

FORMAL
CONFERENCE OPINION

Effects to the
Northern Long-eared Bat
from Ongoing Activities on the
Monongahela National Forest
West Virginia

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CONSULTATION HISTORY

In March 2002, the U.S. Fish and Wildlife Service (Service) issued a programmatic Biological Opinion (programmatic BO) for the continued implementation of the 1986 (as amended) Monongahela National Forest Land and Resource Management Plan (Forest Plan). In July, 2006 that programmatic BO was updated and revised to address the 2006 Revision of the Forest Plan (Service 2006). The 2006 programmatic BO determined that implementation of the Forest Plan was not likely to affect the following federally listed species: the Virginia big-eared bat (*Corynorhinus townsendii virginianus*), Cheat Mountain salamander (*Plethodon nettingi*), shale barren rock cress (*Arabis serotina*), small-whorled pogonia (*Isotria medeoloides*), and Virginia spiraea (*Spiraea virginiana*). A “not likely to adversely affect” determination was also made for two species, the bald eagle (*Haliaeetus leucocephalus*) and the West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*), that have now been delisted due to recovery, but that were federally listed in 2006. Finally, the programmatic BO determined that two federally listed species, the Indiana bat (*Myotis sodalis*) and running buffalo clover (*Trifolium stoloniferum*), could be adversely affected by implementation of the Forest Plan, and formal consultation was completed for those two species.

Both programmatic BOs established a two-tiered consultation process for Forest Plan activities, whereby the MNF develops proposed activities and determines whether the proposed action may affect listed species or designated critical habitat. The Service subsequently reviews the proposed site-specific actions to ascertain if any effects will occur as a result of a site-specific project in a manner, or to an extent, not evaluated or previously disclosed and discussed in the Service’s 2006 programmatic BO. The Service and the MNF have completed numerous site-specific consultations on projects that have been proposed and implemented since the completion of the 2006 programmatic BO.

On October 2, 2013, the Service proposed to list the northern long-eared bat (NLEB) (*M. septentrionalis*) as endangered (78 FR 61045). A final listing determination is anticipated to be made by April 2015. Pursuant to Section 7(a)(4) of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), Federal action agencies are required to confer with the Service if their proposed actions are likely to jeopardize the continued existence of a proposed listed species such as the NLEB (50 CFR 402.10(a)). Action agencies may also voluntarily confer with the Service if an action may affect a proposed species. Species proposed for listing are not afforded protection under the ESA; however as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and “take” applies regardless of an action’s stage of completion. If the action agency retains any discretionary involvement or control over on-the-ground actions that may affect the species after listing, the section 7 requirement to consult and obtain incidental take coverage before proceeding further with the project applies.

The conference process for a proposed species is similar to the consultation process for listed species and may be either informal or formal. A formal conference is conducted when an action may adversely affect a proposed species and culminates with the Service writing a conference opinion that follows the same format as a biological opinion. If the species is subsequently listed

prior to completion of the action, the incidental take statement provided with a conference opinion will become effective, and complete the section 7 consultation requirements, provided the Service and the action agency both adopt the conference opinion as a formal biological opinion.

Because the NLEB is present within the MNF, the MNF is conducting voluntary conferencing for ongoing projects now, so that all section 7 conferencing and consultation requirements will already be in place if and when the species is listed.

Prior to initiating this conference request, the Service and the MNF have had numerous discussions about the conservation of the NLEB. The MNF has voluntarily initiated a number of efforts that are contributing to the conservation and understanding of the NLEB, including but not limited to tracking NLEB that are captured during bat monitoring efforts, closing caves on the MNF that may support hibernating or swarming NLEB, and leading efforts to develop regional forestry guidelines to protect forest bats. The Service and the MNF met informally a number of times during the preparation of the conference request to ensure that both agencies agree with the content and direction of the request. The Service received the formal conference request on May 7, 2014. Minor modifications and amendments to the request have been made in the course of completing this conference opinion.

