable body of supporting scientific information, is contained in the planning record. This documentation reflects the "hard look" the Forest took (at the programmatic level) at this issue. Protection of soils is a key part of sustaining natural resources.

***PC #77**: The Hoosier should apply appropriately labeled pesticides for because is it the only reasonable way to control both plant and animals NNIS.*

Response to #77: The Hoosier would use only EPA-registered pesticides and only in accordance with State laws. The Forest uses an IPM approach to evaluate the best methods to achieve resource management objectives. See **Appendix** F, **Pest and Nonnative Invasive Species Management** for a description of the process used on the Hoosier and some of the more common anticipated applications.

We agree that under certain conditions application of pesticides may be the preferable method for control of plant and animal NNIS. It is not within the scope of the Forest Plan or EIS to decide a preference for controlling potential pests or NNIS plants and animals on the Forest. The EIS describes broad, general scenarios regarding possible pesticide application. See the EIS, Chapter 3, **Insects and Disease**, and **Nonnative Invasive Plant Species**. Also included in Chapter 3 is information about aquatic species in **Alternatives and the Effects of Management on Aquatic Habitat**, *Pesticide Use*.

Evaluating the need, effects, and appropriateness of using pesticides would occur in site-specific project-level environmental documents.

Land Acquisition

***PC #42**: The DEIS did not analyze the effects of having someone purchase land, harvest it, and then exchange it with the Forest Service. This happens all the time and should be prohibited.*

Response to #42: The land adjustment program, in this case land exchanges, is addressed in the EIS and the Forest Plan (Appendix E).

The process begins when a willing land exchange proponent offers private land to be exchanged for NFS land. Forest staff, Eastern Region Office staff, and possibly Washington Office staff evaluate this proposal before an environmental analysis is prepared. This evaluation includes the condition and merits of the land being acquired, including the condition of the vegetation.

Consolidating blocks of NFS land through land acquisition or land exchange is a priority listed in both the EIS and the Forest Plan. The Forest attempts to take advantage of proposed land exchange opportunities that accomplish objectives of Federal law and regulation, result in consolidation, provide an efficient landbase, protect unique resources, and result in lower management costs.

Almost the entire Forest has been subject to timber harvest at some time, as has the majority of southern Indiana. The acquisition of land recently harvested can provide short-term habitat for early successional wildlife species. In time the land will succeed to a mature forest.

***PC #43**: The Hoosier should continue to acquire lands. With a larger land base, the Hoosier National Forest would provide better management for renewable resources, wildlife production, and additional forms of recreation.*

Response to #43: The comment has been noted.

NNIS

***PC #66**: The Environmental Impact Statement needs to address the impacts of the introduction of invasive species.*

- *A) The use of limestone to harden trails can change the pH of soils, making them more susceptible to garlic mustard.*
- *B) ATV use increases the potential to spread invasive species.*
- *C) Increased disturbance in many areas would result in an increase of invasive species.*
- *D) All types of control methods used for invasive species need to be considered.*
- *E) Forest openings are responsible for the establishment and spread of NNIS.*
- *F) Virtually all human management activities have a high risk of spreading NNIS. Minimizing human disturbance is the key to stemming the spread of NNIS.*

Response to #66 A) The commenter did not provide scientific evidence specific to the Forest to substantiate this viewpoint. The concern over using limestone to harden trails has been responded to previously in a review of the Hoosier trail program in 2002. The findings of the

Forest's soil scientist stated that the risk of exotic plant invasion from the use of gravel is minimal. He further stated that the lateral zone of influence on surrounding soils from crushed limestone is less than two feet from where the gravel is placed. Calcium ions are tied up rapidly and those not taken up by plants are leached vertically into the soil (USDA FS 2002e). Huebner *et al.* (2005) reported that garlic mustard inhabits areas in either alkaline or acidic soils.

#66 B) We agree that ATV use is another activity with the potential for spreading NNIS plants. The likelihood of invasive plants colonizing forest vegetation is relative to their ability to inhabit certain habitats. Other important factors influencing their potential spread are the number and size of existing infestations, their proximity to areas used by ATV's, and weather or environmental conditions that help facilitate the transfer of seeds because of muddy soil. See the EIS, **Alternatives and the Effects of Management on Nonnative Invasive Plant Species**.

Continuation of the Forest policy prohibiting ATV use on the Hoosier may help in the prevention of NNIS plants. Diligent enforcement against illegal ATV use, especially areas located next to NNIS plant populations, would also aid in control and prevention of invasive plants. Equipment cleaning of ATV's prior to and after administrative use by Forest personnel is a commonly used mitigation measure to minimize the spread of NNIS.

#66 C) We acknowledge that increased disturbance has the potential to spread or increase invasive species. See response to PC #103 K) regarding disturbance by logging activities.

#66 D) We agree. See Forest Plan, Appendix F, **Pest and Nonnative Invasive Species Management**, for a description of the process used on the Hoosier and some of the more common anticipated applications. Once again, site-specific projects for control of NNIS would select the best techniques using an IPM process. The IPM approach requires that the Hoosier carefully evaluate the effectiveness, specificity, and environmental and economic effects of the individual applications.

#66 E) Although many NNIS plants prefer open conditions, their presence within openings is most often a result of previous ground disturbance and past activities. Parker and Ruffner (2004) describe a long history of disturbance regimes encompassing the lands on the Forest. Many of the invasive plants inhabiting openings are a direct result of planting by landowners prior to Forest ownership such as tall fescue and nonnative pasture grasses.

The forest opening program consists primarily of mowing and prescribed burning. These actions cause little ground disturbance and can aid in controlling or minimizing the future spread of some NNIS plants depending on the timing of the activity. Though openings may contribute to the spread of invasive plants to adjacent areas, new colonization involves a variety of factors with new ground disturbance being a primary cause for new establishment of populations rather than the mere existence of maintained openings. Refer to the EIS, Chapter 3, **Nonnative Invasive Plant Species**, for further information regarding probable effects due to management activities.

Many native plants, including some State-listed rare or RFSS plants, occur within maintained openings. Monitoring of rare plant populations in 2005 at one site revealed that plants had expanded out of the small barrens into the adjacent maintained opening. In addition, Bess (2004) found that several rare species of insects occur in grassland habitat or "prairie areas" created because of recent forest openings management. He recommended that the Forest continue with its management of brush hogging, mowing, Eastern redcedar removal, and prescribed burning.

#66 F) We agree that past, present, and future human activities pose a major risk for spreading NNIS plants. The Forest evaluated the probable effects of management activities over a range of disturbance levels in regards to NNIS plants. Minimizing human disturbance plays a key role in reducing the spread of invasive plants. Wind, rain, animals, and other natural dispersal processes all contribute to the spread of NNIS. For many areas of the Forest where existing NNIS are more prevalent or large infestations occur on other ownership nearby, active management is necessary to achieve effective control of these populations. See the EIS, Chapter 3, Nonnative Invasive Plant Species.

References:

Huebner, C.D.; Olson, C.; Smith, H.C. 2005. Invasive Plants Field and Reference Guide: An Ecological Perspective of Plant Invaders of Forests and Woodlands. USDA Forest Service, Northeastern Research Station, Morgantown, WV; USDA Forest Service, Forest Inventory and Analysis, North Central Research Station, St. Paul, MN. NA-TP-05-04. pp. 11-12, 49-50.

U.S. Department of Agriculture, Forest Service. 2002e. Trail Program. pp. 20. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

Non-commodity Values

PC #26*: The Hoosier should attempt to quantify the value of "the knowledge that the forest is there…" even if the most conservative estimates of existing, ecosystem values and other indicators were used.*

A) The spiritual value of the forest was not addressed in the analysis.

B) Economic literature shows that residents form a strong attachment to particular places in the Forest. This sense of place is very important to ones physical and mental well being.

C) Passive use values should be addressed to ensure that decisions are made in a manner that maximizes net public benefits.

Response to #26: Additional information has been added to the Final EIS on the intrinsic value of the Forest as a special place. The Hoosier is a national resource, and management decisions are made in conjunction with national as well as local concerns. Working closely with local governments and interest groups is an important part of the decision-making process at both the strategic and project planning level. As described under PC #13, public benefits are not always quantifiable but are considered in decision-making.

PC #29*: The Hoosier is attempting to manage the forest as a national zoological garden.*

Response to #29: An overarching goal of the Forest Plan is to provide the diversity needed to be resilient to environmental disturbances. Practicing wildlife habitat management with consideration for decades of silviculturual experience does not equate to a "zoological garden," nor does emphasizing the special values of places such as the Charles C. Deam Wilderness, barrens communities, and our RNA (Pioneer Mothers Memorial Forest). Focusing early successional habitat in a portion of the forest will also not result in a resemblance to a zoo. Focusing such treatments in one fairly large area will do more to aid the early successional species that have undergone appreciable population declines than would scattering the

treatments more or less evenly across the Forest, and will also benefit a large number of other species, either in the creation of early successional habitats or in the development of a healthier and more species-rich forest environment (see **Alternatives and the Effects of Management on Animal Communities under Animal Communities, Chapter 3)**. Concentrating a large portion of the even-aged treatments in one area will also decrease the amount of fragmentation across the rest of the Forest, providing more suitable habitat for interior forest species.

PC #63*: The Hoosier National Forest DEIS and Plan does not adequately address the impacts of timber harvest to non-timber products.*

Response to #63: The Monitoring and Evaluation Program (Chapter 4, Forest Plan) describes steps taken that will be taken to check that visual quality, air, heritage, and watershed resources and other non-timber products are not significantly impacted by any timber sale. The monitoring requirements are assigned at the project level.

PC #122*: The Hoosier National Forest should not allow gold panning with shovels as it increases erosion and is disruptive to the streambeds and aquatic life.*

Response to #122: The Forest Plan Chapter 3, **Forest-wide Guidance, Provide for Human and Community Development, Minerals and Geology,** contains guidance regarding gold panning. Because of the restrictions to active stream beds or gravel bars, no vegetation id disturbed and little erosion is likely to occur. Also, because only hand tools are allowed and no more than two cubic yards of material may be moved, the effects on the streambed and aquatic life would be minimal.

PC #111*: The Hoosier should continue with the current off-road vehicle policy for the following reasons -*

A) Off-road vehicles create erosion.
B) Off-road vehicles cause noise pollution.
C) Off-road vehicles are destructive to fish and wildlife habitat.
D) Off-road vehicles often kill wildlife by hitting them.
E) Speed, noise, and pollution from off-road vehicles have been shown to interfere with the ability of fish and wildlife to find prey, avoid predators, and reproduce.
F) The small, fragmented Hoosier is not appropriate for off-road vehicle use.
G) Off-road vehicles create user conflicts.
H) Creation of trails system could result in many more illegal trails being created.

Response to #111: The Selected Alternative proposes no changes at the programmatic level concerning the use of off-road vehicles on lands managed by the Hoosier. Both the 1991 and revised Forest Plans prohibit the use of motorized vehicles off roads and off designated trails.

PC #47*: The Hoosier needs to designate a place on the Forest for ATV use.*

A) This would keep money here in the state that would help boost local economies and provide funds for trail maintenance.
B) This could be used as an area to study the impacts of ATVs on trail erosion.

Response to #47 - The Hoosier analyzed ATV use on a designated trail system in Alternative 3. The decision maker considered Alternative 3, but did not select it for implementation as explained in the Record of Decision. A study area to determine the impacts of motorized trails has already been established regionally on the Mark Twain National Forest in Missouri. Therefore, there is no need to duplicate these efforts on the Hoosier. In addition, San Dimas

Research and Technology conducted research during the fall of 2004 on the effects of different types of tires used by a variety of motorized vehicles has occurred in other locations. These findings have not yet been published, but will be reviewed by Hoosier personnel in the future.

Plants

***PC #82**: The Hoosier should make creation and retention of old growth habitat a top priority. This provides habitat for many Neotropical migrant species.*

Response to #82: The Hoosier has placed a high priority on existing old growth forests and developing old growth forest conditions, as well as the importance of these habitats to Neotropical migrant birds (NTMB). The discussion on old growth along with the value of early successional habitats to NTMB is discussed throughout Chapter 3 of the EIS. The 2006 Forest Plan has flexibility to allow managers to use a variety of treatments to move the Forest towards the desired condition. The purpose of identifying desired conditions is to recognize that the landscape of southern Indiana naturally supports a variety of habitat conditions, from openings to open woodland, from barrens to riparian bottomland forest, and from early successional forest to old growth.

Many species of wildlife on the Hoosier, including some species of Neotropical migrants, prefer the vegetative and structural characteristics that can only fully develop in old growth forests. Lands designated as unsuitable for timber harvest could contribute to old growth acres over time, especially lands in MAs 5.1, 6.2, and 6.4. This will provide the larger blocks needed by forest interior birds, as well as down woody material, snags, multi-layered structure, and canopy gaps on which other species are dependent. Because a large portion of the Hoosier has been determined as unsuitable for timber harvest under the selected alternative, older age classes will be the dominant habitat type found across the Forest.

Regardless of the alternative selected, the forest will continue to mature and some old growth forested stands will likely develop. Currently 48 percent of the forest is in a mature condition, which under the preferred alternative will increase to 81 percent over the next 150 years (see Table 3.8). Late successional habitats and the effects to wildlife and vegetation are discussed in Chapter 3. There is also a discussion on the various habitat types that need to be maintained in the forest.

Alternative 2 emphasizes mature forest, favoring late successional habitat and the development of old growth forest which seems to be the type of management suggested by this comment. The EIS documents the hard look at the effects and trade-offs of this alternative relative to other alternatives responding to the purpose and need (Chapter 3). Public involvement played a key role in developing alternatives including Alternative 2, which was largely the result of a citizen group's submission to the Forest. Consequently, the role of old growth forest was an important concern in plan revision. Chapter 3 of the EIS has a discussion centered on the trade-offs of having only one type of habitat, such as old growth. Such a condition would have many negative effects on a variety of species that require other habitat types, such as early successional habitat.

***PC #83**: The Hoosier must provide some reasoning to support the claim that current management practices would dramatically increase the amount of old growth on public lands in Indiana.*

Response to #83: During the next 10 years, the Hoosier is only proposing to harvest approximately 3 percent of our landbase, leaving the majority of the Forest to proceed through natural succession. These management practices will result in a dramatic increase in the amount of old growth on the Hoosier over time. Table 3.35 shows the acreage that would be managed for natural processes of forest succession with no harvest planned. These areas would continue to change and mature over the course of the 2006 Forest Plan.

Currently there are approximately 2,000 acres of old growth in Indiana, and under the selected alternative would move approximately 108,000 acres on the Hoosier toward this condition so that the forest there could regain old growth characteristics. This would be a dramatic increase from the current condition. Under the preferred alternative, the old growth component would increase by over 5,400 percent in Indiana by year 150.

***PC #84**: The Hoosier should address the reduced nutritional value of plants grown in open areas, such as clearcuts.*

Response to #84: The Forest does not know of any research that supports the viewpoint expressed in this PC Statement, nor is there evidence contained in this comment to support this view. The comment implies that clearcutting results in inferior herbaceous vegetation, but there is no proof or evidence to support such a supposition. The Forest has used the best available scientific information to consider the programmatic effects, including vegetation and soil effects, of the management direction set forth in the 2006 Forest Plan.

The nutritional value of early successional habitat is quickly observed as young stands flourish with grasses, seedlings, and ground forbs. Biomass is concentrated on the forest floor where it can be utilized by species that require such habitat in their life cycle. The value of open areas to the native flora and fauna of the Hoosier is discussed throughout chapter 3 of the EIS.

Open habitats dominated by herbaceous vegetation support greater insect abundance than the forest floor beneath a closed canopy. These herbaceous openings can provide an abundant source of insects in the spring and early summer for gamebird species (Thompson and Dessecker 1997). These open habitats provide grassland cover, in association with shrubs that provide components necessary to support populations of many animal species including bobcats, blue-winged warblers, field sparrows, yellow-breasted chats, and wild turkeys.

Soft mast is the fleshy fruits of trees, shrubs, vines, and herbaceous plants, and is another important (and nutritious) food source for many wildlife species. Reductions in the amount of forest canopy typically increase soft mast production, and even-aged harvest can result in abundant soft mast. One study found that soft mast production was greater in harvested stands than in unharvested stands 3 to 5 years after treatment. Even-aged treatments resulted in significantly more soft mast than unharvested stands, single-tree selection cuts, and group selection cuts (Perry *et al*. 1999).

It is equally important that these habitats are important for species associated with mature forests as well. Studies suggest that the abundance and distribution of early successional forest habitat directly affects the foraging and nesting of these species. Early successional habitat is critical for many wildlife species. The necessity of openings and early successional forest habitat cannot be overlooked, as it is essential to attain viable populations of species on the Forest.

***PC #86**: Converting pine stands to native hardwood stands in Management Areas 6.2 and 6.4 should be a priority.*

Response to #86: Ecological restoration of native hardwoods by removing pines will restore native ecosystems and enhance diversity. This restoration is a priority for the Forest, but not in MA 6.2 and 6.4. These MAs emphasize natural processes and provide mature forests that offer an opportunity for solitude. Allowing vegetation management to remove nonnative pine would be counter to the desired condition for these two particular MAs. In these MAs, pine will be allowed to senesce naturally, and eventually these stands will be dominated by native hardwoods. Natural senescence of pine within these areas promotes the goals and objectives of these MAs, although there is a trade-off with diversity of plant and animal communities, as noted in chapter 3 of the FEIS. The majority of the shortleaf pine should naturally senesce in about 50 years, and white pine will senesce within the next 100 years within MAs 6.2 and 6.4.

***PC #87**: Though pines are not native to the Hoosier, they do provide benefits that need to be considered in the analysis.*

A) Deer often use pine stands for thermal and escape cover.
B) Pine stands provide excellent sites for camping.
C) Pine stands provide habitat for wildlife especially when it borders early successional habitat.
D) Pine stands add visual diversity.

Response to #87: Pine stands provide some habitat for wildlife species (see EIS Chapter 3, Conversion of Nonnative Pine Stands to Native Hardwood Stands). However, this nonnative habitat type is marginal at best. Many studies provide substantial evidence that pine plantations provide less suitable habitat and less biodiversity than native forest for birds, insects, herpetofauna, and a range of mammals including bats. Scientific literature indicates that scarcity or the decline of diversity of wildlife species is often attributable to the fact that pine stands generally have limited understory cover as well as low levels of diversity of herbaceous plants in the understory. Furthermore, the maintenance of biodiversity on the Forest is depends upon the conservation and restoration of native habitats.

Although pine stands can provide habitat for some wildlife species, sites for camping, and visual diversity, it is important to note that pines will be lost through natural mortality within the next 100 years. As the Forest has no plans to regenerate nonnative pine tree species, the existing pine stands would naturally succeed to hardwood stands under any of the five proposed alternatives as discussed in the EIS.

The 2006 Forest Plan does not contain any site-specific proposals for vegetation management. The Forest Plan does not determine where or when pine harvest would occur. The programmatic plan sets forth a management framework that allows for ecological restoration. The keystone of this restoration effort is improving diversity of plant and animal communities in a multiple use context. Site-specific proposals for vegetation management, including removal of some or all pine trees at particular locations, must be preceded by the appropriate level of NEPA analysis and public involvement. Site-specific analysis often includes development of mitigation measures applicable to the conditions of a particular site. In Mahler v. Forest Service, the District Court for the Southern District of Indiana commented favorably on the Forest Service's staged decision making model in the context of a challenge to timber harvest methods and analysis in a programmatic forest plan amendment. We are guided in the revision of the Forest Plan by this court opinion.

***PC #126**: The Hoosier National Forest should manage to reduce the rate of loss of oak-hickory.*

Response to #126: The importance of oak-hickory forest is discussed in Chapter 3 of the EIS in both the animal and plant community sections, and the retention of the oak forest type is a priority that is documented throughout the EIS. Through future site-specific proposals, the Forest hopes to facilitate retention of this oak component, generally by prescribed burning and vegetation management, based upon the particular characteristics, conditions, and resources at the site.

The Forest sought the advice and counsel of silvicultural experts and consulted with other national forests regarding the best available scientific information concerning the retention of oak. This is a complex area of science that is evolving over time. Long-established principles of administrative law allow Federal judges to defer to agencies in areas of complex scientific matters, such as the appropriate timber harvesting determinations on national forests. Based on published scientific information, however, it seems clear that without disturbance, oak in central hardwood forests--such as the Hoosier--will age and gradually decline as a component of hardwood stands. These stands will naturally succeed to more shade tolerant species such as maple and beech. Table 3.10 shows the acreages of oak-hickory type projected to exist on the Forest under each alternative. The selected alternative allows for future site-specific ecological restoration proposals to remove nonnative pine trees and implement prescribed burning facilitating regeneration of oak trees.

***PC #129**: Table 6.2 in the DEIS claims that over half the existing oak-hickory will be lost in the next 150 years under Alternative 2 without logging even though oaks live hundreds of years.*

Response to #129: Under Alternative 2, over half of the oak component of the forest would be lost through natural senescence. This conversion would take time, but nonetheless it would occur. In projecting over the decades, the senescence of the oak would begin around the eighth decade and proceed downward and more rapidly as the stands continue to age. At 150 years from the present, the oak composition on the Forest would be approximately 64,000 acres, and that number would further be reduced in subsequent decades. The rate of senescence and maximum rotation ages by species was applied and depicted in the vegetation models (LANDIS and Spectrum), and results are displayed in Table 2.6 of the EIS. This modeling is based upon the best available scientific information and is supported by State monitoring data. This data shows that lacking disturbance, such as fire, to facilitate oak regeneration, stands will naturally succeed to more shade-tolerant species such as maple and beech. The models used to analyze the consequences of no action over time were described in the draft EIS, including assumptions and limitations on their use. No evidence has been presented to the agency which refutes the results of these projections over time. Such computer modeling of complex ecological processes is an area of scientific expertise that is evolving over time as our understanding improves of the long-term changes in forests.

***PC #132**: The Hoosier should address how much mast production will be affected by harvesting mast-producing trees.*

Response to #132: The amount of mast production was not calculated by alternative but rather the acreage of oak-hickory. One can assume a direct correlation; that is, the more oak-hickory acres, the more hard mast production. The discussion on mast production is in Chapter 3 of the EIS under the **Importance of Oak-Hickory Forest**. The reduction of pine is also an important component in that the pine stands that are harvested are slated for native hardwood restoration,

and fewer acres of pine will result in more mast production. The amount of pine conversion also varies by alternative, and the effects also vary - Table 3.10, 3.10a, and 3.9.

***PC #133**: The Hoosier should remove the pine on the forest. It is not natural to Indiana, and their removal would allow oak–hickory to come in more quickly.*

Response to #133: Ecological restoration involving removal of pine and regeneration of native hardwood trees was an issue of great importance in the development of the 2006 Forest Plan. We agree that the pine stands on the Hoosier are not native, but they were planted several decades ago, mostly to halt soil erosion. Given the NFMA diversity consequences associated with existing pine stands, acceleration of restoring these pine stands to native hardwood stands was studied in depth and incorporated into the alternatives analysis. Many public comments, like this one, support the ecological restoration emphasis of the selected alternative.

The ecological restoration of native hardwoods by removing pines varies by alternative and is displayed in EIS in **Tables 3.10a and 3.9**. Removal of pine would hasten the conversion to the oak-hickory type. Only certain MAs allow pine harvesting, depending on management emphasis. In modeling the amount of pine that could be harvested, proximity to adjacent harvest units became a constraint. In those management areas where harvesting was a viable option, it was projected that up to 3,500 acres of pine could potentially be harvested in any one decade. The 2006 Forest Plan is a programmatic document that does not include site-specific proposals for vegetation management, including removal of some or all pine trees at particular locations. Site-specific decisions must be preceded by the appropriate level of NEPA analysis and public involvement.

***PC #96**: Beech-maple climax stands were present when European settlement occurred. Beech has proven to be more fire tolerant than suggested.*

Response to #96: Though beech-maple was present during European settlement, oak and hickory were dominant on the landscape. The maple-beech type seems to have been relegated to more mesic landforms such as those found on sheltered northeast slopes of narrow valleys, on benches and lower slopes, or on level foot slopes along streams in narrow valleys.

Oaks have thick bark which insulates their cambium from the heat of fires, whereas competing species such as maples and beech have thinner bark. This is especially true when the trees are young. The thin bark on beech and maple makes them quite susceptible to fire damage or mortality (Van Lear 2004). Although these species are vulnerable to fire, they are not completely eliminated from a stand by introduction of fire. Fires do not burn with even intensity across the landscape. Generally, cove areas or those with a northern aspect burn less intensively, which results in more beech-maple on these sites.

Prescribed Burning

***PC #100**: The Hoosier did not consider the issue of prescribed burning increasing soil temperature. Heating can kill soil biota, alter soil physics, consume organic matter, and release site nutrients including heavy metals such as mercury.*

Response to #100: The Forest took a hard look at the programmatic effects of prescribed burning, then documented and disclosed this information as part of the development of the EIS. The effects of increased soil temperature from prescribed burning are described in the EIS

Chapter 3, **Alternatives and the Effects of Management on Soils, Alternatives 1, 3, 4, and 5, Prescribed Fire**. The potential effects of soil temperature on different soil types is a complex scientific area of study. Additional NEPA compliance, as appropriate, is undertaken prior to proposal of site-specific prescribed burn projects.

A decade of monitoring and experience in implementing prescribed burn project decisions indicates that there are no irreparable soil effects from properly implemented prescribed burns. Often site-specific mitigation is developed at the project level. This typically results in resource protection greater than that prescribed in the Forest plan (Standards and Guidelines) to address site-specific considerations. Contrary to the assertion in the comment, the Forest devoted considerable attention to the potential programmatic effects of prescribed burns on soil temperature and made an informed decision.

Soils

***PC #48**: The Hoosier National Forest needs to propose activities that expose dirt or mineral seedbed to enhance the probability of desirable vegetation regeneration.*

Response to #48: Exposure of mineral soil is not always necessary or required for desirable vegetation regeneration. Disturbances, such as tree falls and tornados, harvesting and timber stand improvement activities, site preparation, and tree planting, allow land to revegetate. Vegetation management activities enhance the probability of desirable vegetation regeneration.

The revised plan does not contain any site-specific proposals for management, but is a programmatic framework for future decisions. As such, it does not authorize, mandate, fund, or carry out any ground-disturbing actions. Prior to any site-specific vegetation management activity that exposes soils such as that referred to in this comment, appropriate NEPA compliance is undertaken.

Special Areas, Roadless, and Wilderness

***PC #70**: The Hoosier National Forest should complete management plans for all special areas. We suggest a timeframe be established to develop management plans for these areas.*

Response to #70: We acknowledge the importance of completing management plans for all special areas. See Forest Plan **Appendix H** for a description of this process. The Forest agrees with your suggestion to develop a timeframe. However, the ability to complete these plans is subject to other Forest priorities or constraints due to budget and work force availability. Managers consider all of these factors in developing annual work plans, including scheduling completion of special area management plans. The Forest will make a concerted effort to complete these plans in a timely manner. All management plans for special areas were prepared using a systematic, interdisciplinary approach to best achieve integrated consideration of physical, biological, economic, and other sciences.

***PC #72**: The Hoosier National Forest should only suppress wildfires in the Charles C. Deam Wilderness to the extent necessary to prevent them from extending beyond the boundaries of the Forest, or if they pose an immediate threat to the health and safety of forest users or structures.*

Response to #72: According to Forest Service Manual 2320, all human-caused wildfires in wilderness will be suppressed. As with all wildfires, less aggressive containment strategies may be used in wilderness if it is determined to be the safest alternative. Only fires ignited by lightning or those ignited by qualified Forest Service personnel are allowed to burn under prescribed conditions and only when documented in an approved plan. The Hoosier does not currently have a fire plan in place for the CCDW.

***PC #98**: The Hoosier should reference the global importance of barrens habitat.*

Response to #98: We agree that barrens communities are unique habitat, including their importance at the global scale. See EIS, Chapter 3, **Importance of Barrens Habitat**. As part of the SVE process, biologists and species experts generated a list of approximately 500 terrestrial animals, aquatic animals, and plant species for inclusion in *The Hoosier-Shawnee Ecological Assessment* (Thompson ed. 2004). Many of these species occur in barrens communities and have global rankings with viability concerns (G1-G3). Several species that typically inhabit barrens communities were chosen to represent these habitat types and were subsequently included in the final Habitat Suitability Index models. See the EIS, **Appendix H, Species Viability Evaluations**.

***PC #124**: The Hoosier has maintained conditions in the Deam Wilderness that are contrary to wilderness character. The proposal at hand legitimizes this illegal situation and puts the area at further odds with the letter and spirit of the Wilderness Act.*

A) Horse use in the Deam should be discontinued.

B) Actions to rehabilitate or restore wilderness character that have been damaged should be undertaken.

Response to #124: The Wilderness Act does not define “wilderness character” and despite a rich legislative history on many aspects of the Wilderness Act, the Congressional committees that developed and debated the Wilderness Act of 1964 did not discuss the meaning of this phrase. The Selected Alternative manages the CCDW in accordance with the Wilderness Act of 1964 and Forest Service Policy.

#124 A) Horse use is a primitive form of transportation, so it is a legitimate use of wilderness. The legislative history for the CCDW specifically mentions horseback riding as one of the recreation uses of the wilderness.

An extensive recreation resource monitoring effort was undertaken to evaluate resource conditions and use of the Charles. C. Deam Wilderness. Horse use is common, but has not resulted in irreparable harm to resources in the wilderness. Under the revised plan, standards and guidelines will protect wilderness values with regard to equestrian use, and we will continue to carefully monitor the effects of horseback riding.

