



United States Department of the Interior

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FWS/MISO

October 5, 2016

Brendan Cain
Forest Supervisor
U.S. Forest Service
Shawnee National Forest
50 Highway 145 South
Harrisburg, IL 62946

Attn: Mr. Paul Widowski

Dear Mr. Brendan Cain:

This document transmits the U.S. Fish and Wildlife Service's (Service) Tier II Biological Opinion (BO) based on our review of the U.S. Forest Service's (USFS) Lee Mine Project on the Shawnee National Forest, and the effects on the Indiana bat (*Myotis sodalis*) in accordance with Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The USFS' request for site specific formal consultation was received on August 18, 2016, along with the Biological Assessment (BA) for the Lee Mine Project located in Hardin County, Illinois.

On December 3, 2005, the U.S. Fish and Wildlife Service (Service) issued a programmatic biological opinion for the Shawnee National Forest (SNF) 2006 Land and Resource Management Plan (LRMP). This programmatic biological opinion established a two-tiered consultation process for LRMP activities, with issuance of the programmatic opinion being Tier 1 and all subsequent site-specific project analyses constituting Tier 2 consultations. When it is determined that a site-specific project is likely to adversely affect federally listed species, the Service will produce a "tiered" biological opinion.

The BA evaluated the impacts of the proposed project on the endangered gray bat (*Myotis grisescens*), endangered Indiana bat (*Myotis sodalis*), threatened Mead's milkweed (*Asclepias meadii*), and threatened northern long-eared bat (*Myotis septentrionalis*). Information in the BA indicates that the proposed project is not likely to adversely affect the gray bat and Mead's milkweed. Based on this information, the Service concurs that the proposed project is not likely to adversely affect the gray bat and Mead's milkweed. Information in the BA indicates that the proposed project is likely to adversely affect the Indiana bat and northern long-eared bat. Adverse effects to the northern long-eared bat are addressed through the Service's Programmatic

Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions dated January 5, 2016. Therefore, this BO addresses one species, the Indiana bat.

In conducting our evaluation, our review focused on determining whether (1) this proposed project falls within the scope of the programmatic biological opinion issued for USFS's LRMP, (2) the effects of this proposed action are consistent with those anticipated in the Tier I programmatic biological opinion, and (3) the appropriate Terms and Conditions associated with the Reasonable and Prudent Measures identified in the Tier I biological opinion are adhered to. This letter serves as the Tier II biological opinion for the proposed Lee Mine Project.

Description of the Proposed Action

As defined in the ESA Section 7 regulations (50 CFR 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas." The following project background is summarized from the BA. The proposed action involves shelterwood timber harvest of non-native mature pine, dormant season prescribed burning, development of temporary skid trails and log landings, and herbicide application as needed on approximately 572 acres to restore the native hardwood oak-hickory forest-type.

Conservation Measures

Conservation measures are those actions taken to benefit or promote the recovery of the species. These actions taken by the federal agency or the applicant that serve to minimize or compensate for project effects on the species under review and are included as an integral portion of the proposed action. The Lee Mine Project is being implemented consistent with the LRMP and the associated programmatic BO. These documents incorporate a number of standards and guidelines designed to protect and enhance populations of listed bats species on the Shawnee National Forest, as described more fully in Appendix A of the 2005 programmatic BO. In addition, several other site specific measures have been developed to further reduce project effects.

Action Area

As defined in the ESA Section 7 regulations (50 CFR 402.02), "action area" is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The action area for the purposes of this BO, includes the 572 acres within the proposed Lee Mine Project located on the Shawnee National Forest.

Status of the Species

Indiana bat species description, life history, population dynamics, status and distribution and threats are fully described on pages 43-53 of the programmatic biological opinion and are hereby incorporated by reference.

Environmental Baseline

The Environmental Baseline analyzes the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and the ecosystem within the action area. The environmental baseline for the Indiana bat on the Shawnee National Forest was fully described on pages 55-59 of the programmatic biological opinion and is hereby incorporated by reference.