CONFERENCE OPINION

DESCRIPTION OF THE PROPOSED ACTION

The MNF reviewed all their ongoing actions and determined that a total of 41 projects were likely to continue beyond the time when the NLEB would likely be listed. They then reviewed these projects, including their previous consultation documents, to determine how these projects would affect the NLEB.

Projects that Will Have No Effect or Are Not Likely to Adversely Affect the NLEB

Eleven projects involved no tree clearing and/or no removal of vegetation, and would not alter the suitability any potential NLEB habitat, including known NLEB hibernacula or any cave habitats. These projects consisted of maintenance or replacement of existing trails, rights-of-way or facilities; tree planting and habitat restoration; and hemlock wooly adelgid suppression. A full list and description of these activities are found in Table 1 of the conference request (as amended dated November 3). The MNF determined that these projects would have no effect on the NLEB and the Service concurs with this determination.

The MNF determined that 18 ongoing projects are not likely to adversely to affect the NLEB. This included two projects that would have entirely beneficial effects because the actions are limited to girdling trees which will create additional roosting opportunities for forest bats. The other 16 projects consisted of wildlife enhancement, range management, timber stand improvement, non-native invasive species management, and a prescribed burn. A full list and description of these activities are found in Table 2 of the conference request (as amended dated

November 3). Previous consultations with the Service had concluded that these projects were also not likely to adversely affect the Indiana bat. None of these projects involved any potential effects to known NLEB hibernacula or any cave habitats, so none will be affected. In addition, the projects generally only involve the girdling of trees, include limited to no cutting of trees over 5" diameter breast height (dbh), or only involve the removal of a limited number of these trees during the hibernation period. Shagbark hickories, snags, and trees that are most likely to be used as bat roosts would not be affected. Based on the justification provided on pages 4-5 of the MNF conference request, and the abundance of other higher quality roost trees and snags on the MNF, we concur that the probability of a NLEB being present in the trees that will be affected by these projects is discountable. The range management and prescribed burn projects will be conducted in open areas that are not likely to be used by NLEB. As a result, the Service concurs that these projects are not likely to adversely affect the NLEB.

No biological assessment or further section 7 conference or consultation under the ESA is required for the 29 projects that will have no effect or are not likely to adversely affect the NLEB. Should project plans change, or if additional information on listed and proposed species become available, this determination may be reconsidered.

Projects that Are Likely to Adversely Affect the NLEB

The MNF determined that 12 ongoing projects are likely to adversely to affect the NLEB, as listed in Table 1 below. All these projects involve prescribed fire in forested areas and/or large scale tree removal outside the hibernation period, and thus have the potential to adversely affect roosting and/or foraging habitat for the NLEB in the short term. Many of these projects were initiated several years ago and as a result are largely completed, while some projects have just recently begun implementation.

The MNF and the Service previously concluded that 11 of these projects were also likely to adversely affect the Indiana bat and completed Tier-II formal consultations on these projects under the programmatic BOs. Informal consultation was completed for one prescribed burn project, Cole Run, because the Indiana bat was not known to be present within the project area at that time. The dates of these previous consultations are also listed in Table 1. Previous consultation documents provided full descriptions of the proposed actions for each of these projects, and are incorporated herein by reference.

Table 1: Ongoing Projects that Are Likely to Adversely Affect the Northern Long-eared Bat

Project Name	Location (Ranger District)	Previous Service Opinion (Date signed)
Hogback	Cheat	March 6, 2009
Lower Clover	Cheat	July 8, 2005
Lower Williams	Gauley	September 5, 2008
Cherry River	Gauley	June 16, 2006
Little Beech Mountain	Greenbrier	July 25, 2006
Upper Greenbrier North	Greenbrier	March 1, 2012
Ramshorn Prescribed Burns**	Greenbrier	March 23, 2009
Shock Run Prescribed Burns**	Marlinton	March 23, 2009
Lockridge Prescribed Burn	Marlinton	January 27, 2014
Middle Mountain Stewardship	Marlinton/WSS	November 30, 2006
Cole's Run	White Sulphur Springs	April 26, 2002
WSS Prescribed Burns**	White Sulphur Springs	March 23, 2009

** All included in one USFWS Biological Opinion: "Shock Run, White Sulphur, Ramshorn Prescribed Burn Project"

The Service concurs that these 12 projects are likely to adversely affect the NLEB. The remainder of the conference opinion will address these 12 projects.

