# United States Department of the Interior

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November 4, 2004

Mr. Michael Weber, District Ranger
Potosi-Fredericktown Ranger District
Mark Twain National Forest
P.O. Box 188
Potosi, Missouri 63664

Dear Mr. Weber:

This letter is in response to your August 3, 2004, request for site-specific review, pursuant to section 7 of the Endangered Species Act of 1973, as amended, on the proposed Delbridge Hazardous Fuels Initiative Project on the Potosi-Fredericktown Ranger District (District) in Washington County, Missouri. On June 23, 1999, the U.S. Fish and Wildlife Service (Service) issued a Programmatic Biological Opinion (Programmatic BO) for the Mark Twain's National Forest (MTNF) Land Resource Management Plan (LRMP). This Programmatic BO 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.

In issuance of the Programmatic BO (Tier 1 biological opinion), the Service evaluated the effects of all U.S. Forest Service's actions outlined in the LRMP for the MTNF, as well as a number of identified, proposed site-specific projects that were attached as an appendix to your biological assessment. The Programmatic BO evaluated the effects of Forest Service management program activities, including timber management and prescribe burning, on the bald eagle (*Haliaeetus leucocephalus*), Curtis' pearly mussel (*Epioblasma florentina curtisi*), Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), Meads milkweed (*Asclepias meadii*), pink mucket pearly mussel (*Lampsilis abrupta*), running buffalo clover (*Trifolium stoloniferum*), Topeka shiner (*Notropis topeka*). We concurred with your determinations of "not likely to adversely affect" for Curtis' pearly mussel, pink mucket pearly mussel, running buffalo clover, and Topeka shiner. We also concurred with your determination of "likely to adversely affect" for bald eagle, gray bat, Indiana bat, and Mead's milkweed.

Your request for Service review of the proposed activities associated with the Delbridge Hazardous Fuels Initiative Project is a Tier 2 consultation. We have reviewed the information contained in the Delbridge Hazardous Fuels Initiative Project Biological Assessment (BA),

submitted by your office on August 3, 2004, describing the potential effects of the proposed project on the above federally listed species.

We concur with your conclusion that there are no additional effects to federally listed species associated with the Delbridge Hazardous Fuels Initiative Project beyond those that were previously disclosed and discussed in the Service's Programmatic BO of June 23, 1999. We also concur with your determination that the only species that may occur within the project area are Indiana bat, gray bat, Hine's emerald dragonfly, running buffalo clover, Mead's milkweed, and bald eagle.

Description of the Proposed Action/Preferred Alternative

The MTNF proposes to use a combination of prescribed burning and commercial timber harvesting (thinning) to improve forest health and vigor and to reduce hazardous fuels. Firewood removal may also be allowed. Under the proposed action, no stands would be commercially thinned below an average of 60 total basal area and/or 70% canopy cover. Approximately two miles of temporary roads will be constructed. The following is a summary of activities proposed for the Delbridge Project:

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|---|---|
| Timber Harvest (thinning) | 748 acres |
| Prescribed Burning | 2,670 acres |
| Temporary Roads Constructed | 2 miles |
| Miles of New Dozer-constructed Fire line | 5.5 miles. |

A complete description of the proposed action can be found in the project BE.

In addition to the MTNF's implementation of the RPM's and TC's in the Programmatic BO, other protective measures will be implemented as outlined in the Biological Evaluation for the Delbridge Hazardous Fuels Initiative Project.

Based on the site-specific information above, we concur with your determination that the Delbridge Hazardous Fuels Initiative Project "may affect, but is not likely to adversely affect" the gray bat, bald eagle, Hine's emerald dragonfly, running buffalo clover, Mead's milkweed, and Curtis pearlymussel. As described in the Service's Programmatic BO, we believe that adverse effects are likely to occur to the Indiana bat.

Biological Opinion

The following biological opinion is based on likely adverse effects to the Indiana bat from activities associated with the Delbridge Hazardous Fuels Initiative Project. In conducting our evaluation of the potential impacts of the project on Indiana bat, our review focused on determining whether: (1) this proposed project falls within the scope of the Programmatic BO issued for MTNF's LRMP; (2) the effects of this proposed action are consistent with those anticipated in the Tier 1 Programmatic BO; and (3) the appropriate implementing terms and conditions associated with the reasonable and prudent measures identified in the Tier 1

biological opinion are adhered to. This Tier 2 Biological Opinion also identifies the incidental take anticipated with the Delbridge Project and the cumulative total of incidental take for the MTNF for the 2005-2008 planning seasons. It conforms to the Service's Programmatic BO (page 88) pertaining to individual projects the Service reviews following the issuance of the Programmatic BO.

