

March 23, 2009

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

Dear Mr. Weber:

This letter is in response to your February 2, 2009, request for site-specific review, pursuant to section 7 of the Endangered Species Act of 1973, as amended, on the proposed Shirley Project on the Potosi-Fredricktown Ranger District (District) in Crawford and Washington Counties, Missouri. On September 16, 2005, the U.S. Fish and Wildlife Service (Service) issued a Programmatic Biological Opinion (Programmatic BO) for the Mark Twain National Forest (MTNF) 2005 Forest Plan (Forest Plan). This Programmatic BO established a two-tiered consultation process for Forest Plan activities, with the 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 actions outlined in the Forest Plan for the MTNF. The Programmatic BO evaluated the effects of Forest Service management program activities, including timber management and prescribed burning, on the bald eagle (*Haliaeetus leucocephalus*), Gray bat (*Myotis grisescens*), Hine’s emerald dragonfly (*Somatochlora hineana*), Indiana bat (*Myotis sodalis*), Mead’s milkweed (*Asclepias meadii*), Pink mucket pearlymussel (*Lampsilis abrupta*), Running buffalo clover (*Trifolium stoloniferum*), Scaleshell mussel (*Leptodea leptodon*), Topeka shiner (*Notropis Topeka*), Tumbling Creek cavesnail (*Antrobia culveri*), and Virginia sneezeweed (*Helenium virginicum*). We concurred with your programmatic determinations of “no effect” for Virginia sneezeweed, running buffalo clover, and Topeka shiner. We concurred with your programmatic determinations of “may affect, not likely to adversely affect” for the Hine’s emerald dragonfly, Tumbling Creek cavesnail, pink mucket, scaleshell, bald eagle, and gray bat. We also concurred with your programmatic determination of “may affect, likely to adversely affect” for Mead’s milkweed and Indiana bat. We are currently reinitiating consultation on the Programmatic BA and BO for the Indiana bat and running buffalo clover.

However, the effects determination for the Indiana bat remains the same and the new consultation is based on new information for the species. The effects to running buffalo clover changed and new management guidelines are proposed for that species.

Your request for Service review of the proposed activities associated with the Shirley Project is a Tier 2 consultation. We have reviewed the information contained in the Shirley Project Biological Evaluation (BE), submitted by your office on February 2, 2009, describing the potential effects of the proposed project on the above federally listed species.

We concur with your determination that the only species that may occur within the project area are gray bats, Indiana bats, Hine's emerald dragonfly and running buffalo clover.

The MTNF selected Alternative 2 as the proposed action for the Shirley Project. Alternative 2 proposes a wide variety of both timber and non-timber related management activities (see Table 1). The project action area encompasses approximately 53,804 acres of which approximately 27,407 acres are National Forest. A complete description of the proposed action can be found in the project BA.

The Service concurs with your determination that the Shirley Project, "may affect, but is not likely to adversely affect" the Hine's emerald dragonfly, gray bat, and running buffalo clover. As described in the Service's Programmatic BO, and based on the site-specific biological assessment, adverse effects are likely to occur to the Indiana bat. The following Tiered Biological Opinion is based on those adverse effects.

Tiered Biological Opinion

The following tiered biological opinion is based on likely adverse effects to the Indiana bat from activities associated with the Shirley Project. In conducting our evaluation of the potential impacts of the project on Indiana bats, our review focused on determining whether: (1) this proposed project falls within the scope of the Programmatic BO issued for the MTNF's Forest Plan; (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 Shirley Project for the 2010-2014 planning seasons. It conforms to the Service's Programmatic BO (page 14) 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 23-32 of the Programmatic Bo and are hereby incorporated by reference.

New Population Estimates

A new range-wide population estimate has been made for the Indiana bat (Table 2). Range-wide, the population continues to increase. However, the impact white nose syndrome (see discussion below) has had on the population in the northeast (Region 5) has not been factored into this estimate. When that information becomes available a new estimate will be completed.

Missouri

Historically, Pilot Knob Mine in Iron County contained the largest number of hibernating Indiana bats in Missouri. An estimated 50,000 Indiana bats were reported from Pilot Knob Mine for several years. Recently, bat biologists have discussed and coordinated on the need to re-visit the mine to obtain an updated census. In February 2008, the Missouri Department of Conservation (MDC) led a group of bat and caving experts into the mine to census the Indiana bat hibernating population. Approximately 2,000 Indiana bats were counted in Pilot Knob Mine during this census. Based on information gained from this census, Elliott and Kennedy (2008) revised the population estimates for Pilot Knob Mine for the past 20+ years. Elliott and Kennedy (2008) postulate that the major decline in the Indiana bat population at Pilot Knob Mine occurred in 1979 when a portion of the mine collapsed. It is unknown how this collapse caused a decline in Indiana bat use, but likely scenarios include a modified microclimate that was unsuitable for the bats and/or bats were killed during the event. When comparing the timing of decreases in Missouri's population estimates to increasing populations in nearby states, especially Illinois, the Indiana bats that occupied Pilot Knob Mine may have immigrated. Further information is needed to confirm if these Indiana bats immigrated to Illinois

