

# United States Department of the Interior



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February 2, 2005

Mr. Jerry A. Bird, District Ranger  
Eleven Point Ranger District  
Mark Twain National Forest  
#4 Confederate Ridge Road  
Doniphan, Missouri 63935

Dear Mr. Bird:

This letter is in response to your November 29, 2004, request for site-specific review, pursuant to section 7 of the Endangered Species Act of 1973, as amended, on the proposed Possum Trot Project on the Eleven Point Ranger District in Oregon and Shannon Counties, 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 programmatic 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 Possum Trot Project is a Tier 2 consultation. We have reviewed the information contained in the Possum Trot Project Biological Assessment (BA), submitted by your office on November 29, 2004, along

with several subsequent emails, 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 Possum Trot 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, and bald eagle.

#### Description of the Proposed Action/Preferred Alternative

The MTNF analyzed a few alternatives for the proposed Possum Trot Project. Alternative 3 is the proposed action under consultation. Alternative 3 contains the following elements:

- Designation of 1473 acres of old growth;
- Maintain 60 acres of open and semi-open habitat by prescribed burning;
- Clearcut 292 acres;
- Shelterwood seed cut 140 acres;
- Seed tree cut 232 acres;
- Shelterwood preparatory cut 47 acres;
- Salvage harvest 157 acres;
- Reforestation of 170 acres by natural regeneration;
- Plant and release 122 acres;
- Group selection on 104 acres;
- Improvement cut on 229 acres;
- Non-commercial TSI/reforestation cutting on 229 acres;
- Commercial thin 2003 acres;
- Pre-commercial thin 3446 acres.

Based on the site-specific information in the BE, we concur with your determination that the Possum Trot Project will be not likely to adversely affect the bald eagle and the gray bat. We also concur with your determination that the project is likely to adversely affect the Indiana bat and are providing our biological opinion below.

#### Biological Opinion

The following biological opinion is based on likely adverse effects to the Indiana bat from activities associated with the Possum Trot 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 Possum

Trot Project and the cumulative total of incidental take for the MTNF for the 2005-2009 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 16 Indiana bats had been captured on or near the National Forest and 5 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. The nearest surveys for bats were conducted in and near the Pine Knot project area, which is only 1.5 miles from the Possum Trot project area. No bats were detected or captured in those survey efforts. The Eastwood 2 project area was also surveyed in 2004. The Eastwood 2 project area is approximately 12 miles east of the Possum Trot project area. No Indiana bats were captured during this effort. Capture of Indiana bats during field surveys is very uncommon, which indicates that Indiana bats are not abundant (or not present) in the areas that were surveyed on the MTNF. As Brack et al (2002) reasoned, it is unlikely that Indiana bats will be equally abundant in all parts of its range because optimal or even suitable habitat conditions are not found equally across the landscape.

No bat surveys were conducted in the Possum Trot Project area. However, as mentioned above, surveys were conducted in nearby project areas. To determine suitability and probability of occurrence of Indiana bats in the project area, the Service requested (12/30/2004 e-mail), a comparison of the Possum Trot Project area to the Pine Knot Project area (where nearby surveys were conducted with negative results) and also the Brown's Hollow Area of Influence (AOI - the maternity colony area on the Poplar Bluff Ranger District). This information was received by e-mail on January 4, 2005. Forest data indicate that the major forest types are similar between the Pine Knot and Possum Trot Project areas. However, the Possum Trot project area has over 70 percent of the project acres with a canopy closure greater than 80% (generally considered unsuitable for Indiana bat foraging). The Pine Knot project area had less area with canopy closures over 80%. This means that the Possum Trot Project area is less suitable for Indiana bat foraging than the Pine Knot Project area (where no Indiana bats were captured or detected). There are two main differences between the Brown's Hollow AOI and the Possum Trot Project

area. The first significant difference is the forest age distribution. The Brown's Hollow AOI has over 78 percent of the area with trees over 70 years of age. The Possum Trot project area has only 22 percent of the area with trees over 70 years of age. Indiana bat maternity roosts are often older, large snags. The other significant difference is that the Possum Trot project area does not contain any permanent water source (nearest is 5 miles from the project area). The Brown's Hollow AOI has permanent water in and around the area. Water sources provide not only a drinking source for Indiana bats, but also provide habitat for some of the Indiana bats' prey species. Based on the analysis of habitat conditions in the Possum Trot Project and on the negative survey data from nearby project areas, it would be highly unlikely that the Possum Trot project area would provide maternity habitat for Indiana bats. It is more likely that the project area could be used during spring and fall migration, and could possibly be used by males in the summer (but even that is unlikely given that there is very little suitable foraging habitat within the project area).

The nearest known hibernaculum is approximately 11 miles southeast of the project area. The closest record of a reproductively active female Indiana bat is from the Poplar Bluff Ranger District, where maternity colony roosts were located in 2004. This maternity colony is approximately 43 miles west/southwest of the project area. The nearest summer capture site of a male Indiana bat is approximately 40 miles from 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's old age class (146,184 acres to 119,605). The relative percentages of the other two age classes (20-49 years old and 10-19 years old) were 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 in the short term, but could also pose a risk from catastrophic wildfire.