Status of the Species in the Action Area

USFS biologists conducted surveys within the proposed project area in July 2014, and captured 4 adult male Indiana bats in 30 nights of netting. Although no female Indiana bats were captured, subsequent radio-tracking of the male Indiana bats resulted in the documentation of an Indiana bat maternity colony and several other secondary roosts within the proposed Lee Mine Project Area.

Habitat Conditions in the Action Area

The following habitat conditions are summarized from the BA. Forest stands on the project area proposed for restoration consist predominantly of short-leaf pine over 60 years in age, with several stands containing loblolly pine and white pine. Pine stands vary in species and structure: some represent the typical monoculture with tight spacing and closed canopies; others have a substantial mix of mature hardwoods. In some monoculture stands are inclusions of some very large hardwood trees. All pine stands have been commercially thinned previously. Interspersed with pine stands are mature hardwood stands and hardwood stringers, sources of hard mast. Many hardwood stands in portions of the area have been harvested in the past. Larger snags (dead trees over 9" dbh) are somewhat scarce in most pine monoculture stands; however, individual standing pine snags are widely distributed even within some pine monoculture stands. Snags are scarce in younger hardwood stands harvested in the past 30-40 years. Snags of dead conifer and hardwood are more abundant in pine stands with a mixed component of hardwoods and most abundant in mature hardwood stands. Smaller-diameter snags are present in all stands. Cavity trees are most abundant in mature hardwood stands, hardwood stringers, riparian areas and hardwood inclusions, least abundant in pine monoculture stands and younger hardwood stands harvested within the past 30-40 years. Larger tree cavities are present in mature hardwood stands that extend throughout the project area.

Summary of Effects

Based the information provided in the BA, the Service has determined that the adverse effects of the proposed action are consistent with those contemplated in the programmatic biological opinion. These adverse effects are fully described on pages 62-71 of the programmatic biological opinion.

Impacts to Individuals

Implementation of the Lee Mine Project may result in some adverse fitness consequences for individuals occurring within the action area. These adverse consequences are most likely to be either as injury or death of individual Indiana bats from direct exposure to timber harvest during

the summer time period. However, we expect the potential for death or injury to be minimal given adherence to the standard and guidelines provided in Appendix A of the 2005 programmatic BO and additional project specific measures incorporated into the BA on pages 21 and 22. In addition, forest stands classified as moderate to high quality habitat for the Indiana bat were removed from the sale to further reduce the potential for death or injury. Indiana bats are expected to experience minimal impacts from prescribed fire and noise impacts in the Lee Mine Project Area. The potential for effects from prescribed fire will be minimized by adhering to the standards and guidelines for prescribed fire provided in Appendix A of the 2005 Programmatic BO.

In addition, the proposed Lee Mine Project will affect a minor amount of the potential Indiana bat habitat on the Shawnee National Forest. Also, the timber harvest and prescribed burning could have both negative and beneficial effects on habitat suitability for the Indiana bat. As a result, we conclude that the overall habitat suitability or availability on the Shawnee National Forest should be minimally affected by the timber harvest activities under the proposed action.

While analyzing the effects of the proposed action, we identified the life stages that would be exposed to the stressors associated with the proposed action, and analyzed how those individuals would respond upon exposure to the stressors. From this analysis, we determined that:

- 1) There is no proposed critical habitat for the Indiana bat within the Action Area, and thus, none will be adversely affected.
- 2) No known hibernating bats nor their hibernacula will be exposed to the project stressors as there are no hibernacula within the vicinity of the Action Area.
- 3) Indiana bats during the spring-fall period will be exposed to various project stressors and are likely to adversely respond to some of them.

In summary, there may be impacts to individual bats in either their annual survival or reproductive rates.

Impacts to Populations

As we have concluded that individual bats are likely to experience reductions in either their annual or lifetime survival or reproductive rates, we need to assess the aggregated consequences of the anticipated reductions in fitness (i.e., reproductive success and survival), of the exposed individuals on the population(s) to which these individuals belong.

The USFS's previous and ongoing efforts have served to identify areas of Indiana bat maternity activity, and after completion of the action, the area will continue to provide suitable habitat conditions for Indiana bat foraging and roosting during the summer period. While there is potential for direct take individuals, given the small-scale of the proposed action in relation to the action area, and the current distribution and abundance of the Indiana bats within the action area (as described in the Environmental Baseline), the Indiana bat should be able to continue to survive and reproduce on the Shawnee National Forest.