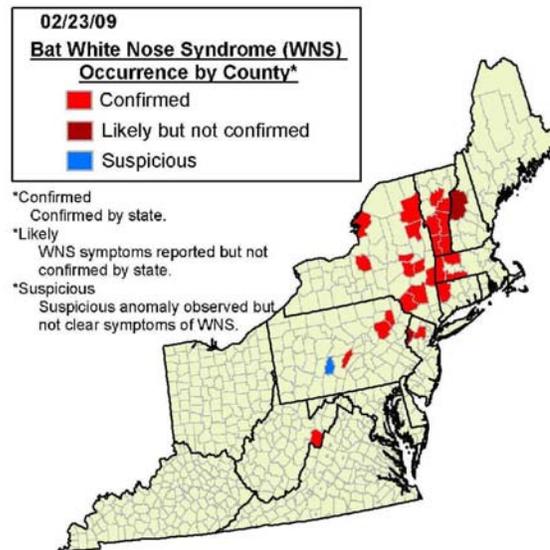
Indiana bat hibernating populations were monitored in 3 Indiana bat hibernacula on the MTNF in 2009. There were 30 Indiana bats hibernating in Knife Cave, 26 hibernating Indiana bats in White's Creek Cave, and approximately 3 Indiana bats hibernating in Cave Hollow Cave. This represents a decline in the number of Indiana bats hibernating on the MTNF.

White Nose Syndrome

White nose syndrome (WNS) is an unidentified agent (or agents) that is believed to be associated with the mortality of several bats species in the northeastern United States, mainly New York (see Figure 1). Current information indicates that WNS has resulted in the mortality of the following five species of bats: Indiana bats, little brown bats (*Myotis lucifugus*), northern long-eared bats (*Myotis septentrionalis*), eastern small-footed bat (*Myotis leibii*), and eastern pipistrelle (*Pipistrellus subflavus*). Approximately 50,000 Indiana bats are known to hibernate in the caves and mines affected by WNS. The extent of WNS caused mortality and other effects of WNS on these 50,000 Indiana bats are currently unknown.

White nose syndrome has not been documented in Missouri. The MTNF, in coordination with MDC, will continue to monitor hibernating populations of Indiana bats. All winter and summer surveys will employ techniques to minimize the risk of spreading the disease if it is found in Missouri.

Figure 1. (Graphic: Cal Butchkoski)



Mist net and Anabat surveys have been conducted for bats on the MTNF since 1997. The MTNF has two documented maternity colonies (Poplar Bluff and Salem Districts). The 2003 capture of another pregnant Indiana bat on the Fredericktown District indicates that a maternity colony may be nearby, however subsequent mist netting and Anabat detection has not documented Indiana bat present in and around the initial capture area.

The MTNF has conducted mist net and Anabat surveys in and around the Shirley Project area. One male was captured in the project area in 1998 and individuals were acoustically detected at two ponds within 1 to 5 miles of the project area in 2004 and 2005. The nearest maternity colonies are located approximately 10-15 miles from the project area. There is one small hibernaculum within the project area on private land and three other hibernacula within 5 to 10 miles of the project area. Given the proximity of these records and suitable habitat within the project area, it is reasonable to assume that Indiana bats may occur in the project area during the summer and during migration, and a small number may occur during the hibernation period at the cave within the project area.

Environmental Baseline

The environmental baseline for the MTNF was established and fully described in detail on pages 12-13 and 34-45 of the Service's 2005 Programmatic BO. Since issuance of the Service's Programmatic BO, the environmental baseline on the MTNF changed only slightly.

In the early spring 2006, several tornadoes have destroyed towns and forest land within the 29 county area of the MTNF. Approximately 3,000 acres of the MTNF was affected by these events, though the entire 3,000 acres was not entirely destroyed (Jody Eberly, MTNF pers. comm.). In 2008, wind storms affected approximately 50 acres of forest land on the MTNF.

Effects of the Action

Based on our analysis of information provided in your February 2, 2009 BE for the Shirley Project, we have determined that the potential effects of the proposed action are consistent with those addressed in the Programmatic BO and are hereby incorporated by reference.

No management activities are proposed within the 130 acres “key area” immediately surrounding the Indiana bat cave within the project area. The nearest timber activities are approximately 1.5 miles from the cave. The implementation of the proposed project will increase the amount of suitable foraging habitat within the project area. The potential to fell a suitable roost tree within the 5 mile area around a cave exists; however, with the implementation of the standards and guidelines this possibility is minimal. With the implementation of the standards and guidelines regarding smoke management, prescribed burning is not expected to effect the small hibernating population.

Some of the timber activities may reduce the suitability of foraging habitat. However, many of the activities will increase the suitability of foraging habitat in the Shirley Project area. The creation of new vernal pools within the project area may beneficially affect Indiana bats by creating new drinking water sources and foraging opportunities. With the implementation of the Forest Plan Standards and Guidelines, roosting habitat will be maintained in the Shirley Project area.

A complete discussion of these effects can be found in the “Effects of the Action” section, on pages 45-64 of the Service’s September 16, 2005 Programmatic BO.