Status of the Species

Species description, life history, population dynamics, status and distribution for the Indiana bat are fully described on pages 40-62 of the Programmatic BO and are hereby incorporated by reference. Since issuance of the Service's Programmatic BO, a biennial survey was conducted on Indiana bat Priority 1 hibernacula. Approximately 105,420 Indiana bats were counted during surveys conducted in 2000 and 2001. Surveys by Rick Clawson (Missouri Department of Conservation, email March 14, 2003) in 2003 show 93,955 Indiana bats in priority one caves and other caves. Indiana bat populations were monitored in the two Indiana bat hibernacula on the MTNF in 2004. The population at one cave increased from 1 bat in the last survey to 33 Indiana bats in 2004; and at the other cave, the population increased from 12 bats in the last survey to 150 Indiana bats.

Mist net and Anabat surveys were conducted for bats on the Mark Twain National Forest between 1997 and 2004. A summary of survey data collected during this period indicates that 10 Indiana bats had been captured near the National Forest (Lake Wappapello - USACE lands) and 4 captured on the National Forest. These surveys represented over 400 mist net sites and over 2,500 hours of mist netting, plus over 300 Anabat sites and over 3,500 hours of Anabat detection. Capture of Indiana bats during field surveys is very uncommon, which indicates that Indiana bats are not abundant in the areas that were surveyed.

There have been no surveys for bats in the Delbridge project area; however surveys have been done within the vicinity of the project area. The nearest mist net and Anabat surveys were within 2 and 3 miles of the project area in habitat similar to the Delbridge project area. No Indiana bats were captured during those surveys. The closest record of a reproductively active female Indiana bat is approximately 12 miles from the project area. The closest record of a male roosting Indiana bat is approximately 13 miles from the project area. There are no large bottomland forest areas (where the majority of maternity colonies have been found) within the project area. However, the Trace and Cub Creek drainages within the project area may have some smaller bottomland forest areas suitable (but probably not optimal) for roosting habitat for the Indiana bat. Foraging habitat is likely available throughout the project area. The nearest Indiana bat hibernaculum is approximately 12 miles to the southwest of the project area.

Environmental Baseline

The environmental baseline for the MTNF was established and fully described in detail on pages 7-16 of the Service's June 23, 1999 Programmatic BO. Since issuance of the Service's Programmatic BO, the environmental baseline on the MTNF has changed. The percentage of trees in the 50 years or older class has increased from 72% to 73% (956,841 acres to 970,131

acres) that includes a 4% increase of trees 90 years old or older-old growth (159,474 acres to 212,631 acres). Additionally, there has been a decrease of 11% to 9% in the 0-9 year old age class (146,184 acres to 119,605). The relative percentage of the other two age classes (20-49 year old and 10-19 year old) was unchanged. Other changes relate to the decrease in timber harvest on the forest between 1996 and 2000. The average timber harvest on the MTNF has decreased from an average annual harvest of 18,215 acres between 1986 and 1997 to 11,567 acres between 1997 and 2000. Between 1985 and 2000, the average annual harvest volume on the MTNF was 55.3 million board feet of commercial timber, which decreased to an annual harvest volume of 32 million board feet between 1998 and 2000.