#124 B) Restoration work in the Wilderness has and will continue to be a priority for wilderness management on the Forest. Trails have been relocated to improve resource conditions, and abandoned trails have been rehabilitated. A recent campsite monitoring program indicated the number of user-created campsites has declined in the past 10 years. Forest employees have been rehabilitating campsites that are too close to trails and water sources. Garbage dumps and wire from fences have been removed from the wilderness (USDA 2004a).

Monitoring of wilderness condition and recreational use of the wilderness are key parts of adaptive management on the Forest.

***PC #149**: The Hoosier should reconsider the classifications for Special Areas. The classifications are rather extensive and warrant a closer look. There is reason to believe that a broad brush was used in plotting these management areas. These boundaries should be designated, and that process should be open to public input.*

Response to #149: Amendment 5 (2000) to the 1985 Forest Plan modified the boundaries of Management Area 8.2 special area, made a final decision on the allocation of Management Areas 9.2, proposed special areas, and allocated five new areas as Management Area 8.2. The Hoosier brought the total designated special areas on the Forest to 24. This site-specific decision set boundaries for each special area, conducted detailed effects analysis, and involved the public throughout the decision-making process (USDA Forest Service 2000). The amendment incorporated all of the special features responsible for designating the special areas, and provided for protection of these special features. That decision documenting the amendment is hereby incorporated by reference. The revised Forest Plan retains all of these special areas and does not make any changes to their boundaries. Forest Plan Appendix H provides a brief description and Appendix J contains maps of each area (see management area 8.2). Refer to Forest Plan Chapter 3, Management Area 8.2 for Forest level guidance and desired condition of these special areas.

U.S. Department of Agriculture, Forest Service. 2000. Environmental Assessment, Plan Amendment 5, Special Areas. Dated November 22, 2000. 132 p. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

***PC #150**: The Hoosier should reclassify Management Areas 6.2 and 6.4 to 2.8 or 3.3. The Charles C. Deam Wilderness is sufficient for the overwhelming majority of Hoosiers "to provide an opportunity for solitude and a feeling of closeness to nature." If management were allowed in these areas there would be more diversity to better target all needs (nature watching, hunting, trail use, backpacking, etc.).*

Response to #150: Under NFMA and the Multiple-Use Sustained-Yield Act, Congress has provided the Forest Service considerable discretion to determine the use of particular areas of the national forests. The Federal courts have recognized the inherent conflict between competing uses of the Forest and the complex balancing that is required in the development of a land and resource management plan, *see, for example*, Mahler v. Forest Service, 927 F. Supp. 1559, 1565 (S.D. Ind. 1996). Multiple use requires some goals to be emphasized at the expense of others. In developing this revised plan, the Forest has forged a compromise, as national forest management under NFMA and MUSYA inherently involves trade-offs between competing uses. Numerous courts over the years have upheld the agency's discretion to choose the appropriate land use under MUSYA.

Balancing various uses across the Forest to maximize net public benefit involves weighing a myriad of social, economic, physical, and biological factors. Although public input such as this comment is important in developing alternatives, Congress has given the Forest Service the discretion to decide the overall mix of multiple uses for a given national forest.

Various alternatives were considered, including minimal management and a recreation emphasis alternative. As noted above, national forest planning by its very nature involves compromise and trade-offs between competing uses of the Forest. There is no indication in this

comment or otherwise to support the supposition that the Deam Wilderness suffices to provide an opportunity for solitude for the overwhelming majority of users. The other management areas involved here are not designated wilderness and provide for a different type of recreation experience not found in the Deam Wilderness.

Management areas allow us to group different areas and emphasize different needs and uses on the Forest. Each different mix, or management area, has a desired condition that along with management direction provides managers with a goal to work toward. The desired condition for each MA is somewhat different, and the overall balance is needed to maintain a diverse and resilient ecosystem. Congress designated the Charles C. Deam Wilderness (MA 5.1). This area has a distinct desired condition and a suite of tools that can be applied there. The goals associated with MA 6.2 and 6.4 are somewhat different than those applied in 5.1. However, the areas do have similar uses. The goals associated with MA 5.1 include providing for a wilderness experience and preserving the natural ecosystems. Management Areas 6.2 and 6.4 are still in the general forest landbase though they are designed to provide opportunities for solitude and a feeling of closeness to nature. These areas, unlike MA 5.1, provide trails for mountain bikes and are being managed to provide habitat for species that require mid- to late-successional habitat.

***PC #155**: The Hoosier should include monitoring for the Deam Wilderness to ensure that the wilderness characters remains as it is today.*

Response to #155: The monitoring strategy is found in Chapter 4 of the Forest Plan. This chapter outlines the basic components and legal requirements for forest plan monitoring. The Forest Plan includes monitoring of wilderness.

Timber Management

***PC #19**: The Hoosier should not continue with a plan that includes logging. It is irresponsible from both an economic and environmental point of view.*

Response to #19: Many people believe that a passive approach to forest management is the best way to sustain forest health, productivity, species viability, biodiversity, and quality recreational experiences. Both MUSYA and NFMA allow for active forest management. As the Seventh Circuit Court of Appeals long ago observed, the national forests are not National Parks. There is no command in NFMA to cultivate old growth at the expense of other habitat types, nor is there a function in Federal law requiring preservation of the status quo or creation of pre-settlement forest conditions. Indeed, as one Circuit Court noted, “timber harvesting is clearly a goal of the forest management statutes” [Mountain States Legal Foundation v. Glickman (D.C. Cir. 1996)]. The desire expressed by this comment to maintain the Hoosier in a pristine state collides with the multiple uses that Congress has endorsed for the national forests in NFMA and MUSYA.

By providing a variety of management areas, the Hoosier is responding to the issues regarding ecosystem sustainability, watershed health, and recreation management. Passive management without vegetative treatments is appropriate for some ecosystems, but not for others. The EIS discloses both the effects of passive management and the effects from logging. Timber harvesting will be used when it is determined to be the most effective method to achieve desired results. NFMA forest planning involves staged decision making. Key to understanding the

timber harvest analysis in the 2006 Forest Plan is an understanding of the nature of a NFMA land and resource management plan. The comment suggests that the Hoosier Plan has made the final harvest determination. To the contrary, the Plan simply sets forth a framework for future management activity. As the Supreme Court noted in Norton v. Southern Utah Wilderness Alliance, a land use plan such as this describes allowable uses, goals for future condition of the land, and next steps for a particular administrative unit. Land use plans are part of the overall process of managing public lands; they are not ordinarily the medium for affirmative decisions that implement the agency's projects. Land use plans such as this are tools which portray present use and project future use.

Although the plan contemplates that various management and emphases will occur over the 10 to 15 year of the plan, it does not dictate that any particular action occur on the ground. Another stage of decision-making, the project level, introduces site-specific information, analyses, and additional public participation, prior to any ground disturbance. The revised plan plays a key role in providing standards--essentially mitigation measures--which act as constraints to control and mitigate the effect of future management decisions. Many Federal courts, as well as the Supreme Court, have acknowledged that forest plans do not make final site-specific determinations on management actions such as timber harvest method or location. Such determinations are better made at the site-specific level using local resource information and analyses.

Functioning ecosystems are socially and economically valuable and worth the vegetation management costs. Timber sales, when needed, provide a net benefit to the public and the ecosystems. Because a timber sale is a tool used to attain our desired condition, the economics and results are described as part of a project analysis.

***PC #23**: The Hoosier should consider an increase in shelterwood harvest over clearcutting.*

A) Shelterwood harvest has been shown to be viable for oak-hickory regeneration

B) Shelterwood harvest has less negative public relations impact.

Response to #23: Even-aged management has been shown to perpetuate more of the oak and hickory type on the Hoosier than any other silvicultural system (Seifert 2004). This includes both clearcuts and shelterwood harvesting. The Forest agrees that shelterwood harvest is a valuable tool and site-specific prescriptions will determine whether clearcutting or shelterwood harvesting would occur, as site-specific conditions will determine which type of harvest technique is most appropriate. Wither clearcut or shelterwood harvests, both considered even-age methods, produce early age class results. However, clearcutting results in the early successional habitat required by many species on the Forest much more quickly. Although this type of harvest is not always accepted by people, the results are necessary for many declining species including many Neotropical migrants.

NFMA clearly contemplates the harvest of timber using even-aged methods such as shelterwood and clearcutting; see 16 U.S.C Sec. 1604(g)(3) (D), (E), (F). The preferences of the commenter notwithstanding, Congress' intent was to provide the agency with discretion to choose among the available harvest methods and act in the public interest. In enacting NFMA Section 6(g), Congress considered the arguments for and against even-aged management and struck a delicate balance between two extremes. Congress chose not to prohibit even-aged management, but to regulate it somewhat and to leave the final choice of harvest method to the discretion of the agency. It also allowed the agency to determine the decision-making level at which such determinations are made. Within the guidelines (i.e., the balance struck by Congress),

the Forest Service has considerable discretion. The Forest Service has determined (as many courts have acknowledged) that the final choice of harvest method is a project level determination.

The final selection of harvest method is best determined at the site-specific level using on-the-ground, site-specific resource information and local expertise regarding resource and socio-economic conditions. Each silvicultural system and its respective harvest methods have advantages and disadvantages. The selection of the appropriate system and harvest depends upon analysis of site-specific conditions and analysis by local resource experts. Soil, water, wildlife, and other resource mitigation measures will be addressed further at the time when specific timber harvest proposals are made.

***PC #24**: The analysis must consider the private landscape, which tends to be more open and harvested more aggressively.*

Response to #24: One of the powerful tools used for the Forest Plan was the LANDIS model, which did incorporate private lands. The LANDIS model looked at how harvesting on private land was affecting various wildlife species. Although private lands may contribute to, or hinder, the maintenance of species viability on NFS, the Hoosier cannot rely on these lands to meet our legal requirements to "maintain viable populations of existing native and desired non-native vertebrate species in the planning area" (36 CFR 219.19). However, it is very important to review the type of habitat available on private lands to analyze cumulative effects. The cummulative effects section in Chapter 3 of the EIS includes a discussion of the types of habitat available on private, State, and Federal lands in Indiana as well as the types of harvest that occur on these lands.

***PC #50**: The Hoosier needs to reconsider the use of salvage or sanitation harvests.*

A) Salvage harvest removes valuable habitat requirements

B) Salvage harvest deprives the forest of minerals and soil building components.

C) The use of sanitation and salvage in MA's 5.1 and 8.1 was questioned. Please clarify under what conditions this corrective management practice might be used? It should be made clear that normally dead and dying trees will be left for their forest wildlife value.

Response to #50: Salvage harvest is used to recover down and damaged trees following a natural event such as tornado, snow damage, or high winds. In a salvage situation, the habitat has already been altered by the natural event, and the salvage logging is in response to the natural event.

#50 B) Salvage harvest removes tree boles that would otherwise be left to add minerals and build soils. However, not all of the trees are removed from the site. Approximately 40 percent of the biomass is removed with the trunk of the tree, but the roots and branches are left on the forest floor to decompose and cycle back into nutrients. Many whole trees are also left.

#50 C) Salvage and sanitation harvesting is not anticipated to be used in the Charles C. Deam Wilderness (MA 5.1) or in Pioneer Mothers Research Natural Area (MA 8.1). In the past, dead and dying trees have not been harvested in these MAs. However language in the Wilderness Act allows for trees to be cut and sold when necessary for wilderness purposes, for a valid mining claim under specific conditions, or when emergency conditions like fire, insect and disease, or protection of public safety make it necessary.

Sanitation treatments would only be used in the event of expected pest or disease outbreak. Sanitation harvests would be closely coordinated with the IDNR and Animal and Plant Health Inspection Service (APHIS). An infestation of species such as the Asian Longhorned beetle or Emerald Ash Borer in M.A. 5.1 and 8.1 might necessitate eradication efforts. Integrated pest management would determine the best method to eradicate the damaging insect pest. Eradication is designed to stop the spread of an insect and disease. The control of insects and diseases is allowed when it is necessary to prevent unacceptable damage to resources on adjacent lands or an unnatural loss to the wilderness resource due to exotic pests. Indigenous insects and plant diseases would be allowed to play their natural ecological role, as nearly as possible. The eradication effort might include the removal of trees, but those trees would be disposed of in a manner best suited to halt the spread of the pest. When evaluating a sanitation harvest in MAs 5.1 or 8.1, the commercial value of the trees is not considered. The evaluation is based solely on the most appropriate treatment of the stand.

***PC #51**: The Hoosier should proceed with an aggressive timber harvest program. This provides habitat for late-, mid-, and early-successional species.*

Response to #51: An aggressive program would provide habitat for late-, mid-, and early – successional species. The Forest Plan provides a balanced approach when considering all resources. The alternatives displayed reasonable approaches to management for the various resources. A comparison of treatment by alternative is found on Table 3.3.

The forest is capable of sustaining production of over 252 million board feet per decade, which would create a great deal more early age class habitat. The five alternatives propose much less harvest than this amount because of the consideration given to all resources. The actual harvest level over the 10 to 15 year life of the 2006 Forest Plan will be influenced by many factors, including budget, weather, and changes in agency policies.

***PC #52**: The Hoosier should not allow for a commercial timber sale program.*

A) There is no scientific basis provided to show that creating natural habitat types increases diversity.

B) The large tracts of young even-aged forest that grow following a clearcut have fewer gaps than natural even-aged forests. These gaps are important to a variety of species.

Response to #52: There is a plethora of information showing that creating natural habitats increases diversity. Habitat destruction and degradation are the leading threats to biodiversity. Diversity and the need to maintain native habitats are discussed in Chapter 3 of the EIS, **Maintain and Restore Sustainable Ecosystem**. The need to maintain and create natural habitats to increase diversity is discussed throughout the section on pine, barrens, and successional habitats. The EIS analyzed an alternative that included no timber harvesting, Alternative 2. The Forest took a hard look at the programmatic effects of such an alternative (see Chapter 3 of the EIS). The trade-offs associated with the absence of active management stand in clear contrast to the other alternatives (which included various levels of harvest). Some of these effects are easily seen in the monitoring data under the 1985 plan, as amended, under which little active vegetation management has occurred. The EIS analysis provides a clear basis for an informed decision as to whether harvesting should be allowable on the Forest over the 10 to 15 years.

Gaps are very important to wildlife. Though clearcuts do not mimic a natural even-aged forest in several regards, even-aged management does create the early seral stage so vital to the

survival of many species. Though there may be more gaps in a natural even-aged forest, these gaps quickly close following disturbance, making the difference between a natural occurrence and a created disturbance difficult to discern. Prescribed fire further enhances the creation of gaps and a mosaic following clearcutting. As fire moves across the landscape, it burns with different intensities, consuming different amounts of fuel dependent on fuel load, aspect, and exposure. This enhances gaps and changes micro sites.

***PC #53**: The Hoosier DEIS states that only 5 percent of the forest would be in age classes less than 80 years; therefore the impacts of natural events, such as tornados, windstorms, and natural tree mortality have not been addressed.*

Response to #53: Though it is impossible to predict with certainty how much early age class would be created by natural events, the Forest used recent historical information to calculate an average amount of damage from natural events such as tornados and windstorms. Data suggest that about 1,600 acres of damage occurs each decade from natural events. The actual acreage might be higher or lower than 1,600 acres in any given decade, but that was the average and was applied in the LANDIS model. Also, average tree mortality rates were assigned in the LANDIS model. The LANDIS model analyzed the effects to vegetation, and the effects to wildlife were analyzed in the habitat suitability index models. This forecast of natural disturbance is rationally based on the best available scientific information. There is no evidence that the 1,600-acre projection is incorrect, arbitrary, or capricious. It is supported by data and the methodology used to calculate the estimate is reasonable.

The EIS, Chapter 3, Table 3.37 illustrates that natural disturbance was analyzed even in Alternative 2. In Alternative 2, which represents a no-management theme, there would still be some stands or trees less than 80 years old. Even under this alternative, there would be some younger trees as a result of natural events and senescence.

***PC #54:** The Hoosier analysis contradicts what is in "The Regeneration Response to Clearcutting on the Hoosier National Forest" which found that only four percent of the 74 clearcuts regenerated to oak-hickory.*

Response to #54: Forestry is a science which entails observing nature over time. The initial look at the clearcuts indicated a significantly reduced oak component shortly after clearcutting. Over time, those stands have changed as a result of natural influences. In 2003, 32 of the original 74 clearcuts were reexamined to measure the change over time, and the study found that oak now comprises 10 percent of all the sampled trees and 23 percent of all dominant trees.

Approximately 34 percent of all dominant oaks originated from stump sprouts, giving them a competitive edge and allowing them to become dominant in the canopy. In 1987, only 31 percent of oaks were in the dominant class compared to 55 percent today (Seifert *et al.* 2005). This delayed response of oak in becoming a dominant part of the canopy is in agreement with findings of Sanders and Graney (1992).

***PC #56**: The Hoosier is maintaining the status quo in terms of proportions of even-aged and uneven-aged management systems. This is what contributed to the concern regarding oak-hickory loss and its effects on wildlife.*

Response to #56: Many factors contributed to the concern regarding loss of the oak-hickory type and its effects on wildlife not just the proportion of even-aged and uneven-aged

management systems. The amount of prescribed burning will have a great influence on the amount of oak-hickory maintained in the future. This is important: When the selected alternative is implemented, we will be able to maintain at least a portion of the oak component and will be able to maintain the viability of all wildlife species.

***PC #75**: The Hoosier should not harvest trees.*

A) Trees harvested should be left onsite to naturally enrich the forest and provide habitat for animals.

B) Timber harvest threatens the survival of some songbirds species.

Response to #75: Not harvesting trees contradicts the multiple-use, sustained yield direction that Congress has endorsed for national forests. In the multiple-use context, NFMA calls for the maintenance of plant and animal community diversity. Protection of resources does not automatically equate to preservation, and ecological restoration as envisioned in the revised Forest Plan is not synonymous with "no management."

#75 A) The Forest acknowledges that there are benefits to leaving trees onsite to naturally enrich the forest and provide habitat for animals. Under all alternatives, a large portion of the forest is considered unsuitable for timber harvests, and when trees fall, they will remain onsite to naturally enrich the forest. Where timber harvest does occur, standards and guidelines (**revised Forest Plan**) ensure that a component of large mature trees remain within the harvest unit, as well as snags and down woody debris. Additionally, treetops and roots are left in harvested stands to provide habitat and nutrients.

***#75B)* Effects associated with timber harvesting can be found in the EIS**, **Chapter 3,** Alternatives and the Effects on Conservation of Endangered and Threatened Species Habitat, Alternatives and the Effects on Animal Communities, Alternatives and the Effects Plant Communities, etc.**). However, the amount of harvest proposed under alternatives would not threaten the survival of any species, including songbirds (EIS**, Chapter **3** Species Viability Evaluation (SVE) – Animals and Plants**). Conversely, without the use of timber harvest, the survival of songbirds such as Henslow's Sparrow, yellow breasted chat, and blue-winged warbler will be threatened (high risk to viability).**

***PC #76**: The Hoosier National Forest inappropriately uses salvage sales.*

A) The Forest should implement salvage harvest within six months of the occurrence.

B) The retention of salvage sale funds on the Forest provides incentive to commercially log that overrides other factors.

C) Management areas such as 8.2 should not be appropriate for salvage harvest.

D) Salvage logging threatens the survival of some songbird species.

Response to #76A and C): With the current guidelines, time frames, public involvement, consultation, survey data requirements, and legal requirements, it has been impossible to implement salvage sales within six months. There have been, however, a few cases when public safety was at risk or when roads, trails, and campgrounds were closed and the Forest was able to respond quickly with small projects, salvaging trees within a few months. The Forest chose to retain the option of salvage harvest in MA 8.2 and other sensitive areas. This type of treatment would occur only if a natural event created the need to salvage trees in these areas.

#76 B) Salvage sale funds are used only under salvage conditions. Salvage sale dollars are retained so that the Forest can react to natural disasters without additional funding being

needed to begin work. Salvage sale funds reside in a trust fund that the U.S. Congress allows the Forest Service to maintain so it can respond quickly to natural disasters.

#76 D) In any salvage activity, "other factors" are considered and evaluated in the environmental analyses. This analysis would include the impacts of the salvage activity on songbird populations.

***PC #21**: The Hoosier National Forest should consider the use of group selection as one of the uneven-aged treatments in Alternative 4.*

A) This harvest system mitigates the visual effects of even-aged harvest.
B) This type of harvest provides potential environmental conditions that favor shade-intolerant species (such as upland oaks).

Response to #21: Activities of this type increase the diversity and balance of wildlife habitats on the Forest. Single tree selection and group selection are uneven-aged systems and are generally interchangeable in their application. Alternative 4 proposes to harvest 5,160 acres of uneven-aged management. With site-specific prescriptions applied, there would likely be a combination of single tree selection and group selection methods that will provide for some shade-intolerant species. This combination would still be considered an uneven-aged harvest system. As a result, recreational opportunities such as bird watching, wildlife viewing, photography, and hunting would increase. Effects of both even and uneven-aged management are analyzed in Chapter 3 of the EIS.

***PC #130**: The Hoosier should continue to use reforestation and timber stand improvement as tools to foster the successful natural regeneration of many shade intolerant species and promote healthy forest by removing unhealthy trees or thinning overcrowded conditions.*

Response to #130: The Forest plans to continue its reforestation and timber stand improvement projects. Such activities are displayed in the EIS in Tables 2.2 and 3.4 of the EIS, as well as in the discussion at the end of Chapter 3 of the EIS.

***PC #103**: The Hoosier should no longer use timber harvest as a tool in managing the forest.*

A) Logging removes the trees which filter the air and water.
B) Logging or clearcutting 20-acre patches fragments the forest and creates "dead zones" where habitat integrity is destroyed.
C) Clearcutting and logging cause air pollution.
D) Logging devastates herbaceous understories.
E) Logging increases water flow and sediment, and can adversely affect caves and springs more than a mile away.
F) Natural disturbance creates the needed habitat for a diversity of species without mechanical intervention.
G) Clearcutting destroys existing healthy forest communities; disrupts mast crop production, nesting, and potential endangered species habitat; and threatens watershed health.
H) Logging does not mimic natural processes.
I) The economic incentives for logging such as KV and Salvage Sale Funds create a bias to log.
J) Clearcutting is the most expensive management system used and provides the Forest Service with a high Congressional subsidy.
K) Logging increases the spread of nonnative invasive species.
L) Logging will not aid in the recovery of the Indiana bat. The relatively low number of bat captures on the Forest lends credence to the idea that bats are widely dispersed across

the landscape of the central hardwoods in the summer. The intensive requirements to limit the types and number of trees that might be removed are excessive.

Response to #103: Ecosystem restoration requires active management. Without it, many natural communities may cease to exist. Dynamic disturbance processes must be included to maintain forest conditions within the range of historic conditions under which natural communities adapted. a The **Historical Context** section of the EIS (Chapter 3, **Animal Communities**) discloses the impacts of post-European settlement.

Natural disturbances were included in the LANDIS model for all alternatives. This model predicted that natural disturbances alone would not provide suitable habitat for species dependent on early successional habitat (**see EIS Chapter 3 – Species Viability Evaluation (SVE) Animals and Plants**). Although the landscape of Indiana was largely forested before European settlement, there were still areas of prairie, wetland, and disturbed and open forests. Without active vegetation management, these conditions will not exist in quantities large enough to meet our legal mandate to "maintain viable populations of existing native and desired non-native vertebrate species in the planning area." The effects of various management options are disclosed throughout Chapter 3 of the EIS.

As explained in the EIS, the affected environment was altered by abrupt changes in historical disturbance regimes such as fire (at one time, landscape fires occurred at regular intervals across the entire landscape of the Hoosier), flood (the Midwest contains an extensive network of flood control structures designed to limit the extent and duration of flood events to protect people and property near the floodplains), fauna (the loss of certain key species that naturally introduced disturbance to the landscape, such as bison and the passenger pigeon, has substantially influenced the distribution of other species), and wind (prior to European settlement, catastrophic events likely crossed greater expanses of forested tracts resulting in substantial areas of early successional forest).

Emulating natural disturbance processes is about balancing the severity, scale, and frequency of disturbance processes with the management-assisted recovery of ecosystem conditions. Emulating natural processes means conducting management activities (timber harvest, prescribed burning, etc.) in ways that best mimic or balance the presumed historic extent of natural communities. The existing balance of management allocations under the selected alternative would provide the best blend of goods, services, and values for the public while allowing the Forest to conserve important plant and animal species and maintain healthy ecosystems.

The planning process and the new Forest Plan outline desired conditions based on a framework of sustaining and restoring ecosystems. The use of silvicultural practices in conjunction with prescribed burning, control of exotic species, and other methods are tools with which we can emulate historic disturbance processes. Further, restoration work is planned and guided on the ground by an implementation document based on expert knowledge about ecosystem restoration.

#103 A) Timber harvest is a tool that helps us manage forest resources. Many methods of timber harvest are available to choose from, depending on the desired outcomes, objectives, and local constraints and concerns with the project. Clearcutting is an acceptable silvicultural tool that is used to create even-aged stands of shade-intolerant species. However, the clearcuts of today are different from clearcuts used in the past. Clearcuts on the Hoosier today are required to retain at least three live trees per acre greater than 20 inches among 20 different

species. Snags are also retained to provide roosts, natal dens, and nutrient cycling. Clearcutting has been shown to be an effective tool in obtaining desirable natural regeneration in central hardwoods. Clearcutting normally results in more seedlings and sprouts than any other harvest method, providing excellent wildlife habitat for many species.

Logging removes some trees, which--as part of their functioning--exchange gases and remove some forms of impurities from the air. Tree roots also aid in filtering water. Management helps maintain the forest and its ecosystem functions. All of the activities proposed in the Forest Plan would not remove as much tree growth as would be added to the forest in that same year. This means that the Hoosier will remain heavily forested and increase the net amount of biomass available to perform filtering services.

Almost the entire Hoosier (or area that has become the Hoosier) was cut in the last century and has grown into a healthy forest. As discussed in Chapter 3 of the EIS, the effects of management are aimed at producing a well-balanced, healthy forest for present and future generations.

#103 B) The effects of harvesting are discussed in many places throughout the EIS. Management can ensure a rough balance of age classes, perpetuate a forest throughout time, and provide habitat for native species. For instance, instead of being "dead zones," clearcuts actually provide abundant habitat for many species (see Chapter 3). Fields are common in many parts of Indiana, but early successional forest habitat with young trees and shrub species have become rare in the State. Likewise the populations of many species dependent on such habitat have declined greatly in Indiana in the past two decades. Applying timber harvest across the Forest provides early successional habitat for many species while providing large areas for species that are largely dependent on interior forest (EIS, Chapter 3, **Maintain and Restore Sustainable Ecosystems).**

#103 C) The EIS, Chapter 3 lists decreased air quality as an adverse effect that cannot be avoided. A healthy tree typically uses nearly a pound and a half of carbon dioxide and gives off more than a pound of oxygen (Temperate Forest Foundation 2005). Air quality is improved by keeping a forest healthy. Machinery used during harvest can contribute to air pollution, as do automobiles, power plants, cattle operations, and industry such as those present within the planning area. There is no evidence that logging equipment is an appreciable source of air pollution.

#103 D) Scientific evidence does not support the notion that logging devastates herbaceous understories. Though Duffy (1992) found no evidence that species richness of herbaceous under stories increases after clearcutting, other researchers (including Johnson *et al.* 1993) pointed out that Duffy's study was seriously flawed. Elliott *et al.* (1997) found that the response to clearcutting varied by site, and woody species richness actually increased in cove-hardwoods and hardwood-pines immediately after harvest and through 17 years of succession.

#103 E) Under extreme treatments (such as clearcutting an entire watershed and burning the residual organic material), waterflow can be increased. The Forest Plan proposes no such drastic operations. Without adequate design and implementation of operations and adequate soil protection measures, logging can increase soil movement and sedimentation. The Hoosier takes pride in seeking and implementing measures that greatly limit any soil movement and sedimentation. The EIS, Chapter 3 discusses many of these measures, and the Forest Plan Chapter 3 incorporates their guidance.

#103 F and H) Natural disturbances were considered in the modeling of suitable habitat. The LANDIS model considered natural events such as fire and wind across the landscape using historical data. Even then, the models displayed a continuing reduction of suitable habitat for early-successional species over time. A description and analysis can be found in the EIS, Chapter 3, **Species Viability Evaluation and Regional Forester Sensitive Species**. More information on the LANDIS model can be found in Appendix H and the project record. Also refer to the response to PC #53.

#103 G) Visual changes resulting from clearcutting are temporary, as the area quickly revegetates. Clearcutting does not destroy healthy forest communities. On the contrary, some forest species rely on this type of disturbance for their survival. Clearcutting resets a stand and allows new trees to grow. It creates habitat for species that are presently dwindling in numbers because of a lack of habitat (see **Early Successional Habitats** under **Maintain and Restore Sustainable Ecosystems**, Chapter 3). It allows the opportunity to manage for mast-producing tree species such as oak and hickory that have been declining across the forest due to a lack of management. These are tree species that are often used by Indiana bats for roosting, and other species can consume the nuts and other mast (see **Importance of Oak-Hickory Forests to Animal Species** under **Maintain and Restore Sustainable Ecosystems,** Chapter 3). Logging without planning and serious consideration of wildlife habitat could disrupt species while nesting, but the nesting season is known for native species (see the extensive literature under Birds in References Cited), especially the rarer species, allowing us to avoid nesting areas at critical times. Young birds and other young wildlife of many species benefit from a combination of forest cover and open areas for foraging (see **Early Successional Habitats** in Chapter 3). Logging that follows proper safeguards can appreciably improve habitat for endangered species such as the Indiana bat. It is not cutting trees which sometimes threatens watershed health, but logging operations (skidding, road building, locating landings, etc.)--when not conducted properly—can lead to sedimentation of waterways. As it should, the Hoosier is incorporating a large number of measures to protect soil and water resources, and there have been years of experience with such measures across the country and research to support successful protection of soil and water (as referenced in Chapter 3, see Reinhart *et al*. 1963, Hornbeck and Federer 1975, Kochenderfer and Aubertin 1975, Patric 1996, Stone *et al*. 1978).