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.

As noted above, all but one of the projects covered under this opinion are being implemented consistent with the Forest Plan and associated programmatic BOs. These documents incorporate a number of conservation measures designed to protect and enhance populations of listed bats species on the MNF, as described more fully on pages 47-51 of the 2006 programmatic BO. While designed primarily for the Indiana bat and the Virginia big-eared bat, many of these measures will also directly benefit the NLEB. The MNF provides habitat for swarming, hibernating, and summering NLEB and the Forest Plan already includes some conservation measures that will protect and manage habitats that support these three key life stages. For example, all of the known NLEB hibernacula on the MNF also support Indiana bats. Therefore, the protection measures already in place around these sites will also protect NLEB hibernacula and the swarming habitat around them. The MNF's ongoing bat monitoring efforts as required

under the programmatic BO, also serve to provide information on the presence and abundance of NLEB in the MNF. Similarly the Forest Plan includes measures to conserve bat roosting and foraging habitat that apply to all projects implemented under the Forest Plan regardless of whether they occur in areas known to support the Indiana bat. These measures, which also protect the NLEB, include retaining all shagbark hickory trees 5 inches in dbh or greater in harvest units, and retaining an average of at least 6 snags per acre that are 9 inches dbh or greater within harvest units.

However, some of the conservation measures in the Forest Plan are specific to the Indiana bat maternity habitat and would not be protective of the NLEB unless known Indiana bat maternity colonies were also present. These measures include the requirements to establish buffers around known Indiana bat maternity sites, retention of known Indiana bat roost trees, restrictions on activities such as the use of explosives or mineral development that can occur within identified maternity areas, the requirement to develop additional site-specific protective measures when projects are planned within buffers around maternity sites.

Action Area

The 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. For the purposes of this conference opinion, the action area includes the entire MNF, which encompasses approximately 919,000 acres. The federally owned lands are interspersed with other private and state owned lands within the 1,700,000 acres contained within the MNF's proclamation boundary. The MNF is located primarily in Grant, Greenbrier, Nicholas, Pendleton, Pocahontas, Randolph, Tucker, and Webster Counties, with minor portions in Barbour and Preston Counties.

STATUS OF THE SPECIES

On October 2, 2013, the Service proposed to list NLEB as endangered (78 FR 61045). A final listing determination is anticipated to be made by April 2015. The current status of the NLEB, its life history, current rangewide population and trends, and continued threats are thoroughly described in the Federal Register notice that proposed the species for listing, which is hereby incorporated by reference. The Northern Long-eared Bat Interim Conference and Planning Guidance (Conference Guidance) was released by the Service on January 6, 2014 (Service 2014). This document represents the most current summary of information on the species and its conservation needs. The 2014 Conference Guidance identified several threats including: 1) disease, 2) restriction of hibernacula openings, 3) human disturbance while hibernating, 4) quarrying and mining operations, 5) loss of clean water resources, 6) forest conversion and firewood collection, 7) predation, 8) prescribed burning, 9) removal of occupied suitable roost structures, and 10) collisions with man-made objects (e.g., wind turbines, communication towers, airplanes, and vehicles) (Service 2014). However, white-nose syndrome WNS is currently the most significant threat to the recovery of this species (Thogmartin *et al.* 2013).