### Effects of the Action

Based on our analysis of information provided in your November 29, 2004, BE and subsequent e-mails for the Possum Trot 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.

Of the total project area (16,430 acres), 7,741 acres will be affected by timber management activities (harvest or TSI). The proposed Possum Trot Project may affect Indiana bats that migrate through the project area or any males that may roost or forage in the project area during the summer. Removal of some suitable roost trees (snags) could occur with the implementation of the project (timber harvest, prescribed burning, fire line construction, road reconstruction and maintenance). However, as mentioned above, the Possum Trot area provides minimal roosting and foraging habitat, and furthermore, 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 within the project area. The likelihood of cutting a tree containing an individual roosting Indiana bat is anticipated to be low because of the

rarity of the species on this district and the large number of suitable roost trees present on the district.

Roosting and foraging habitat could also be improved with the implementation of this project. Indiana bats maternity roosts are most often found in canopy gaps or in trees that are taller than the surrounding trees (Shultes and Elliot 2002, Gumbert et al 2002, Murray and Kurta 2004). Male Indiana bats have been found using shelterwood harvest areas (MacGregor 1999). Shelterwood harvests, uneven-age management, and thinning will open up the canopy creating more foraging habitat and more roosting habitat - because suitable large snags and live trees will be retained and more sunlight will be able to reach available roosts.

The project will not have any direct or indirect effects on hibernating or swarming Indiana bats, since there are no hibernacula in or very near the project area. The project area is far enough from the hibernaculum that smoke would have no effect on the Indiana bat. The prescribed burns may also have a beneficial effect by opening forest canopies and decreasing dense understory vegetation that could inhibit bat movements to foraging habitats and roosting sites.

The designation of 1473 acres as old growth will benefit the Indiana bat. While all of those acres do not currently have old growth characteristics, they eventually will. This benefit will decrease as the area will eventually also become too cluttered for bats to use, except in areas of tree fall gaps and existing roads, ponds, and areas heavily affected by the red oak borer.

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.

### Conclusion

The actions and effects associated with the proposed Possum Trot 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

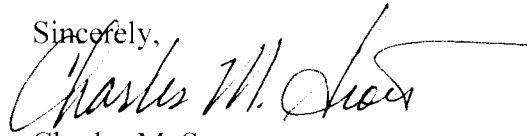
The Service anticipates that the proposed actions associated with the Possum Trot Project will result in the incidental take of Indiana bat habitat (acres) as outlined in Table 1. The type and amount of anticipated incidental take is consistent with that described in the Programmatic BO and does not 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 implementing 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 Possum Trot 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  
USFWS, Jennifer Szymanski, RO via electronic mail  
USFWS, Theresa Davidson, Ava, MO

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**Table 1. Incidental take of Indiana bats for the Possum Trot 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. Cumulative take acres for all activities for the years 2007-2009 must also be monitored in real time until the computerized database is updated, in no instance may the total acres exempted per year be exceeded without additional formal consultation.**

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**Alternative 3**

Activity	FY 2005		FY 2006		FY 2007		FY 2008		FY 2009	
	Possum Trot	Cumulative Forest	Possum Trot	Cumulative Forest	Possum Trot	Cumulative Forest	Possum Trot	Cumulative Forest	Possum Trot	Cumulative Forest
Prescribed burning	0	17288	60	5981	0	5992	0	*	0	*
Timber harvest	418	6056	949	4175	1247	4175	829	*	700	*
Timber stand improvement	0	3820	0	1622	1271	1971	1131	*	1196	*



Additional References for Possum Trot Project Tiered BO

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- Carter, T.C., W.M. Ford, and M.A. Menzel. 2002. Fire and bats in the southeast and mid-Atlantic: more questions than answers? *In*: Ford, W.M., K. R. Russell, and C.E. Moorman, eds. Proceedings: the roles of fire for nongame wildlife management and community restoration: traditional uses and new directions: 2000 September 15: Nashville, TN. Gen. Tech. Rep. NE-288. Newtown Square, PA, USDA, Forest Service, Northeastern Research Station, 145p.
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- Lyon, L.J., M.H. Huff, E.S. Telfer, D.S. Schreiner, and J.K. Smith. 2000. Fire effects on animal populations. Chapter 4. *In* Smith, J.K. ed. Wildland fire in ecosystems: effects on fauna. Gen. Tech. Rep. RMRS-GTR-42-vol.1. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 25-34.
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- MacGregor, J.R. 1999. Report to the Daniel Boone National Forest Management Team Indiana bat roost tree use monitoring – 1996-97 Summary, South Goldson Cave and Vicinity, Pulaski and McCreary Counties, Somerset Ranger District.
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- Shultes, K.L. and C. Elliot. 2002. Final Report: Roost tree selection by Indiana bats and Northern bats on the Wayne National Forest, Ohio.