#103 H) Logging mimics, but cannot duplicate natural disturbances. The effects are similar and lead to similar regeneration of stands. Timber harvest is a tool that helps us manage forest resources.

#103 I) Congress established the K-V fund to “finance sale area improvement activities needed to protect and improve the future productivity of the renewable resources of forest lands on timber sale areas” (FSH 2409.19 – zero code). The motivation for planning and implementing timber sales on the Hoosier comes not from economic incentives but a desire to do the right thing for the land and the wildlife habitat. For example, shifting nonnative pine stands to native hardwood stands is relatively unprofitable, but such management is needed to improve the habitat for a number of species. On the Hoosier, K-V funds have been used for various activities, including creating wildlife snags, regenerating stands, reconstructing trails, closing roads, providing recreation signs, removing nonnative invasive species, and providing low-water crossings.

#103 J) We disagree with the statement that clearcutting is the most expensive management system: Clearcutting is actually the least expensive harvesting technique. Clearcutting focuses timber harvesting and allows more rapid removal of the designated timber. Economically, it is a relatively inexpensive and efficient management technique. We cannot determine what the

writer's concern is with Congress. Certainly Congress funds the Forest Service as it does other Federal agencies, but we have not identified any connection between clearcutting and the Forest Service budget.

#103 K) Like vehicle use, trail use, and many other activities, logging has the potential to help spread nonnative invasive species (NNIS). Guidance has been included in the Forest Plan to minimize the spread of NNIS as a result of timber harvest (Chapter 3 - Forest Plan). Site-specific mitigations can also be applied as necessary. Other actions the Hoosier takes to minimize or avoid spreading NNIS include: prescribed burning, seeding and mulching after timber sales, and designating skid trails, thus minimizing the area of soil disturbance.

NNIS plants invade undisturbed areas by natural dispersal processes. The likelihood of invasive plants colonizing a piece of NFS land is relative to their ability to inhabit certain habitats. Other factors influencing their potential spread is the number and size of existing infestations and their proximity to ground-disturbing activities. More discussion and analysis of effects can be found in Chapter 3, **Alternatives and their Effect of Management on Nonnative Invasive Plant Species.**

#103 L) Research strongly indicates that Indiana bats and gray bats fly under the canopy of trees (see Conservation of Endangered and Threatened Species Habitat in Chapter 3). Management activities that keep the understory from being too thick for such flight should aid these bats. Research also indicates that Indiana bats prefer maternity roost trees with, among other qualities, definite solar exposure (see Indiana bat under Conservation of Endangered and Threatened Species Habitat). Management activities that expose some of the trees to the sun and that provide the other desired qualities should aid the bats. Research indicates that the bats use certain trees species more. Actions that reduce undesirable species while providing increased opportunities for growth of desired species should aid these bats. The Hoosier is proposing treatments targeted at thinning the understory, increasing solar radiation to potential maternity trees, and targeting desired species such as oak and hickory as leave trees. The recovery of this Federally endangered species and the maintenance of biodiversity on the Forest is dependent upon the conservation of native habitats. Timber harvests will allow us to convert nonnative pine stands to hardwood stands and thus improve the habitat for this species. Standards and guidelines have been developed to ensure that structural features for the Indiana bat are maintained following a timber harvest.

Bats may be well dispersed across the landscape, but abundant research indicates that not all trees are equal as far as bat habitat, specifically maternity roost trees, which are of great importance to the viability and survival of the Indiana bat. Based on considerable research (Gardner et al. 1991a, Rommé et al. 1995, Clawson, 2000, Tibbels and Kurta 2003, Britzke et al. 2003, Carter 2003, Carter et al. 2002, Farmer et al. 2002, Callahan et al. 1997), we believe that helping nature create more of the conditions that bats favor will aid in the recovery of the species.

References:

Duffy, David Cameron; Meier, Albert J. 1992. Do Appalachian herbaceous understories ever recover from clearcutting? Conservation Biology. 6(2:196-200.

Elliott, Katherine, J.; Boring, Lindsay R.; Swank, Wayne T.; et al. 1997. Successional changes in plant species diversity and composition after clearcutting a Southern Appalachian watershed. Forest Ecology and Management. 92:67-85.

Johnson, A. Sydney; Ford, William M.; Hale, Philip E. 1993. The effects of clearcutting on herbaceous understories are still not fully known. Conservation Biology. 7(2):433-435.

(Other documents are listed in References Cited)

***PC #30**: The Hoosier National Forest should continue to use timber harvest in managing the forest.*

- *A) This creates small openings that will help wildlife populations.*
- *B) The lack of harvesting is promoting major successional changes on the landscape. This is fostering a conversion of the forest to beech-maple, which will lead to a loss of biodiversity across the landscape both in plants and animals.*
- *C) The plant growth that is encouraged by logging provides food and cover for small animals and deer.*
- *D) Logging provides edge habitat for animals as well as a variety of habitats suitable for a variety of wildlife.*
- *E) The future of forestry in Indiana depends on producing superior quality hardwood timber. The Hoosier can play a significant role in the long-term process of improving Indiana's timber resource.*
- *F) It provides habitat for viable populations of native species.*
- *G) It is a waste to let mature trees die, fall over, rot, and contribute to fuel loading, or to be lost in an uncontrolled wildfire or prescribed burn when instead it could produce revenue. The money should go back into the resource.*
- *H) The current aging of the forest needs to be reversed.*
- *I) Harvesting timber provides jobs and increased revenues.*
- *J) Incorporate more even-aged harvest and prescribed burning to support a diversity of life by providing a mosaic of different aged stands.*

Response to #30A), D), and F) The alternatives provide diverse desired conditions as well as public use and resource protection. As discussed in the EIS, timber harvest creates early successional and edge habitats that are important for many wildlife populations (**Animal Communities**). The results of our SVE Analysis revealed that without timber harvest, we would not be able to maintain suitable habitat for all species found on the Forest **(see EIS – Species Viability Evaluation and Regional Forester Sensitive Species, Species Viability Evaluation (SVE) Analysis – Animals, Species Viability Evaluation (SVE) Analysis – Plants, and Appendix H**). The use of timber harvest along with prescribed burning, control of exotic species, and other tools will allow us to maintain and restore suitable ecosystem and watershed health.

#30 B) We agree, and recent scientific publications support, that with the suppression of fire and only limited logging, the forest is moving toward late successional species. Please see Chapter 2, specifically **Figure 3.21b,** which shows the dramatic increase in the beech-maple component with little or no management. This change will impact biodiversity on the Forest and will likely impact many plant and animal species.

#30 C) Soft mast is an important food for wildlife. Reducing the amount of forest canopy through timber harvest can increase soft mast production substantially (see EIS, **Animal Communities, Alternatives 1, 3, 4, and 5, Even-aged Management Techniques**).

#30 E) Timber harvesting is used to accomplish multiple goals and objectives. The first priority is to manage for ecosystem health and sustainability. We agree with the commenter that the

Hoosier can improve Indiana's timber resource, and the selected alternative will ensure that the Forest takes an active part in the forest industry in the state.

#30 G) The natural process of nutrient cycling is important on the forest. While decomposing trees do not result in economic benefits, they do provide ecological ones. Snags and downed woody debris are important to many wildlife species that use the forest (EIS, Chapter 3, **Animal Communities**). Wildfire is a concern after events such as a wind or ice storm where the fuels are much higher than normal and are concentrated. Natural senescence of trees on an individual basis will not increase the fire danger on a landscape basis. National forest timber receipts are discussed in the answer to PC #138.

#30 H) A forest consisting of a mosaic of many ages is the goal of all alternatives with the exception of Alternative 2. The EIS described the alternatives and the resulting age classes.

#30 I) The economic benefits of forest management are described in the EIS.

#30 J) The alternatives analyzed in the EIS propose different levels and types of harvesting and would create an adequate range of ages in different stands.

***PC #134**: The Hoosier National Forest should incorporate timber harvest into MAs 6.2 and 6.4. This would help create more dense stands that provide escape cover for wildlife in these areas.*

Response to #134: Lands set aside as MA 6.2 or 6.4 provide for solitude and the continued development and enhancement of old growth characteristics and habitat conditions for old growth species such as some forest interior birds. These areas also provide non-wildlife values such as solitude and recreation values that do not coincide with active timber management. Through natural disturbance, some early age class will be created within these MAs. Prescribed burning could occur within these MAs. Prescribed fire would increase the availability of food and cover for wildlife species. However, dense stands that provide the greatest amount of escape cover for wildlife are more likely to be found in Management Areas 2.8 and 3.3.

***PC #135**: The Hoosier National Forest should consider horse logging to remove timber. It is much less destructive, requires less road construction, uses less gasoline, and lacks engine noise.*

Response to #135: There are no restrictions on horse logging on the Hoosier. Timber purchasers may use draft animals rather than mechanized equipment as long as all contract specifications are met. Horse logging may be a viable option on small parcels of land. For horse logging, skidding distances are generally kept under 500 feet for downhill operations and 300 feet for level operations. Horses can skid up adverse grades up to 6 percent for distances up to 150 feet. The short skid distances would necessitate having more access roads and more landings.

Tools and Techniques

***PC #69**: Prescribed fire, mechanical treatments, and chemical treatments are crucial strategies to restore the structure of barrens communities.*

Response to #69: The Forest will consider using all of these techniques in restoring the structure of barrens communities. Although using prescribed fire is often the primary tool for restoring barrens communities, the Forest will consider other treatments as well. Please refer to the EIS, Chapter 3, **Alternatives and the Effects of Management on Animal Communities; Alternative 1, 3, 4, and 5**; and **Barrens Communities**. Where NNIS plants have invaded barrens communities, the Forest may use chemical treatments along with prescribed burning or mechanical methods for invasive control. See EIS, Chapter 3, **Nonnative Invasive Plant Species**. The revised plan does not contain any site-specific proposal to manage barrens communities. The decision as to what treatments, if any, may be used is deferred to the project level of decision-making.

***PC #71**: Burning and mechanical maintenance such as timber harvest, herbicides, and mowing are viable options for treating barrens communities including those found in special areas.*

Response to #71: The Hoosier agrees with the suggested need to use these techniques in maintaining and restoring barrens communities. For barrens communities located within designated special areas, management will emphasize the protection, perpetuation, or restoration of their special features and values. Forest Plan guidance recommends a broad array of techniques to restore disturbed sites. See the Forest Plan, Chapter 3, Management Area 8.2. Refer to the Forest Plan, Appendix H, for a brief description of management needs for special areas containing barrens. The revised plan does not contain any site-specific proposal to manage barrens communities, including those found in special areas. The decision as to what treatments, if any, may be used is deferred to the project level of decision-making.

***PC #73**: The Hoosier National Forest DEIS must consider the following effects of fire -*

A) Loss of litter and duff and the resulting degradation of soil quality following burning;
B) Loss of nitrogen;
C) Increase in erosion and sedimentation;
D) Loss of other nutrients such as phosphorus, potassium, calcium, and magnesium; and
E) Use of acres burned as criteria for line officer evaluations, advancements, and salaries.

Response to #73A), B), C), and D) The EIS, Chapter 3, **Soil, Alternatives 1, 3, 4, and 5, Prescribed Fire** discusses the potential soil effects at the programmatic level that could result from prescribed fire. Findings indicate low potential for severe soil effects at the programmatic level from wildfire or prescribed fire. Forest Plan standards and guidelines, State BMPs, and project-level mitigation measures will be applied to further reduce the possibility of soil effects

#73 E) Allegations of acres burned being used for line officer evaluations is outside the scope of the analysis. Various indicators are used to measure line officer achievements and accountability. Targets vary across the various programs that are managed by line officers. Performance-based management is critical to achieving managerial accountability.

***PC #74**: The Hoosier National Forest should consider the following benefits of prescribed burning -*

A) Reduction of fuels created by blowdown;
B) Increased regeneration of oak-hickory;
C) An increase in structural diversity; and
D) Creation of early-successional habitat.

Response to #74: The EIS Chapter 3, **Fire and Fuels** contains a discussion of the possible circumstances under which prescribed burning might be used, after site-specific analysis to reduce fuels buildup, help with oak-hickory regeneration, and increase the diversity and health of fire-adapted ecosystems.

***PC #137**: The Hoosier National Forest should apply a variety of management techniques that will demonstrate their applications to the Forest as well as private land owners.*

Response to #137: Future project proposals will be developed that are consistent with the 2006 Forest Plan. These projects should accomplish the request made in the comment to apply a variety of management techniques.

***PC #156**: The Hoosier National Forest should be striving to reach a closed canopy forest condition with few openings as was present before European colonization.*

Response to #156: The commenter seems to be under the impression that southern Indiana was a closed canopy forest prior to European settlement. However, research and historical accounts do not support this notion. The landscape of southern Indiana was largely forested, yet very diverse with areas of prairie, wetland, and disturbed and open forest (**see FEIS Animal Communities – Historical Context and Hoosier-Shawnee Ecological Assessment**).

The area that is now the Hoosier has had a history of human use for the past 12,000 years, beginning with Native Americans. Native Americans used fire frequently and pervasively to create the open habitats that were found by early European settlers. The historical influences of Native Americans and natural influences are well documented throughout chapter 3 in the FEIS.

Historical accounts of the condition of Indiana before European settlement include the following observations. George Croghan traveled through Indiana in 1765, and he noted that his group "traveled thro a prodigious large Meadow…here is no wood to be seen and the Country appears like an Ocean [June 18 & 19]…passed thro some very large Meadows [June 20 & 21]… passed thro a part of the Meadows as mentioned yesterday…We traveled about three Hours….then came to a large Meadow where we encamped. [June 22]…The Country hereabouts is…clear for many Miles….[June 23]" (quoted in McCord 1970).

Caleb Lownes described an area effected by the passenger pigeon in 1815 while traveling through Indiana, writing "the number of or rather the quantity of Pigeons were beyond all credibility–a place, called emphatically, the Pigeon Roost, where these birds retire from the severity of the Northern Winters, cannot be described –nor obtain belief, were it described—at least fifty acres of woods in one area totally stripped of their limbs—many of the trees of a foot diameter actually broken down to the ground by the number and weight of the Pigeons—the destruction of timber is inconceivable" (quoted in McCord 1970).

All proposed alternatives will result in large areas on the Hoosier that will provide closed canopy forests (MAs 5.1, 6.2, and 6.4, for example), barring natural disturbance or infestation by a foreign pathogen. However, the Forest also recognizes the important contributions that early successional species and communities make to biodiversity and species viability. Several wildlife species are dependent on early successional habitats, and scientists are discovering that many species typically associated with mature forests such as worm-eating warbler, red-eyed vireo, black-and-white warbler, wood thrush, and ovenbird, are also depend on early successional habitats.

The current distribution of young forest and other open habitats may be at the low range of historic conditions, including those found prior to European settlement. To meet our legal mandate to "*maintain viable populations of existing native and desired non-native vertebrate species in the planning area*" (36 CFR 219.14) and to restore ecological processes, the Hoosier will continue to manage for a variety of forested conditions.

Trails

***PC #112**: The Hoosier National Forest should not collect fees from trails users. Congress banned fees for mountain bikes in the 2004 Federal lands Recreation Enhancement Act.*

Response to #112: The Federal Lands Recreation Enhancement Act (2004) does not prohibit the collection of fees from mountain bikers or other trail users. A review of the Act in Section 3(d)(1), Prohibition on Fees for Certain Activities or Services, did not reveal any such prohibition. The Forest's fee policy follows Forest Service national guidance found in *Federal Lands Recreation Enhancement Act Forest Service Interim Guidelines*. That document specifically states (page 12) that fees may be collected from users of …. "Specialized trail systems including OHV, snowmobile, equestrian, and mountain bike." (USDA Forest Service 2005a)

Federal Lands Recreation Enhancement Act. 2004. (Public Law 108-447).

U.S. Department of Agriculture, Forest Service. 2005a. Federal Lands Recreation Enhancement Act Forest Service interim implementation guidelines. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421]. 33p.

***PC #113**: The Hoosier National Forest should not implement a "closed unless open" policy for mountain bike trails. This creates confusion, user conflict, and backlash from the public. This often results in unauthorized trail construction, environmental impacts, and erosion of the partnership between private groups and citizens and the agency.*

***PC #178:** The Hoosier should not restrict mountain bikes to designated trail systems as they are not damaging to natural resources.*

Response to #113 and #178: Prior to 1994, the Forest had an "open unless closed" policy whereby horses and mountain bikers could ride anywhere they wanted. Even though there is no data to classify the users (bikers, horse back riders, hikers, or others), approximately 500 miles of user-made trails were formed in addition to the 100 miles of Forest Service designated trail. These user-made trails were often developed in poor locations with no formal design, construction, or maintenance. With the fragile soil types on the Forest, several users in single file making a cross country journey on a wet day easily create a new trail. This situation was unacceptable as significant environmental damage was occurring. In response, the Forest undertook an extensive public involvement process that resulted in a revised trail policy, reflected in the previous Forest Plan. Based on that public input, trail locations were specifically designated, and horse and bike riders were required to ride only on trails designated for that purpose (a closed unless open policy). The selected alternative retains the previous policy. Approximately 184 miles, or 79 percent of the total trail system, are available for mountain biking.

Regarding hikers being allowed off trail, the Forest reviewed the article *Natural Resource Impacts of Mountain Biking* as suggested by the commenter (Sprung 2004). The article provided a summary of studies comparing mountain biking with other forms of travel. Six of these studies were related to trail wear, and therefore were not applicable to off-trail concerns. Other studies addressed in the article were related to wildlife concerns that are not disputed by the Forest and are not germane to the reason for this policy. One study, *Impacts of Experimentally Applied Mountain Biking and Hiking on Vegetation and Soil of a Deciduous Forest*, analyzed impacts on the forest floor by up to 500 passes by hikers and mountain bikers 2 weeks after treatment, and again 1 year after treatment. The study found that "at a similar intensity of activity, the short-term impacts of mountain biking and hiking may not differ greatly in the undisturbed area of a deciduous forest habitat" (Thurston and Reader 2001).

The key points are "short term" and "similar intensity." Experience has shown that once a user-made trail is formed, use generally continues well beyond the 2 weeks studied in the research, and the impact then becomes long term. This is less of an issue for hikers because off-trail foot travel is uncommon in this Forest. This is most likely due to the steep terrain, thick vegetation, biting insects, and visitors who are not skilled in orienteering. Off-trail foot travel in the Hoosier is more prevalent among hunters who may cover the same route, but do so infrequently and not in a group. It would be unrealistic to expect the intensity of off-trail hiking use on the Hoosier to duplicate the many repeated passes in the study cited.

However, given the interest expressed and past experience prior to the 1994 policy change, it seems likely that mountain bikers would go off-trail on a regular basis. It is also likely this use would not be a short-term off-trail experience as analyzed by Thurston and Reader, but would continue on the same routes once the routes became established. Thurston and Reader show that impacts occur quickly and heal only after use stops. The Forest is concerned that off-trail use by numerous mountain bikers would result in a proliferation of user-made trails in inappropriate locations. The policy change in 1994 has been successful. A review of the Forest's monitoring and evaluation reports over the past few years indicates that trails can be successfully closed, and Forest resource specialists have indicated no concern regarding these closed user-made trails (USDA Forest Service 2004).

We respectfully disagree that the "closed unless open" policy has negative effects. This has been in effect since 1994 with no identified ill effects. All trails are clearly marked as to the uses allowed to reduce any confusion that might occur. Trail use information is also clearly stated in other materials and on the Forest website. Patrol records indicate no instances of riders being off trail due to confusion about what is legal and what is not, although one bike rider was cited for riding in the Deam Wilderness (USDA Forest Service 2005b). In response to the statement that this policy causes unauthorized trail construction and environmental impacts, we found quite the opposite to be true. Prior to this policy, unauthorized trail construction was occurring frequently, perhaps not by actual building attempts but simply by riding on wet soil. Again, it is unknown which user group caused these impacts, but this practice has decreased dramatically since the policy was instituted. Also, environmental impacts are minimized by using designated trails that are built to standard, rather than by allowing user-made trails to form on fragile soils and steep slopes--which was previously the case. Annual monitoring and evaluation reports show no evidence of complaints of user conflicts or negative backlash from the public (USDA Forest Service 2004). In the past the Forest has participated and hosted the IMBA trail building training, kept local mountain bikes groups and individuals informed of pending actions, and participated in conferences sponsored by the Indiana Bicycle Coalition. We will continue to foster these partnerships.

Thurston, Eden; Reader, Richard J. 2001 "Impacts of experimentally applied mountain biking and hiking on vegetation and soil of a deciduous forest," *Environmental Management*, 27(3):397-409.

U.S. Department of Agriculture, Forest Service. 2004. Unpublished compilation of annual monitoring reports 1987-2003. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].
U.S. Department of Agriculture, Forest Service. 2005b. Unpublished compilation of trail patrol logs 2001-2005. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421].

***PC #114**: The Hoosier National Forest should create more equestrian trails and open more non-designated areas to horse use.*

Response to #114: The Hoosier is not likely to create a significant number of miles of new equestrian trails in the near future. The Forest maintains a trail plan that identifies future projects that are based on public input (USDA Forest Service 2002). The most recent public input occurred in 2000-2001 when the Forest hosted a series of public workshops, field trips, and requested public comment on proposed updates to the Forest trail program. Most of those projects have been completed; however, the Forest has reached a point where our resources are barely adequate to maintain the number of miles available. A recent study by Virginia Tech confirmed this when it found that the trail system was sustainable under current conditions, but only with intensive management such as trail hardening (Aust 2005). Another limiting factor is the small landbase of the Forest: almost all areas large enough to support a trail system already have one.

The revised plan does not contain any site specific proposals for trail construction or closure. Analysis of such proposals are deferred to the project level of decision making.

***PC #115**: The Hoosier National Forest not should include trail closures in the Forest Plan. If trails are properly designated and adequately maintained, closures are not needed.*

***PC #162** The Hoosier National Forest should implement trail closures to equestrian use in the Wilderness during inclement weather.*

Response to PC #115 and #162: Seasonal trail closures were analyzed in Alternatives 2 and 3. However, this feature was not included in the selected alternative. The Forest strives to provide properly designed all-weather trails so year-round use can occur with minimal impact.

Extensive monitoring in the CCDW in 2002, which was a record wet year, indicated that tread damage and muddy tread segments were minimal (USDA Forest Service 2004). However, should a need arise; a Forest Order can be used to close trails as needed.

***PC #116**: The Hoosier National Forest has added gated areas and other regulations that limit access to certain parts of the Forest. Where these closures are located, the Forest should allow sufficient space for users to park in a safe manner.*

Response to #116: Some of these areas may be good locations for a parking pull off while others may not. We will look for opportunities to provide such parking when feasible, safe, and environmentally sound.

PC #143: *The Hoosier National Forest should include additional guidance regarding trails.*

A) Horse trails should not be used as haul roads.

B) The trail systems should be removed from the current management areas and placed into MA 7.1.

Response to #143 A) Using a trail as a haul road is often the best alternative when conducting a timber sale. Though the trail will likely sustain some impact, it is often preferable to building another route through the forest. When trails are used for haul roads, project-specific mitigations require that the trail be repaired when the project is completed. The Forest intends to continue to require such mitigation action.

#143 B) Management Area 7.1 is designed to provide recreational facilities and developed sites. As stated in the selected alternative, this applies to facilities with a high level of development, such as a campground that offers water, showers, electrical hookups, paved roads, and other modern amenities. It also refers to high level developments such as swimming beaches, boat ramps, picnic areas, and other areas designed to serve large numbers of people. Though trails can be considered a facility of sorts and on occasion serve large numbers of people, they do not meet the intent or character of a MA 7.1 designation. Designating trails as MA 7.1 would result in numerous corridors with different management guidelines that would bisect the other management areas. This could be detrimental, as it could break up an area that could benefit from using the same guidelines over a large contiguous area.

PC #148*: The following guideline should be added to MA 8.1: Trails will emphasize nature study and slower travel. Consideration will be given to reduce user conflicts on shared use interpretive trails.*

Response to #148: MA 8.1 allows unique ecosystems to follow natural processes for scientific purposes. As a result, recreation use is very limited. Activities normally allowed elsewhere on the Forest are prohibited in the interest of emphasizing natural processes. Prohibited uses include camping, horseback riding, hunting, mountain biking, and trapping. Mountain biking, with the need for additional modern equipment, is not considered compatible with the concept of following natural processes. Foot travel, on the other hand, has been part of the natural process in this forest environment by previous cultures for centuries. For example, an Oliver Phase village located on the eastern edge of this area was occupied approximately 500 to 1,000 years ago. In addition, the selected alternative calls for the recreation program to offer a range of opportunities. A trail limited to foot travel only is one component of that range.

In regard to the suggestion that trails emphasize nature study and slow travel, it is noted that is already the case for the existing trail in MA 8.1. Due to the design and because it is a hiking-only trail, those attributes are inherent. Regarding a shared-use interpretive trail, this use would not be appropriate in MA 8.1 for reasons stated above.

PC #99*: The Hoosier National Forest should create only single use trails.*

Response to #99: All alternatives analyzed both single and multiple use trails. The majority of trails are multiple use to serve a variety of users. In 1994 the Hoosier concluded an extensive public involvement process that involved a citizen's task force, public meetings, mailings, and an analysis of the management situation of the Forest trail program. One conclusion was that there were an excessive amount of user-made trails, many of which were in poor locations and causing environmental damage. The solution was to change the policy to a designated trail

system and to require horses and bikes to stay on those trails. The Forest had approximately 100 miles of designated trail at that time, and after public input designated approximately 77 more miles of trail that were found to be environmentally acceptable. Other trails were brought on line at later dates. User-made trails in poor locations were not designated. During this process, it became clear that there would be limited opportunity for additional trails because the Forest simply does not have a large land base. Two options were possible: users could have single use trails but with fewer trails and trail miles, or they could have more trails and trail miles with shared use. During the public involvement process in 1992-1994, most trail users stated they preferred to share the trails in the interest of having more trail miles available. Monitoring indicates all three user groups continue to use the multiple use trails. For example, 2004 data indicates the following breakout of users on multiple use trails: 22 percent hikers, 72 percent horse riders, and 6 percent mountain bikers (Strout 2005).

Strout, Danna. 2005. Memo dated January 11, 2005 to Forest Supervisor, estimation of horse and bike trail use for CY 2004. [On file with: Forest Supervisor's Office, Hoosier National Forest, 811 Constitution Ave., Bedford, IN 47421]. 4p.

Transportation

***PC#37**: The Hoosier National Forest should not construct any more roads.*

- *A) Road construction results in a loss of trees and cover.*
- *B) It can lead to pollution and sedimentation in waterways.*
- *C) It causes fragmentation of large habitat areas.*
- *D) It increases access and therefore increases hunting and fishing pressure.*
- *E) It requires sand and gravel that comes from gravel pits which affect habitat.*
- *F) It increases soil erosion.*
- *G) It increases potential spread of NNIS along roads.*
- *H) Road construction creates openings that permit entrance of threats to nesting success of many Neotropical migrant bird species.*

Response to #37: The revised plan does not contain any site-specific proposals for road construction. Such proposals are analyzed at the project level of decision-making. The backbone of the Forest road system is in place. New construction may be needed to address safety issues such as access to high hazard dams, for recreation development, or timber harvest. These transportation issues are addressed in more detail in the EIS Chapter 3, **Transportation Network**.

#37A) Road construction generally results in a loss of trees and cover. These issues are addressed in the EIS, Chapter 3, **Alternatives and the Effects of Management on Animal Communities; Alternatives 1, 3, 4, and 5; Road Construction and Reconstruction**.

#37B) and F) Most of the pollution and sedimentation of waterways due to road construction occurs between the earth-disturbing activities and the reestablishment of stabilizing vegetation. Some erosion will occur as a result of road construction. These impacts are described in the EIS, Chapter 3, **Alternatives and the Effects of Management on Soils, All Alternatives, Road Management Activities**. Erosion control standards, guidelines, best management practices, and site specific mitigation measures, when needed, are used to mitigate sedimentation contribution to waterways.

#37 C) Please refer to the EIS, Chapter 3, **Alternatives and the Effects of Management on Animal Communities, Alternatives 1, 3, 4, and 5, Road Construction and Reconstruction**

#37 D) The Hoosier currently has several roads. Any new roads would have some impacts, both positive and negative, on hunting and fishing pressures. See the EIS Chapter 3, **Alternatives and the Effects of Management on Animal Communities, Alternatives 1, 3, 4, and 5, Road Construction and Reconstruction ,Off-highway Vehicles (OHV) Use**, and **Alternatives and the Effects of Management on Aquatic Habitat, All Alternatives, Roads and Transportation System & Crossings.**

#37 E) Sand and gravel used in construction of all-weather roads comes from private pits off the Forest. If the materials come from the Forest, the effects of that are analyzed in subsequent analysis. Dry-weather roads generally use native material on site.

#37 G) Disturbed areas are generally more prone to development and spread of NNIS. Roads and trails provide avenues for NNIS to spread and become established. Standards, guidelines, site-specific mitigation, and priorities for treatment of NNIS are provided to reduce and eliminate these threats.

#37 H) Openings resulting from road construction, reconstruction, and other activities and their effects on Neotropical migrant bird species are addressed in the EIS Chapter 3, **Habitat Fragmentation**.

***PC #38**: The Hoosier National Forest needs to disclose what road construction is proposed, where the roads will be built, the cost of the road construction, and the impacts.*

A) The impacts of roads on wildlife mortality were not considered.

B) The impacts of fragmentation and isolation of species with an aversion to roads should be addressed.