WNS is a recently emerged disease affecting hibernating bats. To date, the following species known to be affected by WNS: the big brown bat (*Eptesicus fuscus*), tri-colored bat (*Perimyotis subflavus*), eastern small-footed bat (*M. leibii*), gray bat (*M. grisescens*), little brown bat (*M. lucifugus*), Indiana bat, and NLEB. Affected bats usually exhibit a white fungus on their muzzles, wings, and ears (Blehert *et al.* 2009). The fungus associated with WNS was originally identified as a *Geomyces destructans* and was later renamed *Pseudogymnoascus destructans* in 2013 (Gargas *et al.* 2009, Minnis and Lindner 2013). The fungus had not been named or identified prior to the emergence of WNS. The fungus thrives in the cold and humid conditions of bat hibernacula. The mode of transmission is primarily by bat-to-bat contact. In addition, people may unknowingly contribute to the spread of WNS by visiting affected caves and subsequently transporting fungal spores to unaffected caves. It is unclear how long symptoms take to manifest after exposure to the fungus. It is also unclear what the long-term effects to affected bat species will be (e.g., geographic spread, mortality within affected sites). Interestingly, *P. destructans* has been documented growing on hibernating bats in several European countries, but the fungus does not appear to be causing widespread mortality there (Puechmaille *et al.* 2010).

Bats affected with WNS do not always have a grossly visible fungus, but may display abnormal behaviors. Behaviors include bats roosting toward the entrances of hibernacula where the temperatures and humidity are far less stable than traditional roosting sites. Affected bats may also leave their hibernacula and fly around during the day in cold temperatures far too early in the winter/spring before any insects are available for foraging. Many WNS-affected bats still inside hibernacula have not responded to human presence during surveys like healthy, unaffected bats do. Affected bats appear to be using up their essential fat reserves well before spring emergence.

WNS was first documented in a photograph taken in a New York cave in February 2006. By August 2014, evidence of WNS had been documented in 29 states and four Canadian Provinces, including many known bat hibernacula. In some affected hibernacula in New York and New England, 90 to 100 percent of the bats have died.

Service biologists and partners estimate that at least 5.7 million to 6.7 million bats have now died from WNS (Service 2012). Currently, most WNS-associated mortality has occurred at sites within the Northeast and Appalachian Mountain areas, but evidence of the fungus and associated mortality has been found at sites within the Midwest and Ozark areas, as well.

Status of the Northern Long-eared Bat in West Virginia

In West Virginia, NLEB are found regularly in hibernacula surveys, but typically only occur in small numbers (less than 20 individuals) in caves (Stihler 2012, unpublished data). The species has also been found in abandoned coal mines, most significantly during fall portal surveys conducted from 2002 to 2011 in the New River Gorge National River and Gauley River National Recreation Area, both managed by the National Park Service (NPS).

Northern long-eared bats are considered common in summer surveys in West Virginia. In summer records from 2006 to 2011, NLEB captures comprised 46 to 49 percent of all bat captures (Stihler 2012, pers. comm.). Prior to WNS, the NLEB was the most frequently captured species during mist net surveys throughout the State. Since WNS, the NLEB is still frequently captured during mist net surveys but is now the third most commonly encountered species, after the big brown bat and red bat (*Lasiurus borealis*). The general trend for NLEB captures in summer mist net surveys appears to be a sharp decline post-WNS after which the population appears to stabilize between 2012 and 2013 (Stihler 2013, unpublished data). The recent known distribution of the NLEB in the summer and winter is shown in Figure 1.