Conclusion

The actions and effects associated with the proposed Shirley Project are consistent with these 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 Shirley Project will result in the incidental take of Indiana bat habitat (acres) (a surrogate measure of incidental take) as outlined in Table 3. 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 in the Programmatic BO (page 67-69) to be exceeded.

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 Shirley Project.

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 505-761-4768.

Sincerely,

Charles M. Scott
Field Supervisor

Cc: Field Supervisor, Indiana ESFO, Bloomington, IN
Theresa Davidson, USFWS, Albuquerque, NM

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Table 1. Summary of Activities for the Shirley Project.

PROPOSED ACTIVITY	APPROXIMATE AREA AFFECTED
TIMBER RELATED ACTIVITIES	
Commercial harvest – seedtree method	1,635 acres
Commercial harvest – shelterwood method	2,050 acres
Commercial harvest – uneven-aged management method	2,023 acres
Commercial harvest – overstory removal method	371 acres
Commercial harvest – thinning methods	2,346 acres
Commercial harvest – sanitation method	1,009 acres
Site prep of stands after timber harvest	5,562 acres
Release of pine in regeneration	0 acres
Crop tree release of pine & hardwood saplings	3,652 acres
Temporary road construction/re-construction	56 miles
Road Activities:	
- Maintenance/Re-construction	38.6 miles
- Decommissioning (closure)	50.1 miles
- Convert from non-system to system road	4.1 miles
NON-TIMBER RELATED ACTIVITIES	
Prescribed burning	6,140 acres
- Miles of new line proposed (dozer/handline)	13.4 miles
- Miles of existing line to be used (roads/streams)	14.7 miles
Midstory removal	425 acres
- Acres of herbicide application	< 1 acre
Dam maintenance	4 sites
- Acres of herbicide application	< 1 acre
Bottomland hardwood establishment	43 acres
- Acres of herbicide application	5-8 acres
Noxious weed control	337 acres (886 stand acres)
- Acres of herbicide application	244 acres
Aquatic organism passage improvement	4 sites
Boat ramp development	1 site
Vernal pool establishment	21 pools
Interpretive site development	1 site

Table 2. Range wide population estimate for the Indiana bat. (Compiled by Andy King, U.S.F.W.S. 2008)

USFWS Region	State	2001	2003	2005	2007	
Region 2	Oklahoma	0	5	2	0	
Region 3	Indiana	173,076	183,337	206,610	238,009	
	Missouri ¹	28,794	21,717	15,718	16,004	
	Illinois	21,053	43,028	54,630	54,033	
	Ohio	9,788	9,831	9,769	7,629	
	Michigan	20	20	20	20	
	Total		232731	257933	286747	316695
Region 4	Kentucky	49,999	48,535	63,211	70,901	
	Tennessee	9,258	9,265	9,971	8,410	
	Arkansas	2,475	2,228	2,067	1,779	
	Alabama	173	265	296	258	
	Total		61,905	60,293	75,545	81,348
Region 5	New York	29,642	32,924	41,702	52,746	
	Pennsylvania	702	853	746	1038	
	West Virginia	9,714	9,742	13,417	14,597	
	Virginia	833	1,090	735	723	
	New Jersey	107	644	652	659	
	Vermont	159	472	297	325	
	Total		41,157	45,725	57,549	70,088
	Range wide Total		335,793	363,956	419,843	468,131

¹ Missouri's population estimates have been revised per Elliot and Kennedy's (2008) revised population estimates for Pilot Knob Mine.

Table 3. Anticipated incidental take associated with the Shirley Project. Note: According to Lynda Mills (MTNF) some of these activities would be occurring Nov. 1 – April 1.

Treatment	Total Acres/Miles Proposed in project area	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Annual Anticipated Level of Incidental Take in the 2005 Programmatic BO
Salvage Sales	0 acres	-	-	-	-	-	-	15,000 acres
Hazard Tree Removal								
Recreation Site Maintenance	0 acres	-	-	-	-	-	-	1,500 acres
Trail Maintenance/ Reconstruction	0 acres	-	-	-	-	-	-	2,000 acres
*Road Constr. /Recon. (assumes 1 mile = 3 acres)	30.6 acres (10.2 miles)	-	11.4 (3.8 mi)	22.8 (7.6 mi)	22.8 (7.6 mi)	22.8 (7.6 mi)	12.0 (4 mi)	100 acres
*Temp road and skid trail construction (assumes 1 mile = 1.5 acres)	84 acres (56 miles)	-	15 (10 mi)	31.5 (21 mi)	31.5 (21 mi)	31.5 (21 mi)	11 (16.5 mi)	800 acres
Fireline construction (assumes 1 mile = 1 acre)	28.1 acres (28.1 miles = 13.4 new & 14.7 existing)	-	18.8	9.3	-	18.8	9.3	240 acres

*All of these activities would be conducted as part of normal timber sale activities.

Literature Cited

Elliot, W.R. and J. Kennedy. 2008. Status of the Indiana bat, *Myotis sodalis*, in Pilot Knob Mine, Iron County, Missouri. Final Report to the United States Fish and Wildlife Service, Pilot Knob National Wildlife Refuge.