Response to #38: An estimate of the amount of road construction and reconstruction is provided in the EIS Chapter 3, **Alternatives and the Effects of Management on Water Quality, Alternatives 1, 3, 4,** and **5, Table 3.42 - Miles of Road by Type**. Only Alternative 4 projects an increase in the amount of roads that would be constructed. The location of new road construction would be a site-specific decision and would vary by alternative. This document provides analysis of implementation at a landscape scale. Any construction would be addressed in project-level analysis that would tier to this EIS and Forest Plan. Costs of road construction were included in the Spectrum model and can be found in the Plan record. Detailed cost estimates will be developed for each site-specific project. The programmatic impacts of roads are described in detail in many sections of Chapter 3.

#38 A) Impacts of roads on wildlife mortality is addressed in Chapter 3, **Alternatives and the Effects of Management on Animal Communities, Alternatives 1, 3, 4, and 5; Road Construction and Reconstruction.** As access and use increase, mortality would increase. However, it is not expected to increase appreciably.

#38 B) Impacts of fragmentation by road construction and OHV routes are addressed in the EIS Chapter **3 Alternatives and the Effects of Management on Animal Communities, Alternatives 1, 3, 4, and 5.**

***PC #39**: The Hoosier should consider decommissioning roads that are no longer in use. This removal would discourage illegal ATV use.*

Response to #39: During the past 5 years, the Hoosier has reviewed the entire road system and determined which roads should be kept on the system. The Hoosier analyzed the roads and their uses to determine future needs. Some roads were determined not to be needed. Many of these were closed to public access using various methods, such as large rocks, dirt mounds, and barrier posts. Generally, the roads were old "two tracks" in the woods that were well on their way to naturally reverting back to the surrounding vegetation. Sometimes culverts or other structures are removed to allow free passage of intermittent or ephemeral streams and known erosion problems are corrected. As the trees and shrubs grow up in the old road beds, ATV use decreases. Decommissioning by allowing natural vegetation to grow is usually the preferred method for older, lightly constructed roads. This practice will continue under the revised Forest Plan.

***PC #40**: The Hoosier needs to analyze the value of gated, dry-weather use roads in enhancing the recreational experience of all visitors. This disperses the recreation rather than concentrating use in areas of limited access. Hardened pull-offs also enhance this opportunity.*

Response to #40: the EIS **Chapter 3, Transportation Network**, states that the Hoosier has 436 miles of seasonal, high clearance vehicle roads under Forest Service jurisdiction that are generally gated. Most of these gated roads are signed to welcome foot travel. Many of these roads currently have pull-offs for visitor parking. In addition to these closed roads, there are 266 miles of trails throughout the forest with numerous trailheads for visitor parking.

Visuals

***PC #28**: The Hoosier National Forest should strive to maintain the aesthetic quality of mature forest over much of the land area by maximizing the amount of land available and managing it using even-aged timber harvest and prescribed burns over a very long rotation (150 years).*

Response to #28: The commenter is concerned about the aesthetics of forest management. Visual quality is considered on a site-specific basis in any project that the Forest undertakes. The visual quality objectives and the effects of all management activities are discussed in Chapter 3 of the EIS.

A rotation age of 150 years would work when considering only visuals, but as the stand ages, species diversity would decrease and the shorter-lived intolerant species would tend to drop out of the stand.

Many of the current hardwood stands are already over 100 years old, and at the current harvest rate for even-aged management, as proposed for Alternative 5, many of the stands would be over 150 years old before they received any regeneration treatment. The majority of harvesting under Alternative 5 would be uneven-aged, which manages trees with a variety of age and size classes, and many users find this a more visually appealing type of cutting. One of the reasons why uneven aged management is so strongly preferred in Alternative 5 is concern for visuals and aesthetic quality.

***PC #34**: The Hoosier National Forest needs to reconsider the Visual Quality Objectives associated with retention. It is not consistent and under strict interpretation could unnecessarily constrain vegetation management activities.*

Response to #34: The visual quality objectives (VQOs) are Forest Service manual guidance (National Forest Landscape Management, Vol. 2, Chapter 1) that we follow. The VQO of retention does not preclude vegetation management; rather it gives guidance to resource managers designing vegetation management activities to repeat the form, line, color, and texture found in the characteristic landscape of the area. Any changes in the quality, size, amount, intensity, direction, or pattern of the characteristic landscape should not be evident. Vegetation management activities which cause a contrast to the form, line, color, and texture of the surrounding area should be mitigated to meet the VQO of retention either during operation or immediately after. Seeding vegetative clearings or hand planting large stock can accomplish this.

***PC #35:** The Hoosier National Forests claims that the visual effects of harvesting timber are temporary. This is false.*

Response to #35: As stated in the EIS **Chapter 3, Provide for a Visually Pleasing Landscape**, the visual effects of timber harvesting are temporary, as the area harvested is generally reforested within a few years. The effects of timber harvest on visual resources would depend on the amount of slash left (slash would take several years to break down), the design and layout of treatment units, the location of treatment units related to viewing areas, the logging systems used, the total amount of treatment, and roads constructed. Roads can be obliterated, yet they would still remain visually evident for several years. Natural stand shapes, limiting the size of the treatment area, spatial arrangements, and leaving standing trees can mitigate visual impacts from timber harvesting. Unit layout can also use screens of vegetation and topography to mitigate visual impacts and improve the visual character of the area.

The programmatic EIS documents the hard look at visual effects and public involvement undertaken by the agency in the development of the revised forest plan. There is no scientific information available to the agency that finds that the visual effects of timber harvest are anything other than temporary. The revised plan is guided by sustainable management of multiple use resources; the protection of the visual resource of the Forest was a key concern in the development of the revised plan.

***PC #36**: The creation of graveled ATV trails would decrease the natural appearance and lessen the aesthetic quality of the forest. Graveled trails appear similar to graveled roads.*

Response to #36: The Hoosier considered allowing ATV use on a designated trail system in Alternative 3. Alternative 3 was analyzed, but not selected. The selected alternative proposes no changes at the programmatic level concerning the use of off-road vehicles within the lands managed by the Hoosier. Both the 1991 and revised Forest Plans prohibit the use of motorized vehicles off roads and off designated trails.

Watershed and Aquatic Resources

***PC #32**: The Hoosier National Forest has violated the 1911 Week's Act by proposing to log, which will have significant effects on watersheds.*

Response to #32: The Weeks Law of 1911 in Sec. 6 directs that the "Secretary of Agriculture is hereby authorized to… purchase such …lands….[as] may be necessary … for the production of timber." The Act addresses providing payment in land exchanges by authorizing "the grantor to cut and remove an equal value of timber in the same State…" The Weeks Law basically addresses acquisition of land, but it also says: "lands acquired under this Act shall be permanently reserved, held, and administered as national forest lands…." Thus acts and Congressional direction for NFS lands apply also to lands acquired under the Weeks Law of 1911.

Not only is logging legal under the Weeks Act, but the anticipated logging would also incorporate numerous measures to ensure that deleterious effects on watersheds are avoided. Besides the guidance in Chapter 3 of the new Forest Plan, projects would continue to include BMPS and other mitigation measures, as needed, based on site-specific analysis.

In addition, contemporary Federal laws such as NFMA, MUSYA, and the Healthy Forest Restoration Act undoubtedly allow for timber harvesting on national forests. Federal courts have noted that "timber harvesting is clearly a major goal of the forest management statutes" (Mountain States Legal Foundation v. Glickman). In accordance with NFMA, the 2006 Forest Plan contains a proposed timber harvest schedule and lists the probable methods of harvest. The programmatic EIS documents the hard look the Forest took in analyzing the potential impacts of these methods on watersheds. There is no information provided in this comment, or otherwise made available to the Forest by the commenter, regarding watershed effects or literature that should have been considered in our analysis. The Forest has used the best available scientific information to consider the programmatic effects, including vegetation and soil effects, of the management direction set forth in the 2006 Forest Plan.

PC #33: *The Hoosier National Forest must protect watershed resources, including floodplains, riparian areas, and wetlands.*

- *A) Logging increases sedimentation, erosion, and nutrient loss.*
- *B) Increased sedimentation from clearcutting causes landslides, flooding, and water pollution.*
- *C) Pesticide use causes water pollution through runoff.*
- *D) Cumulative effects to water quality from logging, illegal dumping, oil and gas leasing, and wildlife opening creation and maintenance must be addressed.*
- *E) Site-specific Best Management Practices (BMPs) for controlling non-point pollution must be identified.*
- *F) The analysis needs to identify and consider any monitoring done to demonstrate the adequacy of BMPs.*
- *G) Disturbing water flows in the form of roads prevents proper growth of the forest.*
- *H) Logging will negatively impact the water quality of Lake Monroe which is an important source of drinking water.*

Response to #33: Forest guidance relating to watershed resources can be found in the Forest Plan Chapter 3, **Forest-wide Guidance and Management Area Guidance, Maintain and Restore Sustainable Ecosystems, Aquatic Habitat and Species Management and Maintain and Restore Watershed Health, Soil and Water Conservation and Riparian Corridors**. This includes guidance and direction for protecting watershed resources, including floodplains, riparian areas, and wetlands.

#33 A) and B) The effects of logging, including clearcutting, as they are related to sedimentation, erosion, nutrient loss, flooding and water pollution are addressed in the EIS

Chapter 3, **Alternatives and the Effects of Management on Soils, Alternatives 1, 3, 4, and 5**, and **Alternatives and the Effects of Management on Water Quality**.

#33 C) The effects of pesticide use on water pollution are addressed in the EIS Chapter 3, **Alternatives and the Effects of Management on Aquatic Habitat, All Alternatives**. Analysis of the effects of using a specific pesticide is more appropriate at the site-specific level. Please refer to PC #163 regarding pesticide use on soils.

#33 D) The Forest Plan is a programmatic document that sets forth a management framework that allows for the protection and restoration of watershed resources. The supporting narrative in the FEIS addresses potential effects (including cumulative effects) at a programmatic level and includes enough detail for the deciding officer to make a rational choice between alternatives. Cumulative effects to water quality of silvicultural practices and opening maintenance are described in the EIS Chapter 3, **Alternatives and the Effects of Management on Water Quality, Alternatives 1, 3, 4, and 5**. The programmatic cumulative effects section for watershed health, including effects to water quality, includes an analysis of the proposed alternatives in context with other relevant past, present, and foreseeable future actions in the planning area.

Site specific proposals for logging, oil and gas leasing, wildlife opening creation or wildlife opening maintenance at particular locations, are made and analyzed at the project level of decision making. These decisions are made using site specific information and must be preceded by the appropriate level of NEPA analysis and public involvement. In Mahler v. Forest Service, the District Court for the Southern District of Indiana commented favorably on the Forest Service's staged decision making model in the context of a challenge to timber harvest methods and analysis in a programmatic forest plan amendment. We are guided in the revision of the Forest Plan by this court opinion.

#33 E) Site-specific Best Management Practices (BMPs) for controlling non-point pollution will be addressed at the site-specific project level. Guidance for incorporating BMPs is found in the Forest Plan, Chapter 3, **Maintain and Restore Watershed Health, Soil and Water Conservation**. Scientific research supporting the effectiveness of BMPs is described in the EIS Chapter 3, **Alternatives and the Effects of Management on Animal Communities and Alternatives and the Effects of Management on Water Quality, and Alternatives.**

#33 F) The adequacy of BMPs and mitigation measures will be addressed at the site-specific, project level.

#33 G) By following the guidance in the Forest Plan, **Appendix G,** water flows disturbed by roads should not prevent the proper growth of forests.

#33 H) The effects of logging as they relate to water quality of Lake Monroe are addressed in the EIS Chapter 3, **Alternatives and the Effects of Management on Soils, Alternatives 1, 3, 4, and 5, Alternatives and the Effects of Management on Water Quality, and Alternatives** and the **Effects of Management on Municipal Watersheds**.

PC #41*: The Hoosier National Forest should better describe the protective streamside zones. The horizontal offsets do not take into account slope. A minimum 50 foot protective buffer should be placed along each side of intermittent and perennial streams with a larger zone when steeper slopes are present.*

***PC #49**: The Hoosier National Forest should increase the width of the protected riparian areas because they provide watershed protection and wildlife corridors.*

Response to #41 and #49: Delineating specific riparian areas and applying protection specific to these delineations will protect these resource areas. Adequate protection is provided to the watershed and wildlife corridors by the **Delineation of Riparian Areas, Riparian Filter Strips, and Stream Types** found in the Forest Plan, **Appendix I**. As stated in Appendix I, additional protection can be added during analysis at the site-specific, project level.

***PC #105**: The Hoosier National Forest direction that all management activities associated with lakes should improve and enhance aquatic habitat is in direct contradiction with allowing clearcuts within the watersheds of Celina and Indian lakes.*

Response to #105: The Forest Plan is designed to avoid and minimize undesirable effects on aquatic resources through Forest-wide guidance and Appendix I.

The effects of logging, including clearcutting, as they are related to sedimentation, erosion, nutrient loss, flooding, and water pollution are addressed in the EIS Chapter 3, **Aquatic Habitat, Alternatives and the Effects of Management on Aquatic Habitat, All Alternatives** and **Alternatives 1, 3, 4, and 5**, and **Alternatives and the Effects of Management on Water Quality**.

The revised plan does not contain any site-specific proposal to use clearcutting at any particular location in the Celina and Indian Lakes watersheds. The choice of when, where, and how to harvest timber on a particular site is deferred until the project level of decision-making. This flexibility allows us to make local decisions based on site-specific conditions and concerns, while still providing overall guidance to manage and protect the natural resources for which we are responsible. Such site-specific determinations are made during project-level decision-making, with appropriate NEPA compliance and public involvement, and are based on site-specific resource information. Sustainable management is the key to the 2006 Forest Plan; protection of water quality in these watersheds is important to the Forest.

Wetlands

***PC #31:** Restoration of historic wetlands is very expensive and will mess up the land all around it.*

Our project records and monitoring data show that this is not the case. Restoration of wetlands is quite cost-effective when accomplished with partners such as the IDNR. Restoring the hydrologic function of the areas where wetlands occur has not “messed up” the land all around it. If there is a chance that restoration of a wetland would adversely impact adjacent private land, the restoration would not take place. The environmental impacts and effects, positive and negative, are analyzed and publicly reviewed prior to the project decision.

Wildlife

***PC #57**: The Hoosier did not adequately address the concerns of wildlife species.*
A) The impacts of increased deer, which can over browse an area, should be considered.

B) The indirect effects of an increase in the white-tailed deer population have not been addressed. The costs of human life and property damage from increased crashes and crop damage needs to be addressed. Deer also eat oak seedlings.

Response to #57: Although the white-tailed deer population in Indiana was nearly pushed to extinction in the 1930's, the population has increased dramatically during the last several decades. Extensive clearing of forests for agriculture, extirpation of natural predators, and laws enacted to protect Indiana's recovering deer herds resulted in burgeoning numbers of deer throughout the state.

White-tailed deer, as an edge/early successional species, browse extensively in young forests and feed heavily on herbaceous growth. Their numbers are influenced by the availability of forage, hunter success, and winter severity. Considerable controversy has arisen over the management of deer in Indiana. Deer have been termed a keystone species because they greatly influence the abundance and distribution of other plant and animal species by directly competing for limited resources and by altering habitat features that determine the distributions of other species (Rooney and Waller 2003). Deer browsing can reduce biodiversity by limiting the regeneration of tree species and by eliminating populations of herbaceous plants. Deer can cause the loss of human life and property damage due to collisions and crop damage. Though the Forest can manage habitats such as openings, it cannot manage the white-tailed deer. The State of Indiana has the authority to manage the herd and does so by setting goals, seasons, and other factors related to harvest.

***PC #85**: The Hoosier has a scarcity of early-successional habitat that provides for many species.*

A) A scarcity of early-successional habitat will cause wild turkey populations to suffer.
B) Woodcock and ruffed grouse populations, which were very abundant in the Pleasant Run Unit, have begun to decline.
C) Implementation of Management Area 3.3 is prudent due to the continued decrease in population levels of early-seral dependent wildlife.
D) Even late-successional species often depend on this type of habitat for some part of their life cycle.

Response to #85: The analysis conducted by the Hoosier revealed that early successional habitats were not well represented on the Forest and that the viability of species that use these habitats may be at risk (**see EIS – Species Viability Evaluation and Regional Forester Sensitive Species, Species Viability Evaluation (SVE) Analysis – Animals, Species Viability Evaluation (SVE) Analysis – Plants, and Appendix H**). Current habitat conditions on the Hoosier are a direct result of past management practices, and early successional forest habitats, as well as populations of species associated with these habitats, have declined on the Hoosier as a direct result of the 1985 Forest Plan not being fully implemented. The revised Forest Plan includes the establishment of MA 3.3 to provide habitat for species associated with early successional forest habitats, allowing us to meet our obligation to ensure species viability.

As discussed in the EIS, **Chapter 3, Animal Communities**, many wildlife species including, wild turkey, woodcock, and ruffed grouse are dependent on early successional habitats. A discussion is also included that stresses the importance of early successional habitat for species normally associated with late successional habitat.

The Forest recognizes that early successional habitat is essential for the viability of native species and biodiversity. All of these important reasons for providing early successional habitat

listed by the commenter are discussed in the **Animal Communities** section in Chapter 3 of the EIS and under additional PC statements (# 4, 8, 9, 13, 14, 27, 30, 46, 58, 61, 62, 64, 65, 75, 85, and 140). Additionally, the planning record includes white papers containing more detailed discussions about the importance of early successional forest types to wildlife species.

***PC #97**: The Hoosier National Forest should discontinue the wildlife openings program.*

- *A) Openings adversely affect many species, particularly forest interior birds.*
- *B) Openings increase fragmentation.*
- *C) Openings create increased edge.*
- *D) Openings increase predation by brown-headed cowbirds.*

Response to #97: This Public Concern statement has been addressed under PC #61.

***PC #27**: The Hoosier National Forest should provide early-successional habitat.*

- *A) The need for active management to provide a diversity of habitats for a variety of animals is well substantiated.*
- *B) Management of forest openings alone is not a viable way to manage for this habitat type.*
- *C) Without implementation of Management Area 3.3, populations of species dependent on this type of habitat would continue to decline.*
- *D) Forest inventory data shows that less than four percent of Indiana's forests are under 20-years old.*
- *E) Yellow-breasted chats, blue-winged warblers, golden-winged warblers, and many other species that need young forest habitats are also declining due to a lack of proper forest management.*
- *F) Ruffed grouse are at their lowest drumming point in 27 years. The 2005 drumming index was less than four percent of levels during the peak years of 1979 to 1981. Proper management of the Hoosier is critical to the survival of ruffed grouse in Indiana.*

Response to #27: The Forest recognizes that early successional habitat is essential for the viability of native species and biodiversity. All of these important reasons for providing early successional habitat listed by the commenter are discussed in the **Animal Communities** section in Chapter 3 of the EIS and under additional PC statements (# 4, 8, 9, 13, 14, 27, 30, 46, 58, 61, 62, 64, 65, 75, 85, and 140). Additionally, the planning record includes white papers containing more detailed discussions about the importance of early successional forest types to wildlife species.

***PC #102**: Since ruffed grouse will likely be absent from the forest before the positive effects of timber harvest can be realized, the Hoosier National Forest must consider reintroduction as part of the plan.*

Response to #102: We agree with the commenter. The lands in the newly created MA 3.3 have historically supported a population of ruffed grouse. However, a lack of forest management in the last few decades has led to a loss of habitat for this species across the Forest, and populations have dwindled. The Forest Service plans to work with the Indiana Department of Natural Resources, Division of Fish and Wildlife, to reintroduce ruffed grouse into this MA. However, we feel the long-term viability of this species is dependent on active management designed to provide appropriate habitat components for the ruffed grouse and other species associated with early successional habitats.

***PC #104**: The effect of songbird declines on forest growth needs to be addressed in the analysis. Research has shown that Neotropical migrants increase oak growth by*

consuming leaf chewing insects. The study found that oak have an enormous decline in biomass production when song birds are kept away.

Response to #104: The study mentioned by the commenter (Marquis and Whelan 1994) provided some evidence that insectivorous birds increase plant growth by reducing the number of herbivores on the plant. Thirty white oak saplings were enclosed in cages to allow access to plants by insects but not by birds; another 30 saplings were sprayed with insecticide, and a third group was left as a control. The study found that caged plants produced one-third less total above-ground biomass than insecticide-treated plants, with control plants producing intermediate values. Though this is not an enormous decline in biomass production. The results suggest that declines in North American insectivorous birds may reduce forest productivity because of potentially higher numbers of leaf-chewing insects and their impacts on plant growth.

The authors of this study conclude that forest management practices that promote the conservation of insectivorous birds are imperative to maintaining forest productivity. Furthermore, they define such management practices as those which emphasize strategies that maximize bird species diversity and the viability of their populations. Alternatives 3, 4, and 5 all represent a low risk to species viability by providing a diversity of habitats across the Forest. The restoration, enhancement, and maintenance of biodiversity on the Forest is a primary emphasis of the revised Forest Plan.

NFMA regulations acknowledge that management is often needed to protect resources and enhance diversity. The Forest contains globally imperiled natural communities and habitats that, without management, would continue to degrade (see EIS, Chapter 3, **Animal Communities, Importance of Barrens Habitat**) and result in the continued loss of biodiversity. The revised Forest Plan will allow resource managers to work to recover these diminished habitats. Silvicultural practices in conjunction with prescribed burning, control of exotic species, and other methods are tools we can use to emulate historic disturbance processes and increase biodiversity. Projected management activities are listed in the EIS, Chapter 2, **Table 2.2**.

PC #121*: Timber harvests and prescribed burning proposed by the Hoosier National Forest would increase recreational opportunities by providing for wildlife species.*

Response to #121: Increasing available habitat on the Forest could potentially increase recreation opportunities associated with wildlife such as bird watching and hunting. A diversity of habitats would support greater numbers of species. Recreational opportunities such as bird watching, wildlife viewing, photography, and hunting could increase.

PC #117*: Because MA's 5.1, 6.2, and 6.4 are less accessible, they provide a degree of escape cover for game animals hunted in adjacent areas that are more accessible by roads. This statement raises a concern that a subtle underlying intent of limiting access in these MA's is to exclude, inhibit, or dissuade hunter recreation in these areas.*

Response to #117: The desired condition for MAs 5.1, 6.2, and 6.4 includes providing an opportunity for solitude. This is achieved, in part, by limiting access via roads. Key recreational activities for all three of these MAs are listed in the Forest Plan and include hunting. The Hoosier recognizes hunting as an important recreational activity for many of the Forest's users, and the statement listed by the commenter is not intended to raise concern that we are tying to exclude, inhibit, or dissuade hunter recreation in any part of the Forest. The statement is simply meant to explain the effects of fewer roads on wildlife.

***PC #140**: The lack of forest management on the Hoosier has resulted in a decline of ruffed grouse and other early successional habitat dependent species.*

Response to #140: Numerous reports indicate that many of the species that use early successional habitat are declining, including the blue-winged warbler, yellow-breasted chat, bobcat, eastern cottontail, northern bobwhite, prairie warbler, and ruffed grouse. Current habitat conditions on the Hoosier are a direct result of past management practices. Many biologists agree that population recovery for the ruffed grouse will not occur if forest succession continues to advance due to a lack of active forest management on public forestlands in south-central Indiana, especially on the Hoosier.

***PC #110**: The Hoosier National Forest should not consider more restrictions for protecting Indiana bats. Ultimately excessive restrictions would make meaningful timber management impossible or unprofitable and result in a general degradation of bat habitat.*

A) The standards are too excessive. The availability of an adequate amount of large potential maternal roost trees is not the limiting factor for this species. There seems to be an inverse correlation between the size and structure of trees and the general trend of the bat.

B) Protection of hibernacula and potential hibernacula would be more critical for Indiana bat than protecting shagbark and shellbark hickory.

Response to #110: Research suggests that appropriate timber management practices may be entirely consistent with the conservation of the Indiana bat. The Indiana bat uses a variety of habitats including riparian forests and upland hardwood forests. A discussion of the habitat requirements for this species can be found in the EIS, Chapter 3, under the **Affected Environment** for Indiana bat, as well as the Biological Assessment.

#110 A) Standards and guidelines presented in the revised Forest Plan have been reviewed and approved by the USDI Fish and Wildlife Service. There is widespread consensus among experts that appropriate maternal roosting habitat, in juxtaposition to foraging habitat, may be the most critical factor now limiting the recovery of this endangered species (Clawson 2000, Clawson 2002).

#110 B) The protection of hibernaculum is critical for this species, and there is evidence that the protection of individual hibernacula has helped to stabilize bat populations. However, this has not led to range-wide recovery of the species, and many believe that providing suitable maternal habitat will aid the recovery of this species. Standards and guidelines have been developed to protect hibernacula and to manage for maternal roosting habitat. This includes placing top priority on their acquisition.

***PC #152**: The Hoosier National Forest should conduct research on the breeding success of Neotropical migrants. This would be more valuable than knowing they are there; knowing what influences breeding success will yield better guidance.*

Response to #152: The NFMA and the planning regulations do not require the Forest to use a particular type or method of species tracking. Monitoring provisions in the NFMA regulations provide considerable discretion to local decision makers to determine what to monitor, as well as how best to accomplish the task (*see* 36 CFR 219.11(d), 219.12(k), 219.19(a)(6); see also Forest Service Manual 2621.5). In fact, the terms monitoring and monitoring plan are not

defined in NFMA or its regulations. The Forest Service knows that well-planned data collection is essential to effective forest management. However, even well planned data collection can be time-consuming and expensive. Therefore, when identifying items to be monitored and evaluated (see Forest Plan, Chapter 4), the Planning Team carefully considered the applicability of the information that would be gathered and chose monitoring items that complied with laws and regulations and that provide useful information regarding forest management to help us make better decisions in the future.

Our breeding bird study was designed by North Central Research Station to establish a monitoring system for forest birds on the Hoosier and to compare the relative abundance and population trends of forest birds in fragmented and unfragmented tracks. Although some may prefer an even more specific type of study (i.e. breeding success), given limited time and resources, monitoring is tailored to provide the Forest with the information needed to track resource conditions. A primary goal of monitoring is to provide information for future decision-making. At the programmatic level of decision making, our breeding bird surveys are sufficiently broad to inform the decision-maker about current conditions and the need to adjust the Forest Plan. The Forest considers our existing monitoring sufficient; additional monitoring would produce only a small gain at considerable marginal cost. In addition to the monitoring conducted by the Forest Service, several universities have agreements with the Hoosier to conduct individual research projects such as, “Breeding Success of the Cerulean Warbler on the Hoosier National Forest.”

Part 3: Nonsubstantive Comments

Beyond the scope of the analysis for the Hoosier's Forest Plan

***PC #186**: Don't log on the Hoosier; instead explore other logging options, such as tree farms.*

***PC #164**: Many commenters confused the roles of Federal and state land management.*

A. One commenter objected to activities on Indiana State lands such as logging along trails in Yellowwood State Forest. Others want to see state forests and national forests preserved.
B. The Hoosier should sell stamps for game bird habitat similar to duck stamps.
C. No logging should be done since the forests were not meant to make money for the State of Indiana.

***PC #166:** Many comments were considered outside the scope of the proposal because they were global or national concerns (not specific to the Hoosier) that would be better addressed at a higher level than a forest plan.*

A. There is a concern about global deforestation and the Hoosier's role in this.
B. Forest landscapes need to be protected from the greenhouse effect.
C. Climate change should be considered in modeling projections. The global effects of fire on global warming should be considered, and the cost of clearcutting should include increased climate change.
D. The analysis should address carbon storage and the effect of timber harvesting and burning on the Hoosier on global climate change. The concern was about both the impact of removing trees and carbon storage as well as harvesting equipment burning carbon.
E. Climate change was not addressed and would likely make all the planning and management useless. Recognizing this, the Hoosier should include possible scenarios dependant on widely fluctuating change.
F. Global climate change brings uncertainty, therefore large-scale disruptions of the Forest should be avoided until the impacts of global warming are better understood.

Response (#166): The Pacific Northwest Research Station conducted a Science Consistency Review of the Assessment of Climate Change for the Colville, Okanogan/Wenatchee Forest Plan Revisions. The findings conclude that currently there is no consensus or experience on how to model climate change at the subregional level. Available scientific models have limitations, and additional research and development is needed to provide more robust predictions of climate change and its effects. Because there is currently no reliable way of predicting future climate change or its effects, forest management should provide a diversity of species that will add to the resiliency of the forest and its ability to respond to changing conditions (West letter and attachments, PNW, File Code 4070, July 26, 2005).

***PC #299:** Why doesn't the government raise and sell cattle on Bureau of Land Management lands in the west? Local ranchers would not allow that, and for good reason.*

***PC #347:** It is critical that our government protect large tracts of public land.*

***PC # 289:** Articles in Harpers Magazine and Journal of Forestry suggest the FS is biased in favor of logging.*

PC #300: *Continued logging our national forests, will one day cause the public to rely on photographs of the once great forests of this nation.*

PC #301: *I hope there is another plan for you to consider, because if we keep cutting the trees, where would we see and enjoy God's goodness?*

PC #352: *Demand for wilderness opportunities is growing fast. Studies show that current wilderness use exceeds the carrying capacity and that wilderness –like recreation opportunities should be greatly expanded.*

Note: The cited studies concerned use elsewhere and are outside the scope of this analysis.

PC #168*: The Hoosier should address all issues the Forest Service said were beyond the scope of the analysis. Court cases from other national forests were also cited to infer possible deficiencies might exist in the Hoosier's analysis.*

Response (#168): Comments that are beyond the scope of the analysis being considered are not addressed in the analysis process. 40 CFR 1500.1(b) provides direction that NEPA analyses must concentrate on issues that are truly significant to the action in question, rather than amassing needless detail. 40 CFR 1500.2(b) implements procedures to make the NEPA process more useful to decisionmakers and the public, to reduce paperwork and the accumulation of extraneous background material, and to emphasize real environmental issues and alternatives.