We recognize the potential for a small amount of lethal take of adults and/or non-reproductive individuals, but we believe the Indiana bat population affected should be able to sustain the worst-case losses discussed above.

Impacts to the Species

As stated above, reductions in the population fitness are unlikely to occur. In fact, we find that many of the proposed actions of the USFS are likely to result in benefits to the species over the long term due to the maintenance of a mosaic of forest types. Thus, no component of the proposed action is expected to reduce the reproduction, numbers, or distribution of the Indiana bat rangewide. While we recognize that the status of the species is uncertain due to WNS, given the environmental baseline, and the intensity, frequency, and duration of the project impacts, we find that the proposed project is unlikely to have population-level impacts, and thus, is also unlikely to decrease the overall reproduction, numbers, or distribution of the Indiana bat. Therefore, we do not anticipate a reduction in the likelihood of both survival and recovery of the species as a whole.

Based on the analysis above, the proposed action should not decrease the reproduction, numbers, or distribution of the Indiana bat in a way or to the extent that would cause an appreciable reduction in the likelihood of both survival and recovery of the species as a whole.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Indiana bat. There is no designated critical habitat in the project area at this time; therefore, none will be affected.

Implementation of the Lee Mine Project may result in some adverse fitness consequences for individuals occurring within the action area. These adverse consequences are most likely to be either as injury or death of individual Indiana bats from direct exposure to management actions. We do not expect these individual consequences will elicit population or species-level effects. On the contrary, we anticipate the overall beneficial effects of the proposed action will maintain and improve roosting and foraging habitat and hence the fitness of Indiana bats occurring within the action area. Thus, overall impact on the conservation status of the populations in which these individuals belong to and on the species rangewide is positive. So, we conclude that the proposed action is not expected to, directly or indirectly, reduce appreciably the likelihood of both the survival and recovery of this species in the wild by reducing their reproduction, numbers, or distribution.

Incidental Take Statement

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to

engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Amount or Extent of Take

The Service anticipates that no more than 572 acres of foraging and low quality roosting habitat will be disturbed as a result of timber harvest, dormant season burning, and site preparation at the proposed Lee Mine Project. This brings the cumulative total of incidental take for the SNF to 6,794 acres (Table 1). This level is well below the 17,195 total forested acres anticipated during the first 10 years of Forest Plan implementation. We understand that the Forest Service is implementing all pertinent Indiana bat Reasonable and Prudent Measures and implementing Terms and Conditions stipulated on pages 88-90 of the programmatic biological opinion. As explained in the programmatic biological opinion, these measures will minimize the impact of the anticipated incidental take.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the Indiana bat. There is no designated critical habitat in the project area at this time, so none would be impacted.

Reinitiation Notice

This concludes formal consultation for the USFS's actions outlined in your request dated March 15, 2016. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such a take must cease pending reinitiation.

We appreciate your efforts to ensure that this project is consistent with all the provisions outlined in the 2006 LRMP and programmatic biological opinion. If you have any questions or concerns

regarding this consultation and or the consultation process in general, please contact me at (618) 998-5945.

Sincerely,

/s/ Matthew T. Mangan

Matthew T. Mangan
Fish and Wildlife Biologist

Table 1: Incidental take of Indiana bats (forested acres affected) for the Lee Mine Hardwood Restoration Project and its contribution to the cumulative total for the Shawnee Nation Forest outlined on page 87 of the Service's Programmatic Biological Opinion dated December 3, 2005.

Project	Timber Harvest /Management	Timber Stand Improvement	Wetland Management	Minerals Management	Total Forest Acres Affected
Lee Mine Hardwood Restoration	572	0	0	0	572
Ramsey Branch Hardwood Restoration	53	53	0	0	106
Harris Branch Hardwood Restoration	225	0	0	0	225
Big Muddy River Habitat Improvement	91	5,600	200	0	5,891
Cumulative Total	941	5,563	200	0	6,794