Timber management practices utilized on the MNTF have also changed. Of the 11,567 acres harvested annually on the MTNF between 1996 and 2000, an average of 5,487 acres (47%) involved thinning, salvage, and miscellaneous operations (e.g., firewood permits); 3,389 acres (29%) included uneven-aged management (i.e., group selection, single tree selection, and single tree selection with groups harvest technique); and 2,691 acres (23%) were associated with even-aged regeneration harvest techniques (i.e., shelterwood, clearcut, and seedtree harvest methods). Although approximately 9,300 acres of reforestation via natural regeneration has occurred per year since 1986, the average of such activities decreased to about 7,000 acres (~25%) between 1998 and 2000. Between 1986 and 1997, timber stand improvements (TSI) averaged about 3,850 acres per year. Since 1998, TSI activities averaged 1,938 acres per year, a reduction of approximately 50%. Activities to benefit wildlife (e.g., prescribed fires, tree planting in riparian corridors, construction of ponds or waterholes, brushhogging, planting of food plots, conversion of cool season grasses to native warm-season grasses, etc.) decreased from an annual average of 9,000 acres between 1986 and 1997 to an annual average of approximately 6,000 acres (a reduction of approximately 33%) between 1998 and 2000 (Jody Eberly, U.S. Forest Service in litt. August 13 and 22, 2001).

Missouri experienced severe weather in the spring of 2002. Several tornados in 2002 damaged timber stands on both private and public lands in Missouri. Flooding occurred in many drainages, uprooting trees and causing other structural damage. Some landowners are removing the downed timber in many areas and many are burning the wood that is unsuitable for other products (e.g. sawlogs, firewood, etc.). However, all or most of the downed timber on public and private lands cannot be removed. Once the wood dries out, an unnaturally high fuel loading in Missouri forests will have been created, and the risk of catastrophic fire will increase.

Thousands of acres affected by oak decline are causing concern for the health of forests in Missouri and Arkansas. Many large northern red, southern red, black, and scarlet oaks are declining and dying. The reason for this problem is complex and is not linked to any one cause but trees that are old (70 to 90 years), on shallow, rocky soils, ridgetops and upper slopes, and that have been stressed from drought, are predisposed to decline. There are other factors that contribute to this oak decline: red oak borers, twolined chestnut borers, armillaria root rot, and others (from brochure "Why are the oak trees dying?" produced by the USDA Forest Service 2001). The oak decline problem will create habitat for the Indiana bat, but could also pose a risk from catastrophic wildfire.

Effects of the Action

Based on our analysis of information provided in your August 4, 2004 BE for the Delbridge Hazardous Fuels Initiative Project, we have determined that the potential effects of the proposed action are consistent with those addressed in the Programmatic Biological Opinion and are hereby incorporated by reference. The project will not have any direct or indirect effects on hibernating Indiana bats, since there are no hibernacula in or very near the project area.

Roosting and foraging Indiana bats could be potentially impacted from the proposed activities. Based on what we currently know about Indiana bat maternity colonies, the nearest known maternity colony (based on the capture of a reproductively active female 12 miles away) would not be using the Delbridge project area. For Indiana bats, the mean maximum distances between consecutive tree roosts are 2.24 km (1.4 miles) (range of 0.178 to 5.8 km or 0.11 to 3.8 miles) and 0.55 km (0.34 miles) (range of 0.09 to 1.01 km or 0.05 to 0.63 miles) for females and males, respectively. The mean maximum distance between all roost trees used within a single season for females is 3.4 km (2.1 miles) (range=0.24 to 8.2 km or 0.15 to 5.1 miles). The farthest foraging distance recorded for reproductively active female Indiana bats was 7.8 km (4.8 miles) from the primary roost tree (Kurta et al 2002). Average foraging distances are much smaller (3.5 km or 2.1 miles). Adverse effects to the Indiana bat from this project could occur from the removal of potential roost trees in the timber thinning areas. However the MTNF has proposed several protective measures to protect the majority of trees that offer the best potential roosting and maternity habitat for Indiana bats (see the BE, Appendix B). For instance, all unmerchantable dead trees would be retained in all thinning units, unless they pose a threat to human safety. These trees provide suitable habitat for roosting Indiana bats. All shagbark and shellbark hickories, sycamores, and lightning-struck trees would also be retained, providing suitable roosting habitat for the Indiana bat in the project area. The proposed project may increase the amount of foraging habitat available in the project area. Currently many of the project stands are heavily stocked and are too dense for many bat species to forage in. The thinning and prescribed burning will likely create more open stand conditions that Indiana bats prefer for foraging.