PC #247: *Alternative 2 best anticipates and would best accommodate reduced staffing levels that will likely result from ballooning federal deficits and resulting federal budget reductions*.

PC #262: *The EIS needs to disclose what products the trees that would be cut down would be used for.*

PC #267: *I strongly urge that the Indiana National Forest not be opened to logging or any type of development.*

PC #196: *There is a concern about the number of roads on Forest Service land nationally.*

PC #170*: The Hoosier should state where alternative ATV trail locations are on brochures, websites, and bulletin boards.*

Irrelevant to the decision to be made or would be better addressed in a subsequent decision

PC #183*: The Hoosier has not made it apparent where exactly any of the timber sales or prescribed burns would happen, what the constraints would be, what the objectives for nonpriced outputs are, or how the cost of production is already accounted for. Compare social and economic impacts and overall protection and enhancement of environmental resources.*

Response (#183): Nonpriced outputs are addressed in the analysis, as well as in the responses to comments. Impacts are also so addressed.

***PC #173**: Suggestions were made for trails on the Hoosier. Most of these are better considered at the site-specific level of planning.*

A. Blackwell Horse Camp should have shorter trail loops.
B. More trails need to be provided to keep up with demand.
C. The balance of multiple-use, hiker-only trails was debated.
D. Mountain bike trails can be designed to slow down vehicle speed.
E. Interpretive trails for bicyclist should be considered.

***PC #308:** Contrast and a variety of forest scenes, as well as opportunities for viewing surrounding landscapes, would gradually diminish in MAs 5.1, 6.2, 6.4, 8.1, 8.2, 9.2, and 9.3. Why is the Forest Service not addressing these impacts?*

***PC #277:** If clearcutting does occur, the businesses that bid for the job of cutting the forest must be very closely watched. Some are completely destructive and unscrupulous in their business and logging practices, and they should under no circumstances be allowed to the log the Hoosier.*

***PC #359:** The Forest needs to have better signage.*

Already been decided by law or higher level policy

PC #234: *Harvesting on the national forest provides unfair competition to woodlot owners.*

***PC #345:** We recommend designation of four new wilderness areas.*

***PC #332:** Your plan should respect the desires of the landowners—just watershed protection.*

***PC #346:** Restore the HNF to what it should be: protected natural wilderness for all to enjoy, not a tree farm for timber harvesting.*

Restatements of the analysis or direction - No disagreement with anything in the documents or any conflicts with the analysis

***PC #201**: The five alternatives encompass fairly well the range that should be considered for future management direction.*

***PC #205:** Emotionalism should not take precedence over science, professional forest management, biodiversity, and wildlife.*

***PC #206**: The Hoosier should give full protection to archaeological and historic sites and in some cases restore them.*

PC #232: *Habitat for wildlife needing all stages of succession should be provided.*

PC #233: *The Hoosier should do what is best for the environment and the public.*

PC #235: *A diverse healthy forest should be provided with maintained trails, clean water, air, and soil.*

PC #312: *Our organization is pleased that the Hoosier recognizes the value of its karst region.*

PC #179*: The Hoosier should not allow any wheeled vehicles off road except for maintenance and emergencies, and also carts that deer hunters use to remove their kills.*

PC #245: *Choose an alternative that would allow the Hoosier to continue to be used for a variety of recreational purposes and at the same time preserve the wildlife in the forest.*

PC #319: *Good discussion on early successional and openings habitats for animals, influence of fire and fire suppression policies, and effect on oak and hickory.*

PC #337: *All of the proposed alternatives would provide protection for cultural resources.*

PC #320: *I appreciate the Forest's increasing awareness of the importance of fire in the local ecology.*

PC #326: *The Hoosier should allow control of invasive exotics that threaten to supplant natural vegetation.*

PC #240: *Alternative 5 is a balanced plan that supports the natural quiet and beauty of the forest and the objectives of the national forest to protect the integrity of the forest. Alt 5 would continue resource protection in this precious place.*

PC #343: *The Forest is a popular destination for hiking fishing, hunting, camping, horse riding, and mountain biking.*

PC #349: *The Hoosier's Forest Plan preserves a very significant amount of land in wilderness and special areas.*

PC #328: *The restoration projects on Lost River and Little Blue River are shining examples of what can be accomplished through cooperative efforts.*

PC #236: *The Forest should continue multiple-use management as required by law, including timber sales and recreation.*

The following were not specific to the proposal

PC #184*: The Hoosier should give natural processes much higher priority than production and consumption for human needs.*

PC #197*: The forests are spiritually unique and an irreplaceable source of sacred life.*

PC #203*: The Hoosier should find alternative ways to maintain the forests and fund maintenance.*

PC #238: *A survey in North Carolina was cited to describe the public's value for old growth pine habitat.*

PC #356: *Wildernesses are the only places where people can truly escape the noise and business of our chaotic lives.*

Conjectural in nature - These stated an opinion or feeling

PC #180*: The areas referred to in the DEIS are not "regaining a natural, untrammeled appearance."*

PC #199*: If one were to divide the $29,827,000 difference between Alternatives 2 and 5 among the number of residents of the Hoosier area and surrounding metropolitan areas, one could consider whether they might be willing to pay this per capita amount to receive the benefits and reduced environmental impacts conferred by Alt. 2.*

PC #187*: The present Plan has degraded and impoverished the ecological integrity of the Forest.*

PC #265: *This plan would be a disaster for our national forest. It is greedy and shortsighted. It is fiscally irresponsible, a giveaway to timber companies. Please do not squander our area's environmental health, and that of our entire planet, for this irresponsible scheme.*

PC #360: *Unless it is an inholding in an area like wilderness, natural area, or roadless area, land with cultural features should not generally be acquired.*

PC #252: *Increased logging with Alternative 5 will make significant changes in our natural environment and destroy wildlife.*

The following lacked rationale - Without supporting reasons it is difficult to determine how to address

PC #177*: The Hoosier should consider access for four wheel drive groups, the only group not provided for in any alternative.*

A. Sponsored rides should be allowed since these rides could be more closely monitored.
B. Four wheel drive groups could adopt trails and be responsible for their own road maintenance.

Note: A **Vehicle Analysis** section is included under **Trails**. Such decisions are not considered in this programmatic FEIS.

PC #175*: The Hoosier should construct an ATV trail system.*

A. Potential conflicts between users can be addressed.
B. Other states have had great success with ATV trail systems.
C. Family ATV use allows people to enjoy the forest together.
D. ATV users can also practice tread lightly principles.
E. Consider allowing ATVs only during dry weather or when the ground is frozen.
F. Disabled people may be unable to enjoy the Forest any other way.
G. Commenters wish to have a closer place to ride on public land.

H. *The Forest should serve all users and currently ATV users are excluded.*

***PC #176**: The Hoosier should not construct an ATV trail system.*

A. *ATV trails cause damage.*
B. *None of the factors leading to the 1987 prohibition on ORVs have changed.*
C. *People want to hear crickets and birds in the forest, not ATVs.*
D. *ATVs are noisy, add air pollution and are not compatible with other uses.*
E. *ATV trail systems require larger amounts of funding to maintain the trails than other trail systems.*
F. *Use of ATVs is detrimental to ecosystem sustainability and watershed health and damage fragile soils.*
G. *The public does not wish their tax dollars spent to support ATV use on public lands.*
H. *The Forest is not equipped to control illegal or destructive ORV use.*
I. *ATV use could be dangerous to hikers and others using the trails.*
J. *A legal trail system will have no impact on illegal ORV use.*
K. *These groups will also bring in refuse that will be left behind.*
L. *Off road vehicles disrupt wildlife and destroy wildlife habitat.*
M. *ATV trail systems are better provided for on private lands.*
N. *ATVs are dangerous and cause injuries to riders.*

***PC #181**: The Hoosier should choose an alternative that would allow the forest to continue to be used for a variety of recreational purposes and at the same time preserve the wildlife in the forest.*

***PC #191**: The DEIS is misleading by not disclosing enough about what Alternative 2 would entail.*

***PC #189**: Alternative 2 is most likely to preserve the long-term suitability of the Hoosier for future generations and would help protect our wildlife.*

PC #249: *Alternative 2 focuses too little on early successional species.*

***PC #336:** Alternative 2 is the best option for protecting our heritage.*

***PC #318:** The use of controlled fire should be allowed in Alt. 2.*

***PC #194**: The Hoosier should modify Alternative 3 to include use of four-wheel drive OHVs on the Forest.*

***PC #195**: Alternative 4 is best because of its use of fire and uneven-aged methods. Alternative 4 would benefit wild turkey populations across the Forest.*

***PC #190**: Select Alternative 2.*

A. *Alternative 2 would provide high quality outdoor recreation opportunities for ordinary citizens.*
B. *Alternative 2 would allow the beauty of the Forest and its environment to provide great benefits to local communities.*
C. *Only Alternative 2 would set aside "the last remaining public lands" and rely on natural regeneration without artificial creation of openings.*
D. *Alternative 2 should not include any logging.*

***PC #188**: Do not select Alternative 2.*

A. Alternative 2 would not be good for wildlife.

B. Alternative 2 would be a tragic loss for Indiana—the majority of the Hoosier not managed but simply "preserved."

C. Alternative 2 would create a virtual wilderness.

D. Alternative 2 would result in a poorer knowledge base about forests. Tangible economic benefits would be lost if we chose not to renew and improve the renewable timber resource.

PC #248: *Alternative 2 best anticipates and would best accommodate reduced staffing levels that will likely result from ballooning Federal deficits and resulting Federal budget reductions.*

***PC #327:** Alt. 2 offers the best strategy for preventing the introduction and spread of nnis by eliminating logging, new road building, and forest openings maintenance.*

***PC #200**: The Hoosier should include a Conservationist Alternative that would expand wilderness and close roads while requiring lots more studies and monitoring of conditions and enforcement of rules.*

***PC #207:** Alternative 4 aggressively treats invasive species and allows all available methods; this is the only acceptable philosophy concerning NNIS.*

PC #253: *Alternative 5 would jeopardize watershed health, ecosystem sustainability, non-timber forest products, recreation, wildlife, and biodiversity.*

***PC #182**: The proposed timber sales are not the most cost-effective method of providing roads.*

***PC #119**: The Hoosier should add logging operations to the activities listed under treatment of sites for the prioritized list for nonnative invasive species management.*

***PC #108**: Several standards and guidelines were suggested that removed the ability to use management techniques that create ground disturbance. This includes activities such as timber harvest and prescribed burning.*

***PC #146:** The Hoosier is justifying improving the health of the Forest by cutting it down. Is it a wonder why people are reluctant to trust the Forest Service?*

***PC # 261:** It is a skewed perception and justification that forests need us to log them for ecologically ethical reasons. This belief has been perpetuated by the logging industry and has very little scientific merit.*

***PC #271:** A shelterwood cut is a two-step clearcut. Once the logging is all done, it looks just as bad as any clearcut.*

PC #251: *Make 55 percent of the forest available for timber management.*

***PC #147**: The Hoosier should not conduct large clearcuts up to 40 acres in size.*

***PC #275:** The Hoosier should use selective logging of diseased or damaged trees.*

PC #263: *Timber sales are not only a direct cost to the taxpayer, but a double burden on the private landowner with timber to sell. Offering any sales on public lands actually hurts the local economy by depressing the value of the timber.*

PC #364: *Selective timber cutting when needed is taking one step in the right direction for our future.*

PC #254: *Cutting down trees in our national forests causes many species to become extinct.*

PC #283*: I do not feel that the Forest Service should be continually justifying commercial logging under the guise of early successional habitat management, salvage logging, recreation, etc.*

PC #372: *The Hoosier should cut down some of the trees and sell them. This will pay for the culverts, trails, and food plots. The land has to pay for itself.*

PC #259: *Logging destroys significant recreational benefits for which the HNF is primarily mandated.*

PC #290: *The analysis needs to address if the trees left standing can survive high winds.*

PC #268: *A 13,000-acre clearcut will significantly reduce Indiana's already depleted forest lands.*

Note: Clearcuts limits in the analysis do not exceed 40 acres.

PC #330: *No harvesting policy can positively impact all the water runoff systems that exist within and just outside the forest.*

PC #260: *Clearcuting is wrong. Logging industry should not receive the corporate welfare of using public lands to log, mine, and explore.*

PC #167*: The DEIS is inadequate because the following have not been considered.*

A. Loss of animal life during logging? The Hoosier should analyze the number of species killed when a sale is cut and how animals die.
B. Public lands have been set aside for protection and enjoyment and should not be logged or exploited for private gain. Many people believe trees on the forest should not be cut on principal.
C. The Forest Service should stop their fiscally irresponsible timber sale program which brings unwanted roads into backcountry areas.
D. The revised Hoosier Plan should emphasize a preservation theme, and recovery of threatened and endangered species should be the highest priority.
E. The Hoosier is our best opportunity to protect large unbroken forest tracts for wildlife habitats and outdoor recreation.
F. A court case alleging that the Forest Service was not required to log public forests was cited to suggest that there is no need to log on the Hoosier.
G. Conservation efforts to date have been negated.

PC #280: *Clearcutting, especially on any sloping land, fit in with "healthy forest management" and watershed protection?*

PC #259: *The Forest Service's priority should be to keep as much forest standing as possible to in some way compensate for the destruction within the private sector.*

PC #266: *Timbering of the forest is essential to the propagation of much of the native wildlife, especially ruffed grouse. We also need to timber so that certain hardwoods will reproduce.*

PC #271: *Why does the DEIS not point out how logging causes erosion and removes the trees to prevent them from rebuilding the soil? If the Forest Service cuts down the pine, one has a clearcut and its devastation for many years.*

Note: Pine removal would not always result in a clearcut.

PC #367: *Three quarters of Indiana was once covered with forest. Don't let commercial interests destroy it.*

Note: In the past, most of the Hoosier was subject to agricultural use. The Forest Service has reforested these areas.

PC #331: *Logging does not promote what the forest service allegedly stands for, protection of watersheds.*

PC #278: *The USDA Forest Service FY 1999 budget exploratory notes for the committee on appropriations found that taxpayers lost over one billion dollars on the Federal logging program each year. In the last timber sale program report available to the public, taxpayers lost $462,000 on the HNF timber sale program in one year alone.*

Note: Congress has directed the Forest Service to manage for timber, among other resources and uses. The primary purposes the Hoosier proposes timber sales are not financial, but rather to maintain or create wildlife habitat and meet other ecosystem needs.

PC #266: *How many Indiana bats will be killed or harassed by clearcutting? How many birds and salamanders will be killed? How much down and dead wood (which accounts for 25% of the forests biodiversity) would be lost? How many million tons of soil will be lost?*

PC #202*: Each alternative allows some timber logging and ignores factors important to the health and functioning of the forests.*

Note: Alternative 2 did not allow for logging.

PC #261: *The current timber extraction from the Hoosier is disappointing.*

PC #309: *Ensure that any salvage logging allowed on the Forest is only removing damaged stands.*

PC #310: *The Hoosier should not use the guise of salvage logging to open up over 80% of the forest to commercial logging in all proposed alternatives excepts Alternative 2.*

PC # 260: *There is no justification for logging the forest. There is no demand for timber in our area. Logging the forest is counter-productive both politically, economically and ecologically.*

***PC #193**: If the Hoosier ended the timber sale program the decrease in social costs (including environmental costs and agency costs) would further increase the net benefit from ending the timber sale program.*

***PC # 229**: The Hoosier should stop vegetation management practices to protect watersheds.*

A. The Forest can't just "manage" away negative consequences of logging.
B. Management Area 3.3 is in direct conflict with the goal of protecting watersheds.
C. The Forest should do an analysis of the historic conditions versus the current status of native fisheries and stream habitat in areas to be logged.

***PC #263:** Timber harvesting should be a management tool in most management areas. Timber harvesting can and should coexist in creating the desired effect on the HNF.*

***PC #256:** Logging and other management actions will weaken the natural hardwood/softwood timber cycle.*

***PC #242:** The Forest Service retains 100% of receipts in a salvage sale and few timber sales other than salvage are occurring on Forest Service lands in the past 10 years. The Forest Service is more interested in harvesting timber than in what was best for the Forest.*

***PC #212**: The Forest did not analyze what impact selective cutting had on the development of old growth and the species dependent on it.*

***PC #209:** Further statements or questions concerning sustainable ecosystems were made without supporting documentation:*

A. Clearcuts destroy forests and no habitat will regenerate.
B. Natural habitats are being reduced.
C. Local farmers in counties most affected by the Hoosier favor aggressive management of the Forest.
D. Forest should be retained as they were enjoyed by our ancestors.
E. The longer the Forest Service waits to protect neotropical migrants and biodiversity, the worse the problem becomes.
F. The term nonnative should be used in place of exotic throughout the document.
G. The goal of the Hoosier should be to maintain source populations for forest dependent species not a diversity of species and habitat.
H. The Hoosier cannot merely rely on habitat suitability indexes or computer models.
I. The Hoosier provides sanctuary for wildlife that would not survive without it.
J. The Tell City area is the least likely grouse habitat of the four areas to locate a Management Area 3.3.
K. The loss of oak hickory may be related to forest management practices such as timber harvesting, prescribed burning, and increased numbers of deer.
L. Analysis needs to done on the effects of logging destroying microorganisms in the soil.
M. Want more information on the claim that forest openings attract people who enjoy the outdoors.
N. If not meeting opening maintenance objectives, do not reforest new acquisitions.
O. Growing profitable kinds of herbs, medicinal plants, food sources, and flowering plants on the Forest should be a goal.

PC #243: *The Hoosier-Shawnee Ecological Assessment is not an accurate depiction of the conditions on the Hoosier.*

PC #211: *The Hoosier National Forest DEIS claimed there was a lack of natural disturbances and in another cited 1,600 acres of windthrow resulting from severe storms in the summer of 2004.*

PC #246: *Do not use pesticides on the Hoosier.*

PC #329: *In cumulative effects analysis the following must be considered:, coarse particulate matter, fine particulate matter, algal abundance, temperature extremes, turbidity, diurnal cycle of dissolved oxygen, nutrient input into the stream, amount of suspended solids, stability of substrate and banks, uniformity of water depths, habitat heterogeneity, flow extremes, diversity of microhabitat velocities, primary and secondary production, abundance of shredders versus scrappers, and abundance of omnivores versus piscivores.*

PC #274: *The Hoosier should plant trees now and when they grow up to give off nuts for animals and birds, then cut down 150-year-old trees?*

PC #362: *All old growth opportunities should be evaluated independently of potential timber stands.*

PC #335: *The Hoosier should not limit herbicide use to terrestrial nonnative invasive species; there are plenty of aquatic NNIS in the ponds on the Forest.*

PC #334: *The analysis should address the status of native fisheries, mussels and stream habitat quality compared with historic conditions in areas to be logged, forest and region-wide. The analysis needs to disclose the population trends of exotic or introduced species relative to native fisheries and mussels in areas to be logged. The impacts logging will have on these populations need to be addressed.*

PC #317: *Proposed management techniques such as controlled burning and spraying of herbicides threaten endangered species.*

PC #315: *Prescribed Burning should be used to help get rid of sticker bushes and unwanted undergrowth, but what will it do to the young trees?*

PC #351: *Your argument that forests need logging to be healthy is entirely unconvincing. If a single tree is cut, it eliminates the natural balance of the forest ecosystem.*

PC #324: *The Hoosier should make efficacy the top priority in choosing control techniques. There is potential danger if NNIS and diseases are not effectively controlled.*

PC #303: *If the FS does not cut down the forest, trees can live hundreds of years. There is a major difference between a 60 year-old forest and a 400 year-old forest.*

PC #311: *Do not allow cave exploration or guano gathering.*

PC #313: *Roots supply protection for underground water systems in karst areas.*

PC #314: *The DEIS overstates the effects of wildlife. The analysis refers to areas devoid of plant life with the charred remains of shrubs and trees, some still standing, but many lying on the ground and notes the burned area would contrast sharply with adjacent unburned areas.*

PC #128*: The Hoosier should change the following guidelines into standards.*

A. Consider planting mixed species where suitable to reduce insect and disease damage, increase visual variety, and add habitat diversity.
B. Where possible, restore native ecosystems. Retain where appropriate large diameter trees, and mature or over-mature stands around ponds, lakes, wetlands, and stream shorelines.
C. Wherever appropriate, manage cliff faces, springs, caves, barrens, and glades as special habitat or protect or enhance physical historical and ecological characteristics. Leave downed logs, limbs and other scattered ground materials resulting from vegetative management of natural causes on site where appropriate.
D. In areas potentially affected by land exchange, surface-disturbing activities, or vegetative treatments, assess the need for and, as needed, conduct surveys or inventories for RFSS.
E. Avoid soil disturbing and compacting activities to the greatest extent possible.
F. Where extraction cannot be avoided, the lowest impact transport methods shall always be favored.
G. Do not allow sediment from access roads and other activities to wash into caves or karst features.
H. Examine and inventory to the extent possible each cave and karst feature.
I. Prepare management prescriptions and plans describing considerations and criteria for protection of cave resources whenever feasible.
J. Where practical, restore cave and karst hydrologic systems choked with debris from non-natural causes or sediment.
K. Take corrective action if damage to karst or other resources exists and is likely to continue.
L. Aquatic and riparian ecosystems, including all stream channels, wetlands, and permanent water bodies, regardless of type, will be protected. Management activities within these zones will emphasize water quality, riparian area values, and enhancement of habitats such as introduction of large woody debris.
M. Give priority to stabilizing areas discharging soil into watercourses, especially those that affect the watershed or municipal or recreational reservoirs.
N. "Design projects in a manner…."
O. "Avoid planting, seeding, or introducing…"
P. "Determine and implement management activities…"
Q. "Locate new activities away from areas…"
R. "Wherever possible, combine utility rights-of-ways across NFS lands…."
S. "Bury utility and pipelines…

Note: Guidelines, like standards, must be followed. If they are not followed on a site-specific project, the reason they were not used must be explained in the project-level NEPA document, and impacts of the actions must be disclosed. Most guidelines were written as such because the protection they provide is important, but it was recognized there might be instances where the implementation of such actions would not be feasible.

PC #88*: The following should be added as standards in the Forest Plan.*

A. *Management shall favor activities and projects that do not require mechanized equipment or materials for extraction.*
B. *Standards should include those that require surveys and inventories of rare species and the strict protection of their population, habitat, and distribution.*
C. *Standards should set definite road density standards and requirements for swiftly meeting them.*
D. *Visual quality objectives should be preservation for most management areas.*
E. *Visual quality objectives in MA 7.1 should be partial retention within recreation area boundaries.*
F. *Existing roads shall be evaluated to determine which can be removed and revegetated.*
G. *Roads and trails should not exceed a gradient of 7 percent*
H. *No timber management will be permitted except in the most extreme circumstances where no viable alternative exists and even in such cases when tree removal or other vegetative management is deemed essential, harvested material will remain on site to stabilize solids, sequester carbon, retain moisture, provide habitat, and contribute to nutrient cycling.*
I. *Minimize soil disturbance and compaction.*
J. *Eliminate and revegetate unneeded roads.*
K. *Evaluate existing rights-of-way to determine which might be buried under existing roadways.*
L. *Utilize composting toilets to minimize waste creation and to educate the public about alternative to centralized waste treatment facilities. Composted waters can be used to fertilize ornamental plantings and other landscape components.*
M. *Utilize passive solar energy for heating water and recreational facilities to the greatest extent possible to reduce operating costs, demonstrate environmental stewardship, and to educate the public about alternatives to polluting fossil fuels.*

Note: To be effective for year-round use, composting toilets must maintain a temperature higher than 55˚ F, according to one source (Sun-Mar 2005), and another source stated the process is facilitated by organisms that function above 68˚ F (Clivus Multrum Inc. 2005). There is no electrical service in most locations on the Forest to heat or ventilate a compost toilet, and these toilets would need to be useable at temperatures below 55˚F because the forest is open for year-round use.

According to the National Renewable Energy Laboratory Solar Radiation Maps, Indiana ranks very low in the number of kilowatt-hours of solar energy collected daily (USDE 2005). Most of the buildings that provide hot water are surrounded by trees and shaded most of the day, further reducing the amount of solar radiation that could be provided. A passive solar energy hot water heater would only produce a small fraction of the amount of hot water needed to supply recreation facilities.

Literature cited (not in References Cited):
Clivus Multrum, Inc. 2005. About composting toilets. Available online at http://www.clivusmultrum.com/compostingtoilet.html. Date accessed: September 14, 2005.

U.S. Department of Energy, National Renewable Energy Laboratory. 2005. A consumer guide to energy efficiency and renewable energy. Available online at: www.nrel.gov. Date accessed: September 8, 2005.

PC #59: *One letter included a personally edited version of the Draft Forest Plan.* Response (#59): Although all edits were considered, only some of the edits have been incorporated into the revised documents.

PC #120*: The Hoosier should change the wording in the following standards or guidelines in the Draft Forest Plan to read:*

A. Prohibit heavy equipment use.
B. Permission to remove sand, gravel, or other materials from streams will not be granted.
C. Prohibit timber harvesting and prescribed burning.
D. Do not conduct site disturbing activities.
E. Do not conduct seismic survey activities
F. Cease drilling operations
G. Retain standing dead trees.
H. Maintain or enhance barrens or glades habitats.
I. Avoid soil disturbing activities in barrens or glades.
J. Do not harvest trees when sensitive species are present.
K. Prohibit military maneuvers and flyovers.
L. Pesticides shall only be used as a last resort and in the most extreme case to control invasive exotic species. (MA 7.1)
M. Tree may be cut to promote growth and vigor and to prevent insect and disease infestation, but when tree removal or other vegetative management is deemed essential, harvested materials will remain on site to stabilize soils, sequester carbon, retain moisture, provide habitat, minimize harm to the residual stand, and contribute to nutrient cycling.
N. Allow roads currently providing access to existing forest openings at Lukes Knob, Mogan Ridge, and Felknor Hollow to revert to natural forest.
O. In general, natural disturbance regimes, including disease, drought, beavers, and wind throw will be relied upon to provide openings and to maintain suitable early successional habitat for wildlife.
P. Use pesticides if there is no viable alternative and in accordance with the strictest controls.

PC #231: *The Hoosier should retain its natural appearance.*

A. Clearcutting is not visually pleasing.
B. There are no standards in the Plan on unit layout to mitigate visual impacts.
C. Commenter questions whether the Hoosier can really manage partial retention and modification areas to provide a natural appearing forest as claimed in the DEIS.
D. Rather than hide management practices by avoiding visually sensitive areas, these practices could be interpreted and used as a form of education.
E. People need more green space, so logging should be banned on the Forest.
F. There is not any natural disturbance that resembles a clearcut.

PC #142*: Guidance for riparian filter strips should be adjusted to read:*

A. Protect, enhance, or restore natural water flows when feasible.
B. Riparian corridors will consist of the riparian areas and a 75 to 100 foot filter strip adjacent to the riparian areas depending on the type of streams.
C. Permanent water bodies and perennial streams will consist of a riparian area and a 500 foot filter strip adjacent to the riparian area. This filter strip width can be adjusted based on-site specific analysis.

D. *Intermittent streams will have a 125 feet minimum filter strip from each stream bank and ephemeral streams will have a 75 foot minimum filter strip.*

PC #292: *The Hoosier should not use group selection harvest to provide desirable vistas and views.*

PC #198*: The DEIS fails to quantify and compare the impacts of the various alternatives on visuals.*

PC #348: *Solitude should not have to mean no public access.*

PC #350: *Many of these aspects (solitude, risk, adventure, and mystery) of a wilderness experience are lacking in the Charles C. Deam Wilderness due to past abuses by equestrians and their current numbers being too large for the area. The wilderness character of the Deam has degraded significantly since the proliferation of commercial horse campgrounds on the Hoosier.*

PC #351: *Stockyard confinement areas, artificially engineered creek crossings, a heavily reinforced maze of tails, and a sustained and concentrated volume of equestrian traffic do not protect the Deam in accordance with the spirit and letter of the law.*

PC #353: *Do not limit trail miles in the Deam Wilderness to 40 miles. The 13,000 acres in the Deam Wilderness can include more trail miles and still give the sense of wilderness.*

PC #354: *Tower Ridge Road should be formally closed and vacated between Hunter Creek road and the Blackwell Horse Camp to increase the wilderness value of the Deam.*
Note: The Indiana Wilderness Act deliberately excluded that road from the Wilderness, and by law that road is to remain open for public use.

PC #355: *Wildernesses are on the verge of extinction in Indiana. Exclude logging from the HNF.*

PC #145*: The Hoosier should afford the Patoka River the same protections provided to the Lost and Little Blue Rivers.*

PC #144*: The Hoosier should compost, lop and scatter, or chip and use on site the material that results from routine maintenance in developed recreation areas (mowing, pruning, maintaining vistas, etc.).*

Note: Materials that result from basic maintenance, such as grass clippings, pruned branches, and felled hazard trees, are left on site in the developed recreation areas. In many instances, larger tree branches are chipped and scattered in the recreation areas.

