

# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Columbia Ecological Services Field Office  
101 Park DeVille Drive, Suite A  
Columbia, Missouri 65203-0057  
Phone: (573) 234-2132 Fax: (573) 234-2181



December 22, 2004

Mr. John Bisbee, District Ranger  
Houston-Rolla-Cedar Creek Ranger District  
108 S. Sam Houston Blvd.  
Houston, Missouri 65483

Dear Mr. Bisbee:

This letter is in response to your July 27, 2004 and December 6, 2004, request for site-specific review, pursuant to section 7 of the Endangered Species Act of 1973, as amended, on the proposed Crescent Project on the Houston-Rolla-Cedar Creek District (District) in Pulaski and Laclede 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 Crescent Project is a Tier 2 consultation. We have reviewed the information contained in the Crescent Project Biological Assessment (BA), submitted by your office on July 27, 2004 and then again

electronically on December 6, 2004 (with additions and corrections in species analysis), 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 Crescent 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 Crescent project area are Indiana bat, gray bat, Hine's emerald dragonfly, running buffalo clover, scaleshell mussel, and bald eagle.

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

The MTNF analyzed several alternatives in the Crescent Environmental Analysis and have selected Alternative 5 as the preferred alternative. The following is a brief description of the proposed action; please see the BA for a complete description. The MTNF proposes to maintain river access sites; upgrade river access parking; upgrade trails; increase public access to the project area; complete shelterwood harvests; clearcut harvests; group selection harvests; designate old growth; remove over story; thin cedars; thin pine and oak/pine stands; thin oak stands; improve savanna's; allow fire wood removal; conduct a salvage operation to improve forest health; prescribed burning (fire line construction included); build new waterholes; improve existing waterholes; develop waterholes with drinking systems for livestock use; increase the Mayfield Springs Special Management Area; control fescue and other noxious weeds through burning, herbicides or mechanical means; plant native hardwoods in riparian areas; plant native warm season grasses; clean up dump sites; closing and rehabilitating old road corridors; and streambank stabilization.

In addition to the MTNF's commitment to implement the RPM's and TC's in the Programmatic BO, the Biological Evaluation for the Crescent Project outlines other protective measures.

Based on the site-specific information above, we concur with your determination that the Crescent Project "may affect, but is not likely to adversely affect" the gray bat, bald eagle, Hine's emerald dragonfly, scaleshell mussel, and Curtis pearlymussel. We also concur with your determination that the Crescent Project will have "no effect" on the running buffalo clover. 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 Crescent 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 Crescent

Project and the cumulative total of incidental take for the MTNF for the 2005-2014 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.

Mist net and Anabat surveys were conducted within and near the project area in 2003. No Indiana bats were captured or detected during this survey effort. The nearest capture site of a reproductive female is approximately 10 miles east of the project area on Ft. Leonard Wood. No maternity roosts were identified when this female was captured (1996) and no more females have been captured at this location to date. The project is over 60 air miles from the capture site of a post-lactating female captured in 2004 on the Salem Ranger District. This project area is over 100 air miles from the nearest Indiana bat maternity colony roosts located in 2004 on the Poplar Bluff Ranger District. The Crescent Project area is located approximately 5 air miles west of the nearest Indiana bat cave. Because surveys were conducted in the project area and no Indiana bats were found, it is unlikely that any significant maternity colonies exist in the project area. However, given the proximity to a perennial river and several caves occupied by hibernating Indiana bats, it is reasonable to assume that migrating Indiana bats could utilize the area during the spring and fall migration periods.

### 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 December 6, 2004 BA for the Crescent 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 the project area and smoke would not accumulate in nearby hibernacula.

Migrating Indiana bats could be potentially impacted from the proposed activities. Based on what we currently know about Indiana bat maternity colonies, the nearest possible maternity colony (based on the capture of a reproductively active female 10 miles away – subsequent survey efforts have not lead to the capture of any more reproductively active females on Fort Leonard Wood or on the MTNF adjacent to the Fort) would not be using the Crescent 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 used during migration in the timber harvest areas. Timber harvest may occur any time during the year. However the MTNF has proposed several protective measures to protect the majority of trees that offer the best potential roosting habitat for Indiana bats either migrating through the area or roosting in the area throughout the summer. For instance, to the maximum extent possible and logistically practical, all dead trees greater or equal to 20"dbh and all live trees greater or equal to 26"dbh will be retained, unless they pose an immediate 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 foraging by many bat species. The thinning, some timber harvest strategies, and prescribed burning will likely create the 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. Prescribed burn units are far enough away from known hibernacula, therefore, smoke would have no effect on hibernating Indiana bats. If prescribed burns occur during the migration season there is a possibility of harming Indiana bats, however, the risk of directly killing an Indiana bat is significantly reduced because bats are more mobile during this period. Although the effects of prescribed burning in the Crescent Project area run from no effect to adverse effect, all of the acres to be burned in this project will be added to the cumulative take acres (see table below) at the request of the MTNF.

Harm to Indiana bats could also occur if the removal of suitable roost trees causes bats to abandon a traditionally used migratory corridor or roost tree within that corridor. 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 on 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 Crescent 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

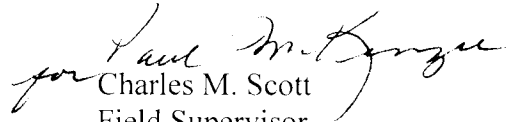
The Service anticipates that the proposed actions associated with the Crescent Project will result in the incidental take of Indiana bat habitat (acres) as outlined in Table 1. The type and amount of anticipated incidental take is consistent with that described in the Programmatic BO and does not cause 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 Crescent 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,

  
for Charles M. Scott  
Field Supervisor

cc: Field Supervisor, Indiana ESFO, Bloomington, IN  
Jennifer Szymanski, RO via electronic mail

O:\Davidson\TBO-CrescentProject FY05.doc

**Table 1. Incidental take of Indiana bats for the Crescent 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 2007-2014 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. \*C = Crescent Project.**

	*C 2005	MTNF 2005	C 2006	MTNF 2006	C 2007	MTNF 2007	C 2008	C 2009	C 2010	C 2011	C 2012	C 2013	C 2014
Timber Harvest (AC)	2359	7210	2285	5621	0	4974	0	0	0	0	0	0	0
Prescribed Fire (AC)	0	12000	1497	9654	1861	7380	0	0	3358	0	0	3358	0
Wildlife Habitat Improvement (AC)	0	848	533	9	53	12	50	392	0	0	342	0	342
Timber stand improvement (AC)	0	3072	0	1622	1677	700	2026	0	0	0	0	0	0
Soil & Water improvement (AC)	0	25	0	17	0	17	10	10	0	0	0	0	0
Road Construction (AC)	2	22	2	22	0	22	0	0	0	0	0	0	0