The MTNF evaluated the effects of burning throughout the year, in order to meet other forest resource objectives. Generally, burning occurs during the hibernation season. With the implementation of burn parameters that favor smoke dispersal, smoke would have no effect on hibernating Indiana bats. If prescribed burns occur during the maternity season, there is a possibility of harming Indiana bats, especially non-volant juveniles that are too heavy to be carried by their mothers away from the burn area. Some juveniles could also be dropped or simply left behind if they are too big to be moved. If prescribed burns are conducted during the non-maternity season (during spring or fall migration), the risk of directly killing an Indiana bat is significantly reduced because the bats are more mobile during this period. Although the effects of prescribed burning on the Indiana bat for this project range from no effect to adverse effect, the total acreage proposed for prescribed burning will be added to the cumulative incidental take acres (see table below) at the request of MTNF.

Harm to Indiana bats could also occur if the removal of suitable roost trees causes bats to abandon a traditionally used roost site. The likelihood of cutting a tree containing an individual roosting Indiana bat, however, is anticipated to be extremely low because of the rarity of the species in this district and the large number of suitable roost trees present on the MTNF and in the surrounding area. A more complete discussion of these effects can be found in section D-Effects of the action (direct and indirect effects), on pages 62-65 of the Service's June 23, 1999 Programmatic BO.

Implementation of the terms and conditions associated with the reasonable and prudent measures (RPMs) provided on pages 75-81 in the Programmatic Biological Opinion will minimize any potential adverse effects to the Indiana bat by maintaining suitable Indiana bat roosting and foraging habitat.

Conclusion

The actions and effects associated with the proposed Delbridge Hazardous Fuels Initiative Project are consistent with those identified and discussed in the Service's Programmatic BO. After reviewing the size and scope of the project, the environmental baseline, the status of Indiana bat and its potential occurrence within the project area, the effects of the action, and any cumulative effects, it is the Service's biological opinion that this action is not likely to jeopardize the continued existence of the Indiana bat.

Incidental Take Statement

The Service anticipates that the proposed actions associated with the Delbridge Hazardous Fuels Initiative Project will result in the incidental take of Indiana bat habitat (acres) as outlined in Table 1. The type and amount of anticipated incidental take is consistent with that described in the Programmatic BO and does not cause the total annual level of incidental take (forested acres) in the Programmatic BO (page 74) to be exceeded (Table 1).

The Forest Service must implement all pertinent reasonable and prudent measures and terms and conditions stipulated in the Programmatic BO to minimize the impact of the anticipated incidental take of Indiana bats, and to be exempt from the take prohibitions of Section 9 of the Act. We have determined that no new reasonable and prudent measures, beyond those specified in the Programmatic BO, are needed to minimize the impact of incidental take anticipated for the Delbridge Hazardous Fuels Initiative Project. Implementing the measures outlined in your conservation program for federally listed species on the MTNF (approved March 2000) will further reduce potential adverse effects on the Indiana bat.

This fulfills your consultation requirements for this action. Should the proposed project be modified or if the level of take identified above is exceeded, reinitiation of consultation as outlined in 50 CFR 402.16, is required.

We appreciate your continued efforts to ensure that this project is consistent with all provisions outlined in the Programmatic BO. If you have any questions regarding our response or if you need additional information, please contact Theresa Davidson at (417) 683-4428 ext. 113.

Sincerely,

Charles M. Scott
Field Supervisor

cc: Field Supervisor, Indiana ESFO, Bloomington, IN
Jennifer Szymanski, RO via electronic mail
Theresa Davidson, USFWS, Ava, MO

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Table 1. Incidental take of Indiana bats for the Delbridge Hazardous Fuels Initiative Project (forested acres affected annually) and its contribution to the cumulative totals for the Mark Twain National Forest as outlined on page 74 of the Service's Programmatic Biological Opinion of June 23, 1999. Cumulative take acres for prescribed burning will be monitored in real time; areas burned (with potential adverse affects) will not exceed 12,000 acres per year.

| | 2005 | 2006 | 2007 | 2008 | ACRES EXEMPTED ANNUALLY |
|---|---|---|---|---|---|
| TSI-Thinning | 748 | 0 | 0 | 0 | 20000 |
| Cumulative Total | 3820 | 1622 | 700 | | |
| Road Construction | 2 | 0 | 0 | 0 | |
| Cumulative Total | 22 | 22 | 22 | | |
| Prescribed Burning | 2670 | 0 | 0 | 2670 | 12000 |
| Cumulative Total | See above | | | | |