PC #371: *Suggestions related to trail management decisions.*

A. *The Hoosier should develop a process to decide which trails should be multiple use and which single use.*
B. *The Forest should continue to collaborate with partners on trail management and monitoring, as well as ecosystem restoration.*
C. *The Hoosier should collaborate with motorized recreationists to identify existing travelways scheduled for abandonment; some could be adopted as recreational routes.*

D. *Opening the Hoosier to ATV use would be more fair to all taxpayers and an economic boost to the area.*

***PC #370**: Suggestions or comments on what the Hoosier should offer for recreation:*

A. *The highest desire for the Forest is relaxation, and activities involving noise, visual blight, and dust should be avoided.*
B. *The Forest fails to recognize the public's desire for protection of wild places.*
C. *The Forest should provide quiet places for reflection.*
D. *The Hoosier is needed for recreation; once it is cut, it never comes back.*
E. *No pack animals should be allowed in the Forest.*
F. *The Forest should rely on recreation use that doesn't require development of new roads.*
G. *All pets should be kept on a leash.*

***PC #272:** I am concerned about the logging in southern Indiana. I enjoy camping and without trees ruins the camping experience.*

***PC #339:** Management of the forest is important for those who enjoy hunting. The HNF provides important, available access for those who cannot afford to lease private land.*

***PC #341:** The loss of ruffed grouse and woodcock has resulted in a loss of hunting opportunity in our state.*

***PC #342:** No fishing, no trapping, no hunting (with or without hounds, no firewood gathering, no berry picking, no plant collecting (except 'shroom gathering)*

***PC #357:** Using a logging trail or a fire road should be done by permits and require completion of an awareness course.*

***PC #344:** Forests provide a necessary escape from the hustle and bustle of everyday life in the city.*

***PC #174**: The following concerns were expressed about trail use and construction.*

A. *Increasing trail density standards does not address the issues such as providing solitude.*
B. *Switchbacks are more difficult to maintain than contour trails and abuse of them causes resource damage.*
C. *User groups should be consulted on trail design issues.*
D. *Horse trails in riparian areas should be grand-fathered in and not relocated.*
E. *Hikers should be required to have a trail permit just as mountain bike and horseback riders are.*
F. *Reroutes should be made optional for riders, and the old trail should be left open.*
G. *Horseback riding should be prohibited on the Forest because horses damage trails.*
H. *More use should be made of volunteer networks in trail work.*
I. *Horses must stay on designated trails.*
J. *Equestrian trails in the wilderness sacrifice wilderness character.*
K. *Horses introduce NNIS plant seeds into the Forest.*
L. *The Hoosier could build alternative horse camps and reduce or eliminate the camp on the perimeter of the Wilderness.*
M. *If an ATV trail system is constructed, these trails should be closed during the late winter and spring ground nesting seasons.*

PC #358: *The availability of access plays an important role in dispersing recreation uses across the Hoosier.*

PC #178: *The Hoosier should not restrict mountain bikes to designated trail systems, as they are not damaging to natural resources.*

PC #154*: The Hoosier must include mandatory monitoring requirements for population counts. The list of species considered should include frogs, snakes, salamanders, and other groups of species that occur on the forest.*

Note: **Chapter 4 of the Forest Plan** contains direction for monitoring and evaluation.

PC #158*: The Hoosier should not strive to reach the goal of maintaining survivable populations of wildlife that depend on early successional habitat. Optimum habitat conditions for strong, healthy population numbers should be the goal so that everything won't hang on to little remnants of early successional woodlands.*

PC #159*: The Hoosier should always be concerned with Forest wildlife species and remove all references to non-forest wildlife.*

Note: The National Forest Management Act (36 CFR 219.19) directs the Forest Service to manage fish and wildlife habitat to maintain viable populations of existing and desired nonnative vertebrate species in the planning area. Direction in the Forest Plan attempts to meet that direction by creating and maintaining habitat for all species on the Forest.

PC #221: *The Hoosier did not analyze how the amount of early successional habitat would vary with or without management intervention – including both public and private lands.*

PC #222: *The Hoosier did not adequately document if early successional acreage is needed for the viability of the species it would support. By excluding natural openings, canopy gaps under 2 acres, and roads – these acres were underestimated.*

PC #293: *Much of the Hoosier landscape is field, edge, or successional forest. I think the forest service in Indiana should focus on allowing the forest to grow old.*

Note: In the Selected Alternative, only 41 percent of the Forest is suitable for timber management, leaving the remainder to natural processes.

PC #296: *Timber harvest emulates ecological disturbances that result in a diversity of vegetation types beneficial in maintaining a variety of cover types and foods wild turkeys can use and also maintains mast for turkeys.*

PC #297: *Focusing all the even-aged treatments into one unit does not benefit early successional species across the forest.*

PC #269: *The regeneration response to clearcutting on the Hoosier needs to be addressed.*

PC #295: *Ruffed grouse will benefit most by 80-year rotations.*

PC #163: *Respondents addressed other concerns without supplying rationale****.***

A. *Benefits of clean water were arbitrarily excluded from the PNV calculations despite Daniel Boone residents listing clean water as important to 94% of them.*
B. *Respondent cites the safety commission's work on the dangers of ATVs.*
C. *What is the Forest Service's "role in providing moisture to farms and communities downwind?"*
D. *The Forest Service's efforts would be better suited to "help private owners manage their forests, rather than consume and destroy this precious gem [the Hoosier]."*
E. *Species such as the marbled murrelet become endangered when old growth habitat is removed.*
F. *Documents are too extensive for realistic public review.*

Note: The marbled murrelet is not relevant to our analysis, as it is a resident of Pacific Northwest old-growth forests.

***PC #169**: The following comments were also submitted with no rationale or explanation of why things should be addressed or included.*

A. *No grazing should be allowed on the Forest except for bison and no animal damage control or hybrids be permitted without exceptions.*
B. *No "bogus biological evaluations, no circular logic environmental assessments, no funky euphemism."*
C. *A fee should be charged if the Forest implements ATV trails and the trails should be monitored.*
D. *Forests with well functioning ecosystems are rare.*
E. *Local resources are being depleted rapidly without an apparent plan of action.*
F. *Respondent claims the Hoosier has ignored proof of timber theft in the past.*
G. *A more thorough analysis of undisturbed forests in Indiana is needed.*
H. *These lands are set aside for a purpose [what purpose was not stated].*
I. *The Hoosier's time would be better spent on building up the community.*
J. *A request was made that we protect the Hoosier from development.*
K. *Medicinal herbs on the Hoosier are plentiful.*
L. *The Hoosier should be concerned about future water and air quality.*
M. *Retaining the Forest is a valuable asset for all Hoosiers, not just special interest groups.*

***PC #171**: Though planning documents infer the forest recovers in 100 years one would suspect collateral damage is done.*

***PC #369:** Preservation of forests is integral to our collective physical and spiritual well-being.*

***PC #172:** The Hoosier should be a leader in multiple-use management.*

A. *Respondent supports hunting opportunities for ruffed grouse.*
B. *Does not wish to see the Hoosier fall back into the same defensive mode that has characterized the Forest's management for the past two decades.*
C. *More funds should be used for education on the Hoosier. An organization also saw the Forest's role as being a leader in educating the public on the value of timber management.*
D. *The public would benefit from the Hoosier doing interpretive programs on timber harvesting, as well as explaining the negatives of not harvesting and the consequences of urban sprawl.*
E. *Some people appreciate salvage logging and the jobs the Forest brings to the southern part of Indiana.*

PC #160: *The Hoosier is missing an opportunity to join forces with those who want to protect rather than exploit public lands.*

PC #239: *All Hoosier maps should be produced with GIS so they can be provided in response to FOIAs. Public participation is inadequate without these types of maps.*

PC #241: *The Hoosier did not incorporate all information in the decision making process; it did not incorporate the socioeconomic analysis.*

PC #214: *The Forest Plan should consider that the forest is an evolving connected ecosystem and should not be managed as separate sections of land for individual species.*

PC #215: *The Hoosier needs to disclose what kind of software is being used to analyze public comments.*

PC #216: *Statements and concerns related to air quality on the Hoosier include:*

A. *Timber harvesting causes air pollution by the act of carbon release, pollutants from machinery, and the loss of trees as air purifiers.*
B. *Past timber harvest operations have not considered the effect of dust and increased traffic on adjacent landowners.*
C. *Southern Indiana power plants are among the worst polluters in the nation and trees have a positive effect on air quality.*
D. *Timber harvesting removes trees and results in loss of oxygen.*

PC #217: *The Hoosier should provide one or more invertebrates as management indicator species.*

PC #218: *The Hoosier should consider site-specific monitoring and surveying for management indicator species as required by the new planning regulations.*

PC #257: *Cutting down potential roosts certainly harms the Indiana bats.*

PC # 287: *Clearcutting is not an appropriate approach to managing a hardwood forest. Given the relatively small amount of public forest in the state, it would seem best to follow a sustainable yield selective cut.*

PC #294: *Construction of permanent openings often leaves some trees girdled and dead.*

PC #316: *Increase the amount of controlled burning to provide wildlife habitat.*

PC #279: *Proposed management techniques such as logging threaten endangered species such as the Indiana bat, the gray bat, fanshell mussel, and bald eagle. You can't remove all trees and vegetation without destroying the wildlife.*

PC #361: *Dragging the old logs (in salvage logging) kills off other species.*

PC #237: *Indiana bats need partially opened canopies to warm their roosts, so timber harvesting should be allowed in riparian areas.*

PC #286: *I approve of selective cutting of trees for raising funds, but do not approve of clearcutting without replanting trees.*

PC #288: *If there is not a need to cut public forests for necessary wood supply, why is there an increase of 31% in the amount that could be cut?*

Response (#288):The purposes of harvesting on the Hoosier are ecosystem restoration and wildlife habitat improvement.

PC #219: *The Hoosier should make changes to the Species Viability Evaluation.*

A. *Clearcutting should not be justified for a plains grouse.*
B. *Henslow's sparrow is a grassland bird, and conversion of a national forest to grassland is not appropriate.*
C. *Alternative 2 shows the greatest benefit to forest dependent species in the HSI graphs, so that alternative should be the focus of management.*
D. *The bobwhite quail is not a forest species.*
E. *Commenter questioned why the Indiana bat was not addressed in the SVE process in Alternative 1 and 2.*
F. *Commenters asked how we can justify timber management for species viability since these species survived before timber harvesting.*

PC #270: *The analysis needs to consider the impact of increased populations of nest predators such as blue jays, raccoons, and black snakes. The analysis needs to also consider the impact of logging roads (both providing feeding areas and a source of calcium for cowbirds) on forest interior species.*

PC #210: *The Hoosier analysis failed to meet legal requirements for wildlife.*

A. *All State and Federal threatened and endangered (including candidate) species, sensitive species, species of concern, and rare species should have been analyzed.*
B. *Population-species analysis and regional landscape analysis for wildlife was also not adequate.*
C. *A list of studies that should have been referenced was supplied.*
D. *Forest should disclose which species can, and which cannot, maintain viable breeding populations.*
E. *The Forest is in violation of the Migratory Bird Treaty Act (MBTA) by allowing timber harvesting and possible bird mortality.*
F. *Baseline population data and monitoring plans need to be established for reptiles and amphibians on the Forest.*
G. *Cougars should be addressed since they have been sighted in Indiana.*
H. *The effects of artificial openings on biodiversity was not discussed.*
I. *Potential impacts need to be shown for the effects of edge and fragmentation.*
J. *Consider the importance of maintaining connectivity between individual and large habitat blocks.*

PC #258: *Logging takes away the animals' homes and sends them into the city and open roads to be killed.*

PC #270: *The FS has not developed an alternative not to allow logging during the nesting season.*

PC #284: *Stop the clearcutting of our only virgin forest in our state.*

Note: The Hoosier was mostly created when the Federal government claimed and acquired abandoned farm lands.

***PC #225**: Suggestions were made for the Hoosier regarding the management of plant species:*

A. The FEIS should address genetically engineered trees.

B. Timber harvesting ruins the underbrush that has medicinal plants, herbs, natural fruits, etc.

C. Historically, there were not habitats dominated by grasses, shrubs, or young trees in the area so these habitats need not be represented on the Hoosier.

D. Another commenter suggests these habitats are at the low range of their historical conditions and should be increased.

E. The Forest should collaborate with scientist to reintroduce native species like American chestnut and butternut with resistance to the pathogens that decimated their populations.

F. The Forest should also collaborate on improving hardwood quality through genetics and timber stand improvement.

G. Alternative 4 shows pine dropping out of the species mix faster than other alternatives. Commenter asks for the scientific basis to show that cutting down pines speeds the transition to hardwoods.

H. The Forest should collaborate with scientists to find the optimal tract size and shape for improving young successional forest habitat.

***PC #224:** The DEIS defines seedlings as 0-9 and saplings as 10-19 but then discusses the value of the 0-20 year age class with a table which has the consolidated age class groupings as 0-9 and 10-39.*

***PC #230:** The Hoosier should recognize that control of aquatic nonnative invasive species is an appropriate use of herbicides.*

PC #157: *The Hoosier should give greater emphasis to the goal of controlling NNIS.*

Note: The Forest Service Chief, Dale Bosworth, has identified invasive species as one of the four critical threats to our nation's ecosystems. The goal of the USDA Forest Service invasive species program is to *reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species across all landscapes and ownerships*. http://www.fs.fed.us/invasivespecies/index.shtml)

***PC #106**: The Hoosier should not purposefully allow NNIS anywhere on the Forest.*

***PC #107**: The Hoosier should address aquatic nuisance species.*

***PC #220:** Commenters made suggestions or questions concerning Hoosier wildlife habitat management:*

A. Habitat guidelines for wild turkeys recommend that maintained openings compose at least 5 percent of the land cover.

B. Recommend that mowing not be allowed.

C. The size of forest openings should vary from 10 to 30 acres.

D. Early successional species are at unnaturally high levels due to mismanagement. These high levels need not be maintained.

E. Indiana doesn't need more habitat for deer and grouse.

F. The impact of increased deer should be considered since they eat endangered plants and could contribute to oak decline.
G. Strips of pine provide good edge habitat for rabbits and other wildlife, especially for winter cover.
H. Cutting down pines prevents Indiana bats from using them for roosting.
I. Support the maintenance of wildlife openings by chemical applications, mowing, and soil disturbance.
J. Discontinuing the forest opening program would improve the breeding success of closed canopy forest dependent bird species.
K. Analyze timing of management to determine impacts on nest predation.
L. Ability to do chainsaw work should be extended through summer months to retain opening integrity.
M. Stop maintaining wildlife openings since they contribute to inflated populations of deer and meso-predators.
N. Will the Forest be faced with reintroducing grouse in 50 years presuming there are any endemic grouse populations at that time viable enough to support transplanting?

PC #321: *Clarify that not all nonnatives are invasive*

PC #322: *Although prolific use of herbicides may not be acceptable to some people, there seem to be no other ways to control invasive and exotics species that threaten the native vegetation.*

PC #325: *Must include mitigations to address likely increase of invasive species with oak-hickory management treatments.*

PC #306: *We concur in the need to use chemicals. Don't bind your hands by requesting these tools for exotics only.*

PC #208*: Several suggestions were made regarding Special Area management.*
A. As the Hoosier acquires new sites they should be inventoried for natural features that may allow the area to qualify for a Special Area.
B. The Plaster Creek Special Area should receive top consideration as a Research Natural Area.
C. Another suggestion was that Pleasant Valley, West Valley Glade, Virginia Saxifrage, Kuntz Ridge and Kuntz Ridge Barrens, Slick Rock Hollow, Abbots Hollow, Jubin Creek, Bear Hollow, Breeden Glade, and Magnolia site should all be added as Research Natural Areas.
D. Reduce the size of these areas or allow vegetation management unless it can be quantitatively demonstrated that this will detract from the character of the ecosystem being protected.
E. *Forest openings should be eliminated from all Special Areas*.

PC #213: *The DEIS should reflect a range of age classes in older stands just as it displays a full range of younger age classes. Forests live hundreds of years, but the tables only go to 80+ years.*

PC #227: *Streams on the Hoosier should be clean and pure enough for people to drink from if desired without fear of getting sick.*

PC #228: *Watershed analysis on the Hoosier should consider a variety of cumulative effects on water resources such as effects on coarse particulate matter, fine particulate matter, algae abundance, temperature extremes, turbidity, and diurnal cycle of dissolved oxygen.*

Part 4: Letters from Federal, State and Local Agencies

D000 625

United States Department of the Interior

Bureau of Land Management-Eastern States
Milwaukee Field Office
626 E. Wisconsin Avenue, Suite 200
Milwaukee, Wisconsin 53202-4617

IN REPLY REFER TO:

3031(030)

June 22, 2005

Judi Perez, Forest Planner
or Kenneth G. Day, Forest Supervisor
Hoosier National Forest
811 Constitution Avenue
Bedford, Indiana 47421

Dear Ms. Perez or Mr. Day:

Enclosed are the comments that this office would like to have considered in the preparation of the final Hoosier National Forest Plan and EIS. Thank you for involving us in this process. Lucille Tamm of this office is available for further discussion of any details you may require regarding our suggestions. She may be reached at (414) 297-4419 or ltamm@blm.gov.

Sincerely,

Jeff Nolder
Assistant Manager Mineral Resources

Enclosure

BLM Comments on Draft Hoosier National Forest Plan

The minerals and geology section of the Draft Hoosier National Forest Plan states that the Forest will *"Prohibit mineral development (including oil and gas) when the Federal Government owns the subsurface rights. The exception is, development may occur, under the supervision of the government, to prevent the draining of Federal mineral resources by adjacent mineral developments."*

The President's Energy Policy states that Federal lands will be available for oil and gas leasing unless they have been specifically eliminated from such development for site-specific reasons. The Forest Service Manual regarding oil and gas exploration states in Section 2822.1 - Lands and Minerals to Which Applicable: "National Forest System lands are generally available for exploration and mining unless specifically precluded by an act of Congress or other formal withdrawal."

We support the protection of the Federal minerals from drainage, but since the term "drainage" has a technical and regulatory definition that is very specific, we would suggest that prohibiting development of federal minerals except in drainage cases is unnecessarily restrictive. The state regulations regarding well spacing and setbacks are designed to protect adjacent landowners from drainage. Thus Federal minerals, by virtue of the state regulatory definition, would rarely be in a drainage situation if the well was legally permitted and correctly located on the permitted site on adjacent private lands.

By precluding all other leasing of federally owned oil and gas within the Forest, many adjacent private landowners may be unable to fully develop their properties. They will be effectively prohibited from producing the portion of their resources that are in close proximity to federal mineral ownership. *The nation will be deprived of the resources and revenues that would have* been recovered from both the private lands and the federal lands. In addition, there will be an economic impact on the local area from the loss of private income as well as the county governments not receiving a share of the royalties from the production on the Forest lands.

Consequently the BLM requests that the Forest Service consider the possibility of allowing limited development of federally owned oil and gas rights beneath the National Forest Lands wherever the following three conditions coexist.

1. "General Forest" management is proposed:
   Management areas 2.8 General Forest provides young forest, mostly by uneven-aged methods, forest openings, timber products, and some minerals.

   Management area 3.3, General Forest, provides young forest, a mix of even-aged and uneven-aged methods, forest openings, and timber products.
2. Mr. Volz's[1] analysis indicates high or moderate potential for development of the petroleum resources,
3. The private and federal ownership is interspersed.

The surface disturbances involved in oil and gas development are virtually identical to those disturbances allowed and even prescribed to attain the desired resource conditions for Management Areas 2.8 and 3.3. The same surface use conditions and restraints could be applied to a drill site and its reclamation as would be applied to any other surface management activity occurring on a small tract (1 to 2 acres of disturbance).

Although leasing around parts of Hoosier National Forest is now occurring, the BLM has not been contacted regarding leasing of the Federal minerals. We do not expect that there will be a large demand for leases in the forest or that large portions of the Hoosier will be leased. Individual offers to lease or expression of interest should be able to be considered quickly and economically. Stipulations based on the location's management goals and objectives could be developed using these statements in conjunction with BLM lease terms and conditions. We anticipate that several small parcels with specific exploration targets might be requested over the course of the Forest planning period.

We feel that since the physical effects of oil and gas exploration are virtually identical to other management activities that are allowed, it is neither necessary nor cost effective to duplicate this analysis in order to allow specific small parcels to be leased. In all fluid minerals development the total lease acreage would be much larger than the surface area required for exploration and production of the resources. Leasing with surface use constraints, including the condition of no surface occupancy would be a valid way to protect the government's interest, be a good neighbor to adjacent landowners and make a modest contribution to the nation's energy needs.

Development of oil and gas resources is consistent with the President's direction, the Congress's intent and the Forest Service policies.

Lucille Tamm

Lucille Tamm

[1] In 1989 Steve Volz of the USBLM provided a description of the oil and gas potential in the Hoosier National Forest. This description was reviewed and validated for use this Forest Plan revision by Lucille Tamm of this office in 2004.

D001147

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUN 23 2005

REPLY TO THE ATTENTION OF
B-19J

Judi Perez, Forest Planner
Hoosier National Forest
811 Constitution Avenue
Bedford, Indiana 47421

Re: **Draft Environmental Impact Statement for the Proposed Land and Resource Management Plan for the Hoosier National Forest, Brown, Crawford, Dubois, Jackson, Lawrence, Martin, Monroe, Orange, and Perry Counties, Indiana EIS No. 20050114**

Dear Ms. Perez:

The U.S. Environmental Protection Agency (U.S. EPA) has reviewed the Draft Environmental Impact Statement (EIS) and the Proposed Land and Resource Management Plan (Forest Plan) for the Hoosier National Forest (Forest) in accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA). We are pleased to have this opportunity to add U.S. EPA's suggestions to the planning effort for the Forest.

Located in southern Indiana, the Forest consists of approximately 199,150 acres of closed canopy hardwood forests, forest openings, cave and karst ecosystems, barrens, cliffs, riparian habitat, and early successional forested stands. There is a mix of public and private lands within the Forest's proclamation boundary. The Forest is managed under the multiple use concept, providing for the conservation and wise use of natural resources.

Several issues identified as important to forest planning and the need for change include watershed health, ecosystem sustainability, and recreation management. The U.S. Forest Service (USFS) evaluated five alternatives in the Draft EIS for revision of the Forest Plan. The five alternatives address these issues in a variety of ways such that each would meet the stated purpose and need. The Preferred Alternative, Alternative 5, emphasizes restoration removal of non-native pine species and restoration of oak-hickory vegetation, while meeting species viability needs. This alternative is similar to the existing Forest Plan, but adds features such as a 13,000-acre area focused on providing early successional forest habitat for the suite of species dependent on that habitat type.

This planning effort is timely and critical to the continued health of the Forest. The Forest remains among the few areas capable of maintaining plant and animal diversity on a landscape scale while providing recreational opportunities to satisfy the growing public demand for outdoor recreational experiences in natural settings. Because of these demands upon the Forest, the U.S. EPA supports the preferred alternative identified in the Draft EIS. The preferred alternative

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appears to strike a balance between conservation of the species found on the Forest and wise use. Specifically, the U.S. EPA would like to commend the USFS for recognizing the importance of restoring an oak-hickory composition. Additionally, by focusing management activities for early successional habitat into a newly-created management area, late successional habitat will not be affected by further fragmentation.

Based on our review of the two documents, we have assigned a rating of **EC-2 (Environmental Concerns-Insufficient Information)** to the Draft EIS and the proposed LARMP. A summary of the rating system used in the evaluation of these documents is enclosed for your reference. We offer the following comments on the Draft EIS for consideration during development of the Final EIS and the final Forest Plan.

Management for early- and late-successional habitat

We recommend further justification be included in the Final EIS to support proposed management activities pertaining to these two seral stages. We believe it would be useful to include additional information pertaining to Neotropical migratory bird species (NTMB), many of which have declined during the past 50 years, as a benchmark for the necessity to manage these seral stages.

We suggest the following details be included in the Final EIS: 1) population trends for NTMB on their breeding grounds; 2) tract size needed to maintain viable populations, particularly for area sensitive, forest interior species; 3) whether appropriately-sized tracts of suitable habitat currently exist, how many tracts, and where they are located on the Forest; and 4) possible reasons for population declines. Examining several NTMB (covering other principal habitat types found on the Hoosier) in addition to the Management Indicator Species should support the DEIS conclusion that proposed management is consistent with the goal of maintaining species viability for both early- and late-successional NTMB species on the Forest, which is a major breeding area within the State of Indiana.

Conversion of non-native pines to native hardwoods

Pines were planted from the 1930's until the mid-1980's to control erosion. Pine communities consist of a closed canopy and a forest floor which is virtually devoid of plant species. Conversion of this plant community to native hardwoods is beneficial to forest diversity.

Pine removal in Alternatives 3 and 4 would be accelerated in the first three decades by removing entire stands and not just portions of stands to reduce the likelihood of pine seedlings re-establishing in those stands. Alternative 4 would provide the greatest amount of conversion. We recommend the Final EIS include a discussion of the reasons for selecting Alternative 5 over either Alternative 3 or 4 in terms of the quantity of pine to be removed under the proposed Forest Plan. In particular, we suggest the following question should be answered in the ROD: will the acreage converted to hardwoods under the preferred alternative constitute the most prudent management approach, from an ecological standpoint? This information would provide a more complete analysis of the benefits and detriments associated with the preferred alternative for the NEPA process.

Restoration of oak-hickory habitat

Similar to the above comment, we recommend the Final EIS include a discussion of the reasons for selecting Alternative 5 over either Alternative 3 or 4 in terms of the use of prescribed fire in conjunction with harvest to increase oak-hickory regeneration, a fire-dependent ecosystem. Without management for these shade-intolerant tree species, a shift in forest composition has implications for many wildlife species that depend on oak and hickory species for suitable habitat and for mast production.

Alternatives 3 and 4 propose the greatest use of prescribed fire and harvest resulting in the largest acreage of oak-hickory habitat. Again, Alternative 4 would provide for the greatest amount of oak-hickory regeneration. We recommend the Final EIS include a discussion of the reasons for selecting Alternative 5 over either Alternative 3 or 4 in terms of the amount of prescribed fire and harvest to be used as a tool for purposes of regeneration. Again, we suggest the following question should be answered in the ROD: will the acreage regenerated to oak/hickory under the preferred alternative constitute the most prudent management approach, from an ecological standpoint? An analysis of the benefits and detriments associated with this management selection over the other two alternatives would offer a complete analysis for the NEPA process.

Seasonal closure of trails

We would like to see some of the elements of Alternatives 2 and 3 carried forward to the preferred alternative. The U.S. EPA strongly suggests that Alternative 5 be enhanced to include seasonal trail closures to mountain bicycles and horses during inclement weather for the Charles Deam Wilderness. The advantages of this approach would be two-fold: 1) the public would know what to expect in terms of trail availability; and 2) closures would be helpful in maintaining the trail surface on those trails that have not been hardened or are located in particularly wet or sensitive areas. Trail maintenance is more problematic in the wilderness area because it must be accomplished using primitive means, making maintenance more expensive and difficult.

Increased monitoring

We believe the proposed management activities could be enhanced by including additional monitoring events for species of global concern and invertebrate species, brown-headed cowbirds, and white-tailed deer.

The invertebrate taxa historically do not receive adequate representation in conservation planning largely due to the paucity of data regarding their status (Hoosier-Shawnee Ecological Assessment, 2004). With a concerted sampling effort, baseline information including distribution and population numbers could be assessed.

Brown-headed cowbirds should be monitored to assess the extent of their effect on the breeding success of Neotropical migratory bird species. Nest parasitism by cowbirds has been shown to be a chief constraint on the breeding success of many Neotropical migrants, effectively causing some breeding areas to become sink populations for certain species because viable populations cannot be maintained with cowbirds present. Because the Forest is one of the last remaining

major tracts of forested habitat in the Midwest, cowbirds' effect on Neotropical migrant breeding success is of particular importance. Consideration should also be given to whether a cowbird trapping program is warranted.

We also recommend the USFS initiate a white-tailed deer study to assess the impacts of the deer herd on forest structure and ecology, particularly under-represented native flora. While we acknowledge that the Indiana Department of Natural Resources (IDNR) establishes target numbers for deer harvests, not the USFS, interaction between the USFS and the IDNR would provide useful information to set harvest targets that would, hopefully, keep the deer population to a size not detrimental to the habitat. In addition, information regarding the interaction that takes place between the USFS and the IDNR on this topic should be included in the FEIS
.

We welcome the opportunity to meet with you and your staff to resolve the identified issues and assist the USFS in any way possible between now and the publication of the Final EIS and the Record of Decision. Thank you for your willingness to consider our comments; we hope they will be useful to you. If you have any questions concerning these comments, please contact Kathleen Kowal of my staff at (312) 353-5206.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Science, Ecosystems and Communities

cc: Randy Moore, Regional Forester
Enclosure – Summary of Rating Definitions

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION*

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS sate, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment

D001151

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

June 23, 2005

ER 05/289

Mr. Randy Moore
Regional Forester
Eastern Region Office
U.S. Forest Service
626 E. Wisconsin Avenue
Milwaukee, Wisconsin 53202

Dear Mr. Moore:

The Department of the Interior (Department) has reviewed the January 2005 Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan (Forest Plan) for the Hoosier National Forest (Forest); Brown, Crawford, Dubois, Jackson, Lawrence, Martin, Monroe, Orange, and Perry Counties, Indiana. For your consideration, we offer the following comments and recommendations relative to impacts of the proposed management direction and activities on resources of concern to the Department.

GENERAL COMMENTS

With few exceptions, the DEIS provides an adequate overview of each of the alternatives, with sufficient information provided to allow the reader to understand the components of each of the proposed management activities. We recognize the difficulty in considering competing interests in formulating a management plan, including a balancing of differing and often conflicting needs of various plan and animal species and ecological communities. In general, we believe that the U.S. Forest Service has done a commendable job of meeting the needs of multiple users and interest groups, while maintaining a commitment to natural resource protection and biodiversity. As the land manager of the largest area of publicly owned, undeveloped wildlife habitat in Indiana, the Forest Service is in a unique position to greatly contribute to preservation of regional biodiversity. The Department supports the Forest Service's commitment to promoting watershed health, ecosystem sustainability, and recreation management, as these issues are important to us as well as the general public. The five alternatives analyzed in detail in the DEIS differ in the level of potential impacts to trust resources of interest to the Department. We favor some aspects of the alternatives above others, as discussed below.

Alternative 1 (No Action = Current Forest Plan): The U.S. Fish and Wildlife Service (FWS) completed a formal section 7 Endangered Species Act (ESA) consultation on the current Forest Plan in July 2001 by issuing a Biological Opinion that concluded that individual Indiana bats (*Myotis sodalis*) were likely to be adversely affected, but the species would not be jeopardized by proposed management activities. The impacts from implementing Alternative 1 on Indiana bats

would be similar to those described in the FWS's July 2001 Biological Opinion for the current Forest Plan. Therefore, we refer you to that document for detailed comments.

Alternative 2 (Preservation Theme): This alternative would eliminate most active management on the Forest by ceasing all commercial timber harvest, prohibiting use of prescribed fire, and not restoring degraded wetlands or streams or allowing for the creation of new ponds, lakes, or wetlands. The Department does not support this alternative, as we believe that prescribed fire should play an integral role in maintaining the Forest's ecosystem sustainability and biodiversity. We do not support Alternative 2's passive management/retention of nonnative pines on the Forest as these trees/plantations provide very low quality habitat for most native wildlife species compared to the habitat provided by native hardwoods.

Alternative 3 (Increased Over-all Timber Harvest & Potential ATV Trail Development): This alternative would take a more aggressive approach on harvesting stands of nonnative pines and increasing the amount of prescribed fire than has occurred under the current Forest Plan. A mix of even-aged and uneven-aged harvest of hardwoods would also occur. As mentioned under Alternative 2, the Department is supportive of the replacement of nonnative pines with native hardwood species and the use of prescribed fire, provided that these actions are conducted in a manner that avoids significant adverse impacts to federally listed species. Likewise, we are generally supportive of the idea of implementing Management Area 3.3 to better provide a large area of habitat for early successional species. Because the Forest has very few areas large enough to accommodate an all-terrain vehicle (ATV) trail, the Department believes these areas would best serve those wildlife species needing larger tracts of undeveloped forest if the areas did not include a trail system for ATVs (or other off-highway vehicles) as proposed under Alternative 3. The Department generally is not supportive of an ATV trail on the Forest at this time because a wide array of negative impacts to soils, water quality, and vegetation, and noise impacts are likely to occur and adversely affect aquatic and terrestrial species residing in the area.

Alternative 4 (Maximum Harvest and Prescribed Fire): Of the five alternatives analyzed in the DEIS, Alternative 4 would allow for the highest amount of sustainable hardwood timber harvest and pine removal, as well as the most use of prescribed fire. It would also include Management Area 3.3 to provide more habitat for early successional species. We are supportive of the aggressive approach proposed in Alternative 4 for removing nonnative pines from the Forest (approximately three times the rate of the Preferred Alternative).

Alternative 5 (Preferred Alternative = Current Forest Plan + Management Area 3.3): Besides the addition of Management Area 3.3, Alternative 5 differs little from the current Forest Plan. Again, the Department supports the addition of Management Area 3.3 and agrees that the biological justifications presented in the DEIS are valid.

Fish and Wildlife Resources

Pine Removal: The Department strongly supports the proposed efforts to convert the Forest's remaining nonnative pine plantations to native hardwood tree species. We agree that this would improve foraging and roosting quality for Indiana bats and other species as these areas are converted to native hardwood stands over time.

Stream and Wetland Restorations: The Department is supportive of alternatives that incorporate plans to restore and enhance natural wetlands and streams.

Forest Openings: Because some forest-interior bird species are put at a higher risk of predation and cow-bird parasitism when small forest openings are created and permanently maintained in otherwise contiguous forest tracts, we believe this issue should have been more thoroughly addressed in the DEIS. For example, the Final EIS should enumerate how many individual forest openings would be maintained under each alternative, their average sizes, and a figure(s) illustrating their spatial distribution across the Forest. We recommend that the distribution of current forest openings be evaluated and that the Forest consider managing fewer openings or fewer but larger openings rather than maintaining many smaller openings. The overall acreage may not need to change, but a consolidation effort would significantly reduce the total amount of forest edge and would, thereby, reduce predation rates and cowbird parasitism rates. A GIS-based analysis comparing current amounts of core forest with projected amounts under various consolidation scenarios and placements would be useful. The benefits of managing fewer, but larger, forest openings would be similar to those presented in the DEIS to justify the proposed Management Area 3.3, only on a smaller scale throughout the Forest.

Bachman's sparrow (*Aimophila aestavalis*) is a species that formerly occurred on the Hoosier National Forest or adjacent lands as recently as 1976 in Orange County (Russell E. Mumford and William Zimmerman, *The Birds of Indiana*, 1984, Bloomington). The recent rediscovery of a small colony of breeding Bachman's sparrows on Fort Campbell, Kentucky, less than 125 straight-line miles from the southern edge of the Hoosier National Forest, may be indicative of a small population recovery in this species, with the potential to expand back into southern Indiana, well within the historic boundaries of the breeding range of this species. In describing the habitat for this species, Robinson (W. Douglas Robinson in *Southern Illinois Birds,* 1996, Carbondale, Illinois) notes that the "choicest locations are about 50 to 100 yards down from the ridgetops in old deserted fields. A typical territory is a circle 150 feet each way from an eroded gully, which has healed and is now well-covered with miscellaneous trees, shrubs, and particularly blackberry brambles. The territory is more attractive after about 5% of the open grass land adjacent is dotted with blackberry briars …." The species also favors early successional habitat created following clearcuts, which will be provided in the proposed Management Area 3.3.

Should this species recolonize southern Indiana, the FWS believes that the Forest would not provide enough openings to support a viable population of this species. However, it could add a number of breeding pairs to the overall population, providing some genetic diversity at the edge of this species' range, and provide habitat for a species with the potential for northward expansion of its breeding range based upon its past history.

Other Migratory Bird Efforts: The Important Bird Areas Program is a national effort to identify state-by-state areas of particular importance to breeding and/or migratory birds. The Indiana program, managed by the Indiana Audubon Society, is currently in the early stages of identifying sites on the Hoosier National Forest. We recommend that, if available, information on how these sites will be identified and how the input of the program might be incorporated into Forest Service planning should be discussed in the Final EIS.

Federal Threatened and Endangered Species

The five species the Forest Service analyzed in the DEIS were appropriate. The FWS has reviewed a draft of the Forest Service's Biological Assessment for the new Forest Plan and has previously provided comments to the Forest Service on its adequacy. The FWS anticipates that the Forest Service will soon be initiating formal section 7 consultation. This consultation will address the FWS's concerns regarding the Indiana bat and other listed species.

We commend the staff of the Hoosier National Forest for using the Indiana bat as one of its Species Viability Evaluation (SVE) species and for having the North Central Research Station produce a GIS-based Habitat Suitability Index (HSI) model for Indiana bats on the Forest. The FWS believes this approach was beneficial and greatly improved the FWS's understanding of how the different management directions would affect availability of suitable Indiana bat habitat.

Wind Power: The DEIS does not disclose whether the Forest Service anticipates issuing any Special Use Permits for wind-power developments during the Forest Plan period or whether the Forest Service considers wind-power developments as being a compatible use. The FWS is aware of energy companies proposing to construct wind turbines on some other National Forests in the Midwest. If this is a possibility on the Hoosier, please be advised that issuance of a Special Use Permit may require a separate formal section 7 ESA consultation, as direct take of Indiana bats is a distinct possibility.

SPECIFIC COMMENTS

DEIS, page 3-47, Indiana Bat: The DEIS states that "the total population has fluctuated, but has generally been increasing since the early 1980's (Brack and Dunlap 2001)." This sentence needs a qualifier/clarification, as it is not true for the range-wide population and may mislead the reader. We suggest that this statement be qualified by adding "In Indiana, the winter population…"

DEIS, page 3-59, 3rd paragraph: Regarding the future availability of alternate roost trees for Indiana bats, the DEIS states that "the availability of alternate roosts would not be expected to vary appreciably, if at all, by alternative." This statement seems contradictory to, or perhaps an oversimplification of, other data presented in the DEIS. For example, on page 3-50 the DEIS states that shagbark hickories "may provide uniquely suitable alternate roosts" for Indiana bats. However, the species composition projections shown in Figure 2.1 (DEIS, page 2-37) indicate that "hickory" species are anticipated to become less dominant but at noticeably different rates under each of the alternatives including Alternative 5, the preferred alternative. Thus, it appears that the abundance of hickories, as well as the alternate roosts that could be provided by them, would vary "appreciably" by alternative. The Final EIS should provide additional discussion of this issue.

DEIS, page 3-118, Table 3.21: We note that the table provides acreage estimates (which are derived from a GIS-based HSI Model) for Alternative 5 for Year 50 but not for Years 10 and 150. The Final EIS should provide some explanation because the text states that the HSI model

was not run for Alternative 5 (page 3-98, 1st paragraph under *Species Viability Evaluation (SVE) Analysis – Animals*).

DEIS, page 3-178: The Forest Service would likely need to conduct a separate section 7 ESA consultation with the FWS on a case-by-case basis involving any specific pest management actions (e.g., use of chemicals) to ensure that no federally listed species would be jeopardized. The Forest Service should consider stating this in the Final EIS, where appropriate.

SUMMARY COMMENTS

The Department supports the Hoosier National Forest's efforts to protect and restore the wide range of natural habitats native to this region, including the proposed conversion of the remaining nonnative pine plantations to native hardwood tree species. We believe that Alternative 5 (the Preferred Alternative) provides the best combination of actions of benefit to most of the Forest's breeding and migratory bird species, as well as to the Indiana bat.

The Department has a continuing interest in working with the Forest Service to ensure that impacts to resources of concern to the Department are adequately addressed. Please continue to coordinate with Mr. Andrew King (project biologist) or Mr. Scott Pruitt (Field Supervisor), U.S. Fish and Wildlife Service, Bloomington Field Office, 620 South Walker Street, Bloomington, Indiana 47403-2121, phone: (812) 334-4261.

We appreciate the opportunity to review the document and provide comments.

Sincerely,

Michael T. Chezik
Regional Environmental Officer

cc:
Ms. Judi Perez, Team Leader
Hoosier National Forest
811 Constitution Avenue
Bedford, Indiana 47421

L. MacLean, FWS, Fort Snelling, MN

D001145

DNR Indiana Department of Natural Resources

Mitchell E. Daniels, Jr., Governor
Kyle J. Hupfer, Director

Executive Office
Room W256
402 West Washington Street
Indianapolis, IN 46204-2748
Telephone: (317) 232-4020
FAX: (317) 233-6811

June 23, 2005

Ms. Judi Perez, Forest Planner
Hoosier National Forest
811 Constitution Avenue
Bedford, IN 47421

Re: DNR# 11495 – Hoosier National Forest, Land and Resource Management Plan DEIS; Multi County (Brown, Crawford, Dubois, Jackson, Lawrence, Martin, Monroe, Orange, and Perry Counties)

Dear Ms. Perez:

The Department appreciates the opportunity to provide comments regarding the Proposed Land and Resource Management Plan for the Hoosier National Forest. Our agency offers these comments in accordance with the National Environmental Policy Act of 1969.

After receiving input from the professional resource managers of the various divisions, we have determined that, whichever alternative is chosen, the final plan for the Hoosier National Forest needs to contain methods to address the following critical issues:

1) Maintaining the Oak-Hickory component across a broad area of the forest at levels that are equal to or above the current levels
2) Creation and maintenance of significant areas of early successional habitat types broadly distributed across the forest, while at the same time also maintaining areas of the other seral stages of forest development
3) Ability to use prescribed fire and chemical agents over a broad area of the forest to control invasive species (both plant and animal) and to facilitate habitat or ecosystem maintenance and development

We feel that the adoption of either Alternative 4 or Alternative 5, each with certain amendments, will most appropriately address these critical issues while continuing the existing recreational opportunities and necessary protections for cultural and ecological resources.

Due to the many voices of the Department, the value we hold on numerous issues, and the complexity of the issue at hand, we have enclosed several comments from different divisions within the DNR in order to provide specific professional information regarding the above issues. These attachments are to be considered part of our comments on the plan.

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The last approved Hoosier National Forest plan provided for a wide array of natural resource management options. However, the plan was not fully implemented. The wise, active, and scientific management of the HNF and its natural resources is important to the health and well being of Indiana. Our Department hopes that the 2005 plan will be fully implemented with consideration of the issues we have discussed.

Our agency appreciates this opportunity to be of service. Please do not hesitate to contact Christie Kiefer, Environmental Coordinator, at (317) 232-4160 or toll free at 1-877-928-3755 if we can be of further assistance.

Sincerely,

John Davis
Deputy Director
Department of Natural Resources

Attachments: 5

Note: Please include the above DNR# on any future correspondence regarding this project.

ATTACHMENT 1

Kyle Hupfer, Director
Department of Natural Resources June 14, 2005

The Division of Forestry has reviewed the Draft Environmental Impact Statement and Proposed Land and Resource Plan for the Hoosier National Forest provided by the U. S. Forest Service in February, 2005. We considered the forest management and silvicultural implications of each of the five (5) alternatives in light of what we consider the two most pressing forestry issues facing the Hoosier National Forest. Those issues are the maintenance of a significant Oak-Hickory forest component and the control of invasive species.

Maintenance of the Oak-Hickory component and a variety of size/age classes, are highly important in maintaining plant and animal diversity, habitat variety, and highly valued timber products. The use of timber harvesting, prescribed fire, and appropriate herbicide use are the only effective and ecologically responsible ways available today to mimic the disturbance regimes of nature and native cultures that produced the forest communities that exist on the Hoosier today.

It is highly important that these silvicultural and habitat management efforts are fully implemented to have any long-term hope of maintaining the Oak-Hickory component, as well as other mid-tolerant to shade intolerant species, at or near present levels. These actions are also required to provide even a modicum of early successional habitat on the Hoosier.

The complete implementation of either Alternative 4 or Alternative 5 provides the best opportunity of maintaining the Oak-Hickory component at or above current levels. The silvicultural and timber harvesting targets of both of these alternatives are well within the limits of sustainable forest management for the Central Hardwood Region. The harvest and vegetation manipulation goals are, if anything, very conservative considering the growth rates and stand conditions on the Hoosier. We question the determination in the Preferred Alternative 5 that only 41% of the HNF is considered suitable for general forestry and suggest this be re-evaluated under the stated goals of maintaining viable populations and forest communities.

The full implementation of these same three tools (harvesting, prescribed fire, and herbicide use) within the framework of either Alternative 4 or Alternative 5 is highly important in controlling the spread of invasive exotic plants and the restoration of many native plant communities.

The plan addresses the control of invasive species, but not all alternatives afford the full range of tools to the Forest Service to deal with invasive species effectively. It is imperative that the Forest Service have the full spectrum of scientifically validated control methods at their disposal for all areas of the HNF. This includes the use of pesticides in accordance with approved labeling of the product. The HNF should also be

afforded the means to implement control programs for Gypsy Moth, Emerald Ash Borer, and other serious pests that are now being found in Indiana in the event they make their way to the HNF.

The Forest Service recognizes Kudzu as an invasive species, but its low occurrence on the HNF makes this a low priority species for the HNF. Kudzu is an alternate host to Soybean rust, which is a severe threat to Indiana agriculture and can overtake forest areas. Our agency recommends that Kudzu be elevated to a high priority species to control in the event that a strategy of Statewide eradication of the species is adopted.

While Emerald Ash Borer threatens to wipe out the Ash species in the central hardwoods, research on American Chestnut may soon allow the reintroduction of this highly valued tree species. We would like to see American Chestnut reintroduction as an allowed and targeted practice on the HNF.

Dan Ernst and Ben Hubbard
Division of Forestry

ATTACHMENT 2

Kyle Hupfer, Director
Department of Natural Resources June 14, 2005

The Division of Fish and Wildlife appreciates the opportunity to provide comments to the Proposed Land and Resource Plan for the Hoosier National Forest. The Division is legally responsible for providing for the protection, reproduction, care, management, survival, and regulation of wild animal populations in Indiana. The Hoosier National Forest provides the largest, relatively contiguous, forested land area in Indiana supporting a wide variety of forest wildlife and associated wildlife recreation. We reviewed the 5 Alternatives presented in the Draft Environmental Impact Statement and Proposed Resource Management Plan provided by the U.S. Forest Service, February 2005.

The Alternatives range in management intensity as follows:

Alternative 2 is the no-timber management alternative with minimal management.
Alternative 1 is the current plan that was never fully implemented and relies mostly on uneven-aged management.
Alternative 5 is the preferred alternative and is essentially Alternative 1 with one small area of the forest that emphasizes early successional species and habitats.
Alternative 3 is intermediate in timber management practices and the only one that allows ATVs.
Alternative 4 is the most moderately active management alternative of the ones presented.

Alternative 4 best provides for wildlife diversity (a range early to late successional forest species). It would allow the most timber harvest, but 45% of the forest will still not be actively managed. Alternative 4 uses fire as a management tool much more extensively. About 41% of timber harvest will be in small clearcuts, 24% shelterwood, and 35% single-tree selection. After 150 years, 64% of the forest will be 80 years or older compared to 48% today. This is the only alternative that maintains or slightly increases the amount of oak-hickory forest critical to wildlife.

Attached are more specific comments provided by the various species specialists within the Division of Fish and Wildlife.

Glen Salmon, Director
Division of Fish and Wildlife

Comments from Dr. John Castrale, Avian Ecologist; May 27, 2005.

In order of management intensity, we have the following:

Alternative 2 is the no-timber managment alternative with minimal management at all.
Alternative 1 is the current plan that was never implemented and relies mostly on uneven-aged management.
Alternative 5 is the preferred alternative and is essentially Alternative 1 with one area of the forest with emphasis on early successional species and habitats.
Alternative 3 is intermediate in timber management practices and the only one that allows ATVs.
Alternative 4 is the most aggressive management alternative of the ones presented.

From the standpoint of avian diversity (providing for a broad group of early to late successional forest species), I think that Alternative 4 does the best job. It would allow the most harvest (about twice that of Alt. 1 and 2), but still 45% (compared to 59% for Alt. 1 and 2) of the forest will not be actively managed. Altemative 4 uses fire as a management tool much more extensively. About 41% of timber cutting will be in small clearcuts, 24% shelterwood, and 35% single-tree selection. After 150 years, 64% of the forest will be 80 years or older (compared to 48% today). This is the only alternative that maintains or slightly increases the amount of oak-hickory forest.

Comments from Scott Johnson, Mammalian Ecologist; May 23, 2005.

Overall, the Hoosier provides important habitat for forest bats in southern Indiana. Of the 12 species native to the state, 10 have been documented on the Forest, 6 of which have evidence of reproduction (Brack et al. 2004). All these species use forests to some degree, either for roosting, foraging, traveling, and any combination(s) thereof. Northern bat, red bat, and eastern pipistrelle are the most abundant species; less common are the little brown bat and big brown bat. The Indiana bat, hoary bat, silver-haired bat (a fall/spring migrant in Indiana), and evening bat are uncommon to rare. The HNF also contains winter hibernacula for the 5 species one could expect to find in Indiana (eastern pipistrelle, little brown bat, Indiana bat, big brown bat, and northern bat). Gypsy Bill Allen Cave; however, is the only significant winter site for Indiana bats on the HNF (a Priority 3 hibernacula) and would be adequately protected under all 5 alternatives.

Although survey effort is not conclusive or complete, few Indiana bats have been captured on the HNF. Of those, all but one have been adult males, but more recent surveys indicate maternity colonies within the Forest boundary. As the DEIS suggests, habitat quality may be at least partially responsible for the lack of reproductively-active Indiana bats on the HNF. In general, the forest cover is characterized by uniform, closed-canopy, second-growth woods. Indiana bats, however, are more apt to use larger-diameter snags as roost trees that have some solar exposure; such sites are often located near/in openings, along forest edges, in trees above canopy level or in forest gaps. A variety of habitats are used for foraging, but semi-open forests with open canopies and woodland edges appear common. Wooded corridors, which connect roosting and foraging habitats, may also be important.

Management prescriptions that allow for a continuous supply of suitable roost trees while also providing for canopy breaks may improve overall foraging and roosting habitat for Indiana bats on the HNF. Of the 5 alternatives, I think only #2 does not allow timber harvesting. Of the others, uneven-age management is emphasized in alternatives 1, 3, and 5 while alternative #4 uses more even-aged mgmt. Alternative #4 also specifically emphasizes restoration of oak-hickory forest, which feature tree species frequently used as primary and alternative roosts. Pine

stands provide marginal/poor foraging and roosting habitat; conversion of these types to hardwoods, a benefit to the species, is most aggressive in alternative #4.

Timber harvest need not conflict with Indiana bat recovery, and appendix II of the recovery plan 2005 draft version provides recommendations for timber management to create, maintain, and restore foraging and roosting habitat (file attached). Alternatives #4 or #5 may provide the greatest potential for enhancing existing conditions on the HNF. Uneven-age mgmt (single tree selection, shelterwood) emphasized in alternative #5 is likely to result in more structural breaks or gaps in the canopy and perhaps greater ability to identify and retain potential roost trees. Alternatively, an even-aged management scheme that creates more, but smaller, cuts may increase edge habitats (and theoretically, more roost trees with solar exposure). Lastly, timber harvest guidelines for the Indiana bat developed by the USFWS have been in use on other heavily forested properties in southern Indiana (e.g., Crane NSWC). From what I can tell, much of this is included in the Proposed Land and Resource Management Plan (pages 3-3 to 3-4).

River otters persist near release sites in the HNF's Tell City Unit (Little Blue River) and Patoka River Unit (headwaters of Patoka Lake). They have also colonized portions of the Lost River Unit in Orange County and lower reaches of the Ohio River tributaries in Perry County (Big Deer Creek, Mill Creek). Portions of these watersheds in the HNF boundary are designated either Management Area 2.4 (features natural succession to protect/enhance water-based recreation, visual quality, and riparian values) or 9.2 under all alternatives except #2 (preservation theme). These designations are adequate, but I too believe the 4,000 foot maximum retention zone either side of a stream is excessive.

Bobcats are not mentioned or discussed in either the DEIS or proposed land/resource mgmt plan, but they would benefit from the higher level of vegetative management (particularly even-aged harvests) outlined under alternative #4, and to a lesser extent, alternatives #5 and #3 (minus the ATV trail system).

Comments from Steve Backs, Ruffed Grouse-Wild Turkey Biologist: June 13, 2005

As requested, I have prepared comments/recommendations regarding ruffed grouse, American woodcock and wild turkey based on my review of the "Draft Environmental Impact Statement – Proposed Land and Resource Management Plan (3/15/05) for the Hoosier National Forest (DEIS)", the Proposed Land and Resource Management Plan for the Hoosier National Forest (Plan)", and the Maps for the five Alternatives presented.

My comments focus on potential habitat for ruffed grouse and American woodcock since both species co-habit many of the same early successional forest habitats and both populations have seriously declined (Dessecker and McAuley 2001), especially on the Hoosier National Forest (HNF). While wild turkeys populations are currently doing well across the state, the HNF is still the central core of habitat for wild turkey in south-central Indiana and of importance to our constituents who come annually to the HNF to freely observed and hunt wild turkeys. Wild turkey populations will in the long term, benefit form the recommendations made for enhancing habitat for the ruffed grouse and other wildlife species that utilize early successional habitats during some portion of their annual life cycle. The need for active management (e.g., timber harvest and prescribe burning) to provide a diversity of habitats for a variety of wildlife is well substantiated in a series of scientific papers (see Askins 2001). Even more closely related to the HNF is an examination for forest management alternatives on the Cherokee National Forest (Klaus et al 2005).

The Executive Summary Recommendations for ruffed grouse, woodcock and wild turkey are based on the my substantive review provided in "Background and Supportive Information" section following the Executive Summary (*Note: DEIS page references are denoted by "D" and Plan page references by "P"*).

Executive Summary Recommendations

Ruffed Grouse and American Woodcock

To assure a diversity of habitats and viable populations of ruffed grouse, American woodcock and other wildlife selected for "Species Viability Evaluations" (SVE) are distributed across the HNF, a modified Alternative 4 is recommended:

- Shift Management Areas (MA) 6.2 and 6.4 into either modified MA 2.8 (P3-27) or a proposed Research MA 8.3 for ruffed grouse (* see Background Information Section) and early successional species with the desired condition maintained at 8-12 % in early successional forest habitat (0-9 yrs), 1-2 % in openings, increase the temporary opening size for group selection from 1-3 acres, and increase upper limit of temporary openings for even-age management from 5 acres to 10 acres in hardwoods.

- MA 3.1 (not specifically defined in the DEIS 2-16 & 2-30) should have a desired conditioned maintained at 10-16% in early successional forest habitat (0-9 yrs), 2-3 % in openings, temporary opening size for group selection of 2-4 acres, and the temporary openings for even-age management should be 10-30 acres.

- MA 2.4 the visual quality "retention" distances (P-3-18; P 3-25) are excessive at 1,000 to 4,000 ft (0.2 to 0.75 mile) and will severely limit forest openings in riparian zones (P 3-15) that are important habitat for American Woodcock. Visual retention parameters should be more in line with the definition presented in the DEIS (3-234 to 236).

- Inclusion of MA 3.3 into portions of Pleasant Run, Lost River, and Lick Fork purchase units of HNF would not be necessary if the three above modifications to MA prescriptions implemented, otherwise each of these Purchase Units needs ≥10,000 acres in MA 3.3.

- Even-age timber harvests should include both 80-100 year as well as 120-year rotations; D3-84 and P: B-4 infer even-age harvest will be 120- year rotation. Ruffed grouse will benefit most from 80-year rotations.

Wild Turkeys

While the proposed Alternative 4 would suffice for wild turkeys, the modified Alternative 4 recommended for ruffed grouse and American woodcock would be also be acceptable.

Background and Supportive Information

Brief Overview of Alternatives (D2-26 to 33)

Alternative 1: Represents the current, amended 1985 Plan that was only partially implemented (e.g. active commercial hardwood timber sales have not occurred except in association with storm salvage).

Alternative 2: Represents the new "Conservationist Alternative" (D2-23), which is essentially administrative wilderness with no timber harvest. The DEIS (D3-87) indicates Alternative 2 would result in species loss, loss of biological diversity, and would not be a legally viable alternative under the NFMA and NEPA process.

Alternative 3: Basically this alternative incorporates off-road vehicle use that traditionally wildlife interests and other recreation users of the HNF have vehemently opposed.

Alternative 4: Incorporates more timber harvest and prescribed burning than the other alternatives to provide the most biological diversity. Even under this "most aggressive" timber harvesting alternative, 54% will not be subjected to timber harvesting (Table 3.35;D3-160) and the proportion of mature forests (≥80 yrs) will increase over time. While this alternative is the best of the alternatives presented, it still falls short of providing the needed management to enhance habitat diversity across the forest, especially early successional species whose habitat will continue to decline by 30% (Table 3.37; D3-165).

Alternative 5: Modification of Alternative 1 in an attempt to address the growing issues (political and legal) of the rapidly declining early successional forest habitats and associated wildlife. Under this Proposed Preferred Alternative, timber harvest will be excluded from 44% of the forest and early successional habitats will decline by another 70% over time (Table 3.37; D3-165).

Ruffed Grouse Background Information

Ruffed grouse are an obligate forest species, dependent on early forest successional habitats and "area dependent" due to their relatively limited, effective dispersal range; they are nonmigratory. The ruffed grouse is the last of two members of the grouse family (*Tetraonidae)* historically found in Indiana. The greater prairie chicken (*Tympanuchus cupido*) disappeared from the northern two-thirds of Indiana around 1972 (Mumford and Keller 1984). The ruffed grouse of southern Indiana is the Appalachian subspecies or race (*B. u. monticola*) and compared to the Midwestern (*B. u. mediana*) ruffed grouse found previously found in north-northwest portion of Indiana (Aldrich and Friedmann 1943, Aldrich and Duvall 1955, Aldrich 1963). Ruffed grouse in northern Indiana were extirpated and attempts were made to restore them (Kelly and Kirkpatrick 1979, Backs 1984a). The occurrence of ruffed grouse in northern Indiana is primarily ephemeral with birds dispersing into Indiana counties bordering Michigan.

Both the ruffed grouse and American woodcock were selected by the panel of scientific experts for the "Species Viability Evaluations" for the Hoosier (HNF) and Shawnee National forests (Appendix H 451-463). These two species were chosen, in part, because of their unique habitat needs and to act as surrogate "coal mine canaries" for early forest successional habitat types used by host of other wildlife species. The American woodcock is a migratory co-patriot of habitats used by ruffed grouse but is more dependent on moist fertile soil conditions and forest openings. Overall, the DEIS (D3-109 to 112) documents the general habitat needs for ruffed grouse and that

ruffed grouse populations are imperiled throughout the Hoosier National Forest. A similar fate also faces the American woodcock within the next decade (D3-114 to 117) except its migratory advantage provides for recolonization from other source populations in the region (albeit they are declining too) should habitat improve in the future (e.g. Alternative 4).

Since the DEIS analysis, grouse populations have declined further to the lowest drumming index (DI) recorded in the continuous 27 years of this annual spring survey (DI = 0.03 drumming males heard per stop; Backs 2005) and the lowest DI since roadside drumming surveys were initiated in 1953 in the area of the Pleasant Run Unit, HNF (Backs 1984b). Habitat for ruffed grouse in Indiana is dense stands of seedlings/saplings/small pole size hardwoods generally in the 0-20 year age classes (Backs 1984a, Backs et al. 1985a). While the DEIS on page D3-65 cites Patton's (1992) definitions of seedlings (0-9 yr), saplings (10-19 yr), and pole (20-59 yr), it is not easily to determine the 0-20 yr age classes from the consolidated age classes (0-9, 10-39) presented in the DEIS tables. Extrapolating information from those tables, recognizing that very little commercial timber harvesting occurred on the HNF since 1985 (D3-278), it appears current habitat conditions for ruffed grouse on the HNF are less than 5% (Table 3.34; D3-157) and apparently at the low range of historical conditions (D3-67). The amount of potential grouse habitat declines under all Alternatives over time with the least decline under Alternative 4 (Table 3.37; D3-165).

The initial determinations of the population viability evaluation for ruffed grouse found it at "high" risk under all Alternatives until the creation and incorporation of the MA 3.3 into the proposed HNF Plan (P3-30; D3-133). The final determination of viability risk for ruffed grouse was then listed as "low" at 150 years under the final determination (Table 3.26a; D3-137) presuming the Plan (Alternative 5) is actually implemented, grouse populations exist long enough and are within close enough proximity to 3.3 MA area to respond to the improved habitat. The inclusion of the MA 3.3 and its relegation to a small portion of the HNF in Tell City District represents only an attempt to satisfy a legal requirement and raises concerns about the intent to maintain viable ruffed grouse populations across the HNF. There are biological limitations and population management concerns about limiting ruffed grouse management to the Crawford uplands/escarpment "ecosubsections" (D3-43) rather than the historic "remnant" or "residual" range in the Brown County Hill's "ecosubsection" were addressed in previous review of this proposed MA 3.3 inclusion (S. Backs, pers. commun. 10/25/04 to McCreedy and Basile, HNF, USFS:

"*1) By focusing all the even -age into one unit, it does not benefit early succession species across the forest.*

2) If your intent is to benefit ruffed grouse and/or ruffed grouse recreationists, it will be self-defeating as it will concentrate all the habitat in one area and that'll will become the focal point of grouse hunters which could lead to potential over-harvest and confound any evaluation of ruffed grouse population response to habitat management - de ja vu 1980's Gordy Gullion 1984 - Cloquett Forest, MN, Rusch & Stefano 1984/1986 WI, John Kubisiak 1984 Sandhill F & G, WI.

3) By focusing this work in the Tell City District you essentially relegate any management that might benefit ruffed grouse to the southern extremes of HNF which is also where the there is significantly drier and more xeric microclimate (quite evident by botanical features alone) that is also to the further disadvantage of ruffed grouse productivity, already low by regional comparisons (see Backs 1984 Midwest Ruffed Grouse Symposium and Major and Wise 1977 "Effects of woodland habitat changes, summer temperature, and relative humidity on density and distribution of ruffed grouse" IN PR Report W-26-R. 58 pp."

While the MA 3.3 is a welcomed and much needed management prescription, it is doubtful that there will be successful ruffed grouse dispersal or population interchange with the other purchase units of HNF. MA 3.3's isolated implementation under the Plan (Alternative 5; D3-89) does not appear to satisfy the intent of the following USFS policy statement on page D3-74 & 75 and H-451 of the DEIS (*italics are my emphasis*):

"The National Forest Management Act (36 CFR 219.19) incorporates the following direction on biodiversity when developing or revising a Land and Resource Management Plan:

> Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers *and distribution* of reproductive individuals to insure its continued *existence is well distributed in the planning area.* In order to insure that viable populations will be maintained, habitat must be provided to support at a minimum number of reproductive individuals and *habitat must be well distributed so that those individuals can interact with others in the planning area."*

This direction is further defined as to provide habitat for SVE species (including the ruffed grouse; D3-76 specifically on NFS lands (D3-77). The *planning area* is defined in the Plan (P: A-12) and would appear to *apply across the HNF*. Based on this information and the viability evaluation for ruffed grouse, a MA 3.3 prescription should be included on the Pleasant Run, Lost River, and Lick Fork purchase units of HNF.

Given that grouse populations are already imperiled and that the amount of suitable grouse habitat is projected to decline further during the next 50 years under Alternative 5 (Figure 3.20b; D3-136), it is questionable whether viable grouse populations will continue to exist on the HNF. A significant loss of habitat occurred under the current plan (Alternative 1) that was only partially implemented during the previous 20 years (i.e. little or no commercial hardwood timber harvest not associated storm salvage cuts; D3-278). It now appears within the next decade or sooner, the Appalachian ruffed grouse will drop below viable population levels from its remnant range that coincides with the Pleasant Run Unit of HNF (Backs 1984b). Under the proposed Alternative 5, it could eventually be extirpated from much of the Pleasant Run Unit. Ironically, the Forest Service's justifications for acquiring the land in the areas of Maumee, Browning Hill, and Nebo Ridge in the 1950's and 1960's included the "preservation of habitat for the ruffed grouse" (1983 DEIS HNF Plan and other USFS HNF planning documents).

Unless either pre-emptive, remedial management (e.g. increased timber harvest) is implemented to mitigate the loss of early successional habitats or a major, wide-spread natural disturbance event(s) occurs (e.g. multiple tornadoes), this native species could drop below viable population levels over much of HNF (D3-109-111) within the next 10 year planning cycle (McCreedy and Basile 2004) or possibly sooner (Backs 2004, 2005). The ruffed grouse of HNF represents a unique genotypic piece of biodiversity endemic this area. No populations of ruffed grouse in Indiana are at high enough levels to sustain another restoration effort (Backs 1984a, Backs et al. 1985b) should they disappear from areas of the HNF. Based on a historic trends in grouse populations, prior land abandonment (D3-66), forest succession, and timber sales on the HNF (Table 3.61 & 3.62; D3-278), it is estimated it would take an average annual timber sale of ≥12 million board feet (MMBF) during the next decade to mitigate the loss of early successional forest habitats that has occurred since 1985. (Note, excluding the 1997 storm salvage sales, only an average 0.28 MMBF was harvested annually, mostly pine, during the 10 years of 1993-1996, 1998-2003;Table 3.62).

Only Alternative 4 begins to approach the mitigated habitat needs for ruffed grouse and other early successional species with 9.45 MMBF annually during the first 10 years. The ≥12 MMBF mitigating benchmark is well within the average annual 18.34 MMBF capability and long-term sustained yield of 25.2 MMBF of the HNF (D3-287). Alternative 4 also utilizes the most even-age timber harvest (D3-136, D2-32 to 35), preferable for creating habitat ruffed grouse. Even under Alternative 4, the proportion of mature hardwood (80+ years old) will increase from the existing 48% to 56% in 50 years (Table 3.8;D3-88, Table 3.37;D3-165) with no timber harvesting planned for at least 44% of the HNF (Table 3.35;D3-160) even though 173,515 acres (87% of HNF) is tentatively suitable for timber harvest (P: B-13). Additional harvest restrictions/exclusions will result from the field applications of the many Forest Service standards and guidelines pertaining to visual quality, soil and slope limitations, watershed quality, allowable entry periods for rotation age and adjacent stand height, snag retention, disturbance considerations for certain wildlife species (e.g. nesting eagles and ospreys, Indiana Bat hibernacula), and etc.

To assure viable populations of both ruffed grouse and American woodcock and a diversity of forest habitats for other SVE wildlife species are retained and distributed across the HNF, a modified Alternative 4 is recommended:

- Shift MA's 6.2 and 6.4 into either modified MA 2.8 (P3-27) or a proposed Research MA 8.3 for ruffed grouse* and early successional species with the desired condition maintained at 8-12 % in early successional forest habitat (0-9 yrs), 1-2 % in openings, increase the temporary opening size for group selection from 1-3 acres, and increase upper limit of temporary openings for even-age management from 5 acres to 10 acres in hardwoods.

- MA 3.1 (not specifically defined in the DEIS 2-16 & 2-30) should have a desired conditioned maintained at 10-16% in early successional forest habitat (0-9 yrs), 2-3 % in openings, temporary opening size for group selection of 2-4 acres, and the temporary openings for even-age management should be 10-30 acres.

- MA 2.4 the visual quality "retention" distances (P-3-18; P 3-25) is excessive at 1,000 to 4,000 ft (0.2 to 0.75 mile) and will severely limit forest openings in riparian zones (P 3-15) where they are important types of habitat for American Woodcock. Visual retention parameters should be more in line with their definition as presented in the DEIS (3-234 to 236).

- Inclusion of MA 3.3 into portions of Pleasant Run, Lost River, and Lick Fork purchase units of HNF would not be necessary if the three above modifications to MA prescriptions implemented, otherwise each of these Purchase Units needs ≥10,000 acres in MA 3.3.

- Even-age timber harvests should include both 80-100 year as well as 120-year rotations; D3-84 and P: B-4 infer even-age harvest will be 120- year rotation. Ruffed grouse will benefit most from 80-year rotations.

* Note: Around 1982-3, HNF and IDNR-DWF personnel began to set up a proposed timber management & ruffed grouse research project on the Maumee Grouse Study Area (Pleasant Run Unit). The area was marked for a timber sale to include even and uneven age cuts of various sizes along with some specialize group selection cuts focusing on big-

toothed aspen clones. The Maumee Grouse Study Area has a long history of grouse study (Major and Wise 1977, Backs 1984a, Backs et al.1985a, Backs 2004, 2005) and a trail system that would facilitate radio-telemetry work to assess habitat use. While the focus of the proposed study in the early 1980's was primarily on ruffed grouse differential use of oak and aspen regeneration, it could now be expanded to include the Felknor Hollow area, Lost River Unit to evaluate early successional habitat use by ruffed grouse and other wildlife.

Wild Turkey

Wild turkey populations are distributed across the HNF under current habitat conditions. Habitat for wild turkeys and their distribution across the HNF are principally influenced by the availability of suitable brood habitat (primarily associated with various types of openings), the distribution of freestanding water, and the availability of fall/winter food resources (hard and soft mast). Management issues influencing habitat quality for wild turkeys are the proportion of forest maintained as openings (e.g. Table 3.11;D3-95), the decline of the oak-hickory forest type (e.g. Table 3.10; D 3-92), and the vegetative diversity (herbaceous forbs, available invertebrate foods, protective cover, and soft mast) maintained through active vegetation management (e.g. timber harvests and prescribed burning) or natural disturbances. Another issue pertaining to wild turkeys is the dispersed recreation use (e.g. hunting) across the forest, influenced by available access (e.g. small parking areas and foot trails).

Openings

Currently there is only 1.6% of the forest maintained as openings (Table 3.11; D3-95, Table 3.34; D3-157, D3-159; P3-7). Maintained openings are excluded from several large portions of the HNF (e.g. Deam Wilderness, MA 6.2, and several of the MA 8.2 Areas; D3-33 to 46), especially on the Pleasant Run Unit. Additional restrictions on maintained openings occur in the lowland, fertile riparian MA 2.4 (P3-24 to 25), especially if a strict interpretation of the "retention" objective (P3-18) is applied at 1,000 to 4,000 ft (P3-25) instead of following the DEIS definition (D3-234 to 236).

Most habitat management guidelines for wild turkeys recommend that maintained openings compose at least 5% of the land cover. Under the proposed Alternative 5, the proportion of maintained openings will remain at 1.6% and would increase to a more acceptable level of 3% under Alternative 4, which also has a higher proportion of temporary openings resulting from increased timber harvesting than Alternative 5 (e.g. Table 2.8; D2-39, Table 3.36; D3-162, Table 3.9;D3-90). An example of how well wild turkey populations respond to a forest environment with adequate openings and vegetation diversity, currently exists on Crane Naval Base which is 85% forested with a moderate amount of timber harvest and 15% in maintained openings distributed across the 100 mi^2 military ownership.

Oak-Hickory

The DEIS (D3-70) presents a good discussion of the importance of the oak-hickory type, its importance to a variety of wildlife (including the wild turkey), and the implications of how the shift toward a beech-maple forest will have negative impacts particularly on hard mast (e.g. acorns and hickory nuts). While not specifically addressed in the DEIS to any appreciable extent, are similar concerns regarding the availability and distribution of soft mast types across the HNF. Both hard and soft mast (e.g. various berries, grapes, and fruits) are important woodland foods for

wild turkeys. The DEIS (D3-83; 3-92) discusses the advantages of even-age harvests and prescribed fire in maintaining the oak-hickory type, indicating that Alternative 4 would result in the greatest retention of the oak-hickory type over time with a 4% increase in total acres of oak-hickory over the existing conditions (Table 2.6, Figures 2.1;D2-36 to 37, Table 3.10; D3-92; D3-165 to 167).

Timber Management and Vegetative Diversity

Besides maintaining or increasing mast for wild turkeys, timber harvests emulate ecological disturbances that result in a diversity of vegetation types beneficial in maintaining a variety of cover types and foods wild turkeys can utilize. A combination of timber harvests and prescribed burning in both harvest and non-harvest areas can create a variety of seasonal habitats used by wild turkeys, depending on the intensity of vegetative management. Implementation of an active timber harvest program will reduce the needed proportion of maintained forest openings due to the positive benefits afforded by temporary openings from timber harvest (D3-79). Alternative 4 with the MA modifications recommended for ruffed grouse would benefit wild turkey populations across the HNF.

Dispersed Recreation Use and Access

While the value of having a variety of habitats distributed across the HNF is good for wild turkeys, the availability of access plays an important role in dispersing recreation users across the HNF. Dispersed public access positively influences other recreation uses of the HNF. The discussion of roads (e.g. D3-96) is good. However, there is a value in more obviously recognizing that the availability of gated (closed except for administrative and foot access) dry-weather, temporary use roads enhances the recreation experience of all forest users by dispersing the recreation rather than concentrating use in areas of limited access. This dispersed recreation access is also enhanced by proving small gravel pull-offs where 2-3 vehicles can be parked.

Two examples of where recreation access can be enhanced are: Restoring 4 pull-off areas along the 5.5 miles of Tower Ridge Road (Blackwell Horse Camp to the Hickory Ridge Fire tower) currently closed to roadside parking. Tower Ridge road and the 200 ft "right-a-way" were never part of the legally defined Deam Wilderness (P3-33) and those parking access points (some constructed using sportsmen generated funds) should not have been removed. The parking access at Felknor Hollow entrance (P3-39, P3-47) needs to be improved to accommodate 2-3 vehicles. Both these areas have access provisions made for horse-trailers and trail riders but not a couple cars for accessing by foot. Additional access area needs and the possible decommissioning of roads (P3-20) should be determined in consultation with IDNR-DFW personnel reference needed maintenance, research, and hunter access. Gating should be considered as an option before road decommission.

The statement, *"Less accessible Management Areas 5.1 and 6.2 would provide a degree of escape cover for game animals hunted in adjacent forest areas that are more accessible by roads"* in the DEIS (D3-83; very top sentence) raises a concern that a subtle underlying intent of MA 5.1, MA 6.2, and MA 6.4 areas is to exclude, inhibit or dissuade hunter recreation, perhaps this was some of the underlying intent of abandoning the 4-5 pull-offs along Tower Ridge Road several years ago. Escape cover is generally provided by large dense stands of hardwood vegetation and it would behoove the USFS to incorporate timber harvests in the MA 6.2 and MA 6.4 to develop escape cover instead of maintaining them as administrative wilderness. I am not aware that the Division of Fish and Wildlife, whose responsibilities it is to manage wildlife

populations and regulate the legal harvest of game animals, has in recent years requested some type of "game refuge" be employed on the HNF.

Miscellaneous Recommendations with Impacts on Ruffed Grouse, Woodcock and Wild Turkeys

Openings

P3-7; Maintenance period be extended from August through March 30 to accommodate chain-saw work to retain opening integrity. Consider the use of limited herbicides to control stump sprouting, thus increasing effectiveness and efficiency of maintenance, reduce frequency of maintenance, and reduce costs.

P3-15; Glad to see that forest openings can be maintained and developed in riparian areas but would ask that HNF consult with IDFW personnel before abandoning any openings along riparian corridors (P3-25) and as indicated earlier the VQO objectives (P-25; P3-18) appears excessive and will severely restrict openings in riparian areas.

D3-72 and 3-93,94; Reference globally importance of barrens habitat - vegetative management is primarily geared towards burning which is appropriate, but should also include provisions for mechanical maintenance (mowing is not mentioned, tree harvests and herbicide) to help accomplish objectives when they can not be met in a timely manner through prescribed fire.

D3-95, D3-157, Table 3.34; Opening percentages are too low, especially if the listed proportions include openings mowed primarily for recreation purposes (e.g. campgrounds). Opening percentage needs to be at least 3-5%.

P: B-10; If not meeting timber harvest and opening maintenance objectives on the forest, then don't replant openings in newly acquire parcels, let natural forest success take place. Glad to see confers (i.e. pines) are not included on the reforestation list (P: B–11 & 12).

Timber Management

DEIS and Plan: Throughout both documents the words "suitable", and to a lesser degree "tentatively suitable"(e.g. Table B.5; P: B-13) are used to describe the acres of forestland potentially available for timber harvest. This is deceptive and gives a false impression as to the fact that 173,515 acres (87% of the HNF; Table B-5) is suitable for timber harvest. The word "suitable" as used in the DEIS and Plan, reflects what is actually either "administratively" or "legally" (e.g. Deam Wilderness) **"available"** for timber harvest, not what is suitable.

P-27 Management Area 2-8 the temporary opening size are too restrictive especially for clearcuts in hardwoods (5 acres; should be increased to at least 10 acres up to 20) and the proportion of early successional habitats should be increased from 4-12 % to at least 10-20 %. The temporary openings of group selection should be increased from 1-3 to 2-4 acres. The current temporary opening sizes limits the internal diversity of vegetative response within the temporary opening; it is less likely to cross a variety of environmental gradients (site, slope, aspect, side shading). Internal diversity within the temporary opening and the larger continuum of early successional vegetation has important implications related to the habitat values for wildlife that utilize these habitats. The increase in temporary opening size also influences the vegetative response from a tree species perspective and would certainly enhance the retention of the oak-hickory types. An

increase in size limits would also reduce administrative costs, temporary road needs, and reduce the number of entry periods (disturbance to recreation users) over the planning period.

P: B-3; Need to clarify the inference that group selection will be conducted on a 150-year rotation?

P: B-4 & D3-84; A 100 or 120 year harvest rotation is inferred. Any provisions for 80-year rotation?

D3-71; Good discussion on the need to convert non-native pines to native hardwood stands. Hopefully, this provision will stop the replanting of existing openings on new acquisitions to more pine.

D3-195 to 202; Good discussion on Soils but I could not find where it was mentioned that soil disturbance, in temporarily exposing dirt/mineral seedbeds, is often needed and beneficial to enhance the probability of desirable vegetation types. This information might help the public understand that natural vegetation disturbance also involves exposing soil and this influences the subsequent vegetative response.

DEIS and Plan: There are a number of references governing timber harvest with respect to "20% of height of adjacent stand" and "20 percent of the rotational age" of the adjacent stand. Are these terms interchangeable, is one applicable to even-age management and the other to uneven-age management, or is there an inconsistency? This needs clarification before implementation.

D3-234, D3-236, D3-237, P3-18: Visual Retention information is not consistent and needs to re-examined. It appears the visual quality objectives (VQO) under strict interpretation could unnecessarily constrain vegetation management activities; e.g. (D3-237) group selection is defined as only "0.10 to 3 acre" which is in conflict with other stated silviculture guidelines.

Animal Communities

D3-65-73; "Animal Communities" provides a very good discussion of habitat for various wildlife species occurs with various seral stages of forest succession, this will be especially important to lay publics reviewing this plan. Two noteworthy pieces of information include: 1) even late-successional species may depend on early-successional types during some period of their life needs and currently these early successional habitats may at the low range of historic conditions, below levels needed to sustain desired population levels of some wildlife species (D3-67); and 2) negative impacts on wildlife species richness will occur if the forest is allowed to shift from an dominate oak-hickory to a beech-maple type (D3-70).

D3-57 to 60; Very good discussion on the Indiana Bat and it's habitat needs, illustrating that Indiana bats can co-exist and benefit from disturbance and vegetation management. The Federally listed Indiana Bat habitat increases under all Alternatives (D3-119).

D3-80 to 82; The discussion of effects of management on animal communities should recognize that issues of "critical area requirements", "forest interior species" "fragmentation" and "edge" have application to early forest successional species too. The general inference is that it applies to just those species that use mature, closed canopy forests are interior forest and area sensitive species – this is not correct! For example, ruffed grouse are not an "edge" species, but a forest interior and area sensitive species that utilizes early successional forests. They are attracted to forest edges because that is often the only place they can find denser vegetation resembling early

successional forest vegetation but their survival is lower in those "edge" habitats. Regarding the last sentence, how long and to what extent would "tree death and natural disturbance" create openings resulting in an increase in vegetation diversity (perhaps another 50-100 years) and would non-migratory species like ruffed grouse be gone by the time as these tree-gap habitats became available to any extent to support viable populations of ruffed grouse?

D3-98 to 137; The graphs depicting the Species Viability Evaluations for animals have some inherent perception problems with the "y-axis" scales used for potential acres of habitat available. Other than Henslow Sparrow (under Alternative 2 of no mgmt), only habitat acres for Chats, American Woodcock, and ruffed grouse approach or go to 0 "zero" under the alternative evaluations. The "y-axis" scale does depict some declines for acres of habitat for the other species, but these declines are either relatively minor in actual impact or relative proportion when you consider the scale of the "y-axis". The presentations are a little deceiving unless one considers the y-axis scale.

D158-159; Good discussion on early successional and opening habitats for animals, influence of fire and fire suppression policies, effects on oak-hickory etc.

Maps

The colors (yellow and mustard) chosen to depict MA 3.1 and MA 3.3 prescriptions on the Alternative maps tend to give a false, negative perception of deforestation. Generally, yellow and mustard colors are used on other land use and GIS maps to depict such things as intense row crop agriculture, sand dunes, quarries, reclaimed strip mines, and vegetative devoid areas. The MA 3.1 and MA 3.3 might be better represented and perceived by the public if they were colored in shades of lime or bright green to symbolize the flush, new, regenerating vegetation that would result post harvest.

Wilderness and Special MA 8.2 Areas

P3-10 & P3-33; Question why wildfire suppression is allowed on wilderness and administrative wilderness if the objective is to retain "wilderness character"? Wild fires are natural disturbances that occur in true wildernesses resulting in a diversity of habitats, including early successional forest types and openings. Wild fires should only be suppressed or control on wilderness areas to the extent necessary to prevent them from extending beyond HNF borders or if they pose an immediate, eminent threat to the health and safety of forest users or structures (e.g. Hickory Ridge Fire tower, Blackwell Horse Camp).

P3-48; Either reduce the size of some of the special areas (MA 8.2) or allow vegetation management unless it can be quantitatively demonstrated that such vegetation management will significantly detract from the character of the ecosystem being protected.

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ATTACHMENT 3

Kyle Hupfer, Director
Department of Natural Resources June 14, 2005

Comments from Soil Conservation staff concerning the Hoosier National Forest Land and Resource Management Plan:

Alternatives 1, 3, 4, and 5 allow for prescribed fire as a tool to enhance Oak and Hickory regeneration. The management direction for prescribed fire should address the potential for soil erosion that may occur during a storm event that may immediately follow a prescribed burn. A flash fire could burn with enough intensity to cause temporary sterilization of the soil. This could result in inhibited regrowth of herbaceous groundcovers and understory with the end result being a longer period of time in which the soil is exposed to the elements.

Acknowledging that logistics, weather, and manpower dictate the timeliness of prescribed burns, the activity should be planned to occur beginning in the month of March and continuing until the first week of April. A prescribed burn conducted within this time frame would take advantage of the regrowth of leaf canopy to serve as an erosion control measure. This approach would coincide with planning concerns for habitat management of the Indiana Bat.

Although the planned acres for prescribed fire account for a small percentage of the entire management plan, a storm event immediately following a prescribed fire without the benefit of some type of cover could have an adverse effect on the immediate area of the burn and adjoining intermediate and perennial streams.

Jim Ray
Lake and River Enhancement Section
Division of Fish and Wildlife
(On behalf of Division of Soil Conservation, Indiana State Department of Agriculture)

ATTACHMENT 4

Kyle Hupfer, Director
Department of Natural Resources June 14, 2005

After reviewing the Draft Environmental Impact Statement and Proposed Land and Resource Management Plan for the Hoosier National Forest, the Division of Nature Preserves supports the adoption of Alternative 5 (the preferred alternative). This support is based on the following rationale:

As with all of the alternatives, Alternative 5 provides adequate areas on the HNF, designated in Management Area 8.1, 8.2 and 8.3, which provide for the preservation of unique ecosystems.

Alternative 5 also allows a proactive approach in the restoration of streams and historic wetlands, maintenance of current forest openings with native grasses, forbs, and shrubs, and the conversion of openings featuring non-native species to native ecosystems while maintaining a significant area of the forest in late seral stages. Alternative 5 maintains openings with a variety of management tools including burning, disking, mowing, removing trees, and using chemical agents, all of which are important tools in the effort to maintain and restore native communities and control of invasive species in Indiana.

Regardless of what alternative is chosen, I would suggest the Hoosier National Forest aggressively treat invasive species, and allow use of all available methods. I would also suggest the Hoosier not unnecessarily restrict herbicide use. There is no need to limit herbicide use by habitat, topography, or management area. All appropriate limits should be determined during site-specific project analysis. Finally, all Special Area Management Plans should be completed.

John A. Bacone, Director
Division of Nature Preserves

ATTACHMENT 5

Kyle Hupfer, Director
Department of Natural Resources June 14, 2005

With the Hoosier National Forest being adjacent to both Monroe Lake and Patoka Lake, the management of the National Forest will greatly influence the wildlife diversity found in both areas and also reflect on the future management direction of both. The Division of State Parks and Reservoirs feels that Alternative 4 would better serve our wildlife managment goals, for those areas, of establishing early successional habitat for those species that require such conditions. We reached that conclusion based on the following:

1) Alternative 4 is the only alternative that uses Management Area (MA) 3.1 (even-age methods) in it's management profile. This will establish a higher level of early successional conditions than any of the others.
2) Alternative 4 has the highest percentage of forest maintained in permanent openings.
3) Alternative 4 establishes the highest number of acres to the Oak-Hickory component.
4) Alternative 4 produces the highest percent of the forest in the age classes of 0-9 and 10-39 years.
5) Alternative 4 opens more forest to prescribed burning than the other alternatives.

We do feel that Alternative 4 should be modified to change MA's 6.2 and 6.4 to MA 3.1 and/or MA 3.3. This would provide suitable early successional conditions over a broader section of the forest than the limited area now proposed for MA 3.3. This is especially true to the area around Monroe Lake.

Jim Gerbracht
Division of State Parks and Reservoirs

Received 5/2/05 D000598
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DNR Indiana Department of Natural Resources

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Mitchell E. Daniels, Jr., Governor
Kyle J. Hupfer, Director

HISTORIC PRESERVATION AND ARCHAEOLOGY

April 27, 2005

Kenneth G. Day
Forest Supervisor
Hoosier National Forest
811 Constitution Avenue
Bedford, Indiana 47421

Federal Agency: U.S. Department of Agriculture, Forest Service

Re: Hoosier National Forest draft environmental impact statement and proposed land and resource management plan (2005) File Code #1920-2-1/1950-3

Dear Mr. Day:

Pursuant to Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f) and 36 C.F.R. Part 800, the staff of the Indiana State Historic Preservation Officer ("Indiana SHPO") has conducted an analysis of the materials dated March 15, 2005, and received on March 17, 2005, for the above indicated project in the Hoosier National Forest, Indiana.

Thank you for sending our office a copy of the Hoosier National Forest Land and Resource Management Plan Draft Environmental Impact Statement. We have noted that all of the proposed alternatives would provide protection for cultural resources, and that all alternatives would conduct inventories on lands that could be affected by ground-disturbing activities. Any archaeological investigations should must be done in accordance with the Secretary of the Interior's "Standards and Guidelines for Archaeology and Historic Preservation" (48 F.R. 44716). A description of the survey methods and results must be submitted to the Division of Historic Preservation and Archaeology for review. We look forward to working with you on this project in the future.

A copy of the revised 36 C.F.R. Part 800 that went into effect on August 5, 2004, may be found on the Internet at www.achp.gov for your reference. If you have questions about our comments, please call our office at (317) 232-1646. Questions about archaeological issues should be directed to Christopher Koeppel. Questions about buildings or structures should be directed to Karie A. Brudis.

Be advised that John R. Goss no longer holds the title of Indiana SHPO. As of February 21, 2005, Kyle J. Hupfer, who was appointed by the Governor Daniels, became the new Indiana SHPO.

Very truly yours,

Jon C. Smith
Deputy State Historic Preservation Officer

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MONROE COUNTY PLANNING COMMISSION
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Courthouse - Room 306
Bloomington, IN 47404
Telephone: (812)-349-2560 / Fax: (812)-349-2967
http://www.co.monroe.in.us/planning/index.htm

June 28, 2005

Judi Perez, Forest Planner
Hoosier National Forest
Forest Plan Revision
811 Constitution Avenue
Bedford, IN 47421

RE: Comment on the Proposed Land and Resource and Management Plan

Ms. Perez:

Thank you for the opportunity to provide comment on the Proposed Land and Resource Management Plan for the Hoosier National Forest. As you are aware the Forest represents a vital landholding within Monroe County, especially given its proximity to the Monroe Reservoir. The Monroe County Comprehensive Land Use Plan adopted in 1997 by the Monroe County Commissioners identifies most of the land that is within the Forest as "Public Open Space" and encourages continued efforts at consolidating public lands and further acquisition of private lands.

The Comprehensive Land Use Plan seeks to maintain and expand public open space areas both in recognition of the significant economic benefits associated with recreation and tourism and due to the importance of the Monroe Reservoir for the local and regional drinking water supply. Monroe County has adopted low density zoning and restrictive development guidelines for properties surrounding the reservoir. Further, for regulated logging activities within the reservoir watershed the County mandates the use of Best Management Practices as defined by the Indiana Department of Natural Resources.

I have enclosed a copy of the County's Environmental Constraints Overlay Regulations that apply to lands within the Monroe Reservoir watershed for your review. I would also encourage you to visit the County's website at www.co.monroe.in.us to learn more about the County's efforts at protecting the public investments made for both the National Forest and the Monroe Reservoir.

Again, I thank you for the opportunity to provide comment and would be happy to answer any questions you may have.

Sincerely,

Robert S. Cowell, Jr., AICP
Planning Director

CC: Board of County Commissioners