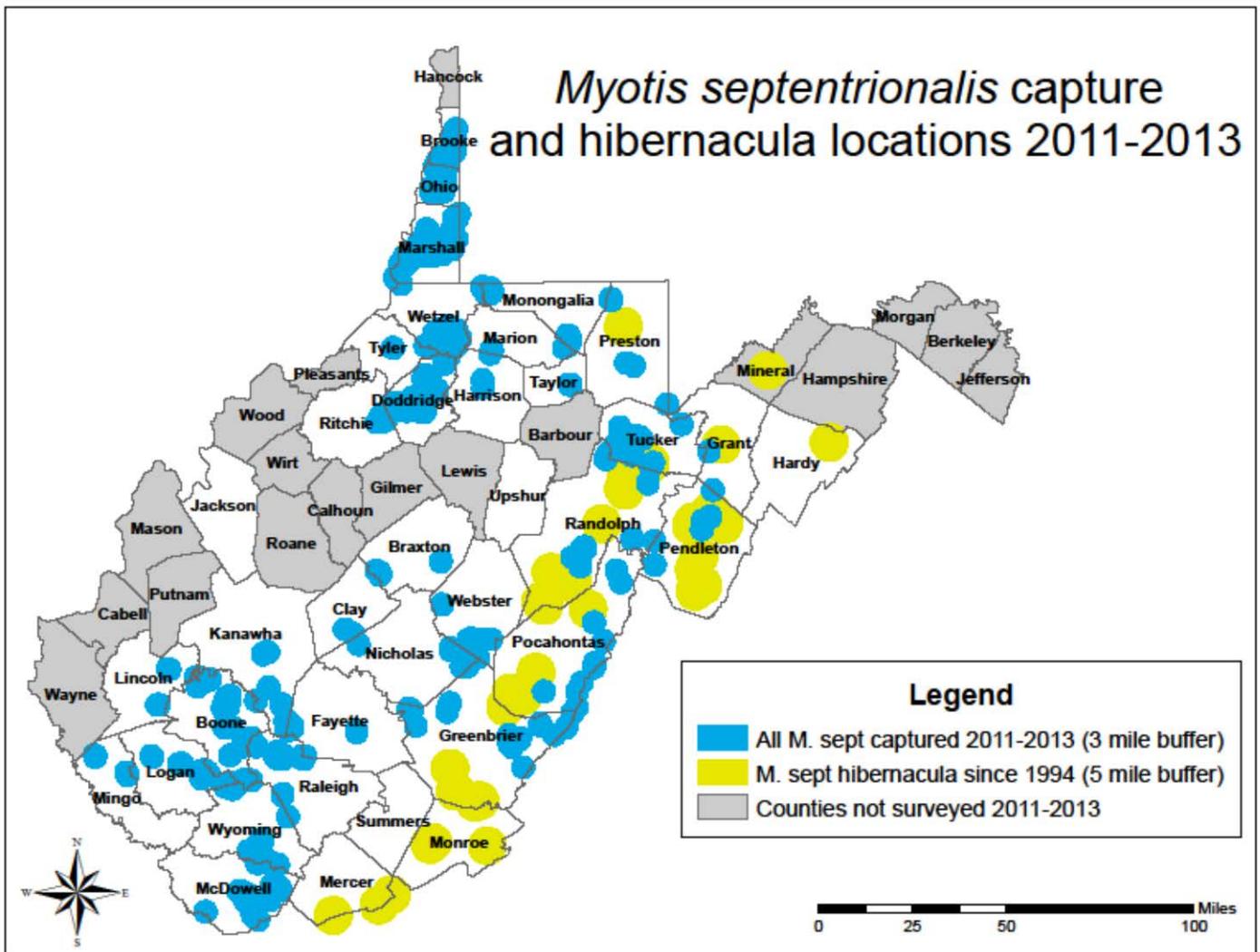


Figure 1: Known Distribution of the Northern Long-eared Bat in West Virginia

Critical Habitat

Critical habitat has not been proposed for the NLEB. Therefore, no proposed critical habitat will be affected.

Conservation Needs of the Species

The primary conservation need of the NLEB is to reduce the threat of WNS. This includes minimizing mortality in WNS-affected areas, and slowing the rate of spread into currently unaffected areas. In addition, NLEB that continue to exist within WNS-affected areas need to be able to continue to survive and reproduce in order to stabilize and/or increase the populations. This can be done by reducing the other threats to the species, as listed above. Therefore, efforts to protect hibernacula from disturbances need to continue. This should include restricting human access to hibernacula particularly during the hibernation period, constructing and maintaining appropriately designed gates, and restoring microhabitat conditions in hibernacula that have been altered. Efforts should also be made to protect and restore adequate fall swarming habitat around hibernacula. Occupied maternity habitat should be maintained, and the removal of occupied roost trees, particularly when young are present should be reduced. Research to identify important hibernacula and summer areas and to delineate the migratory relationship between summering and wintering populations should also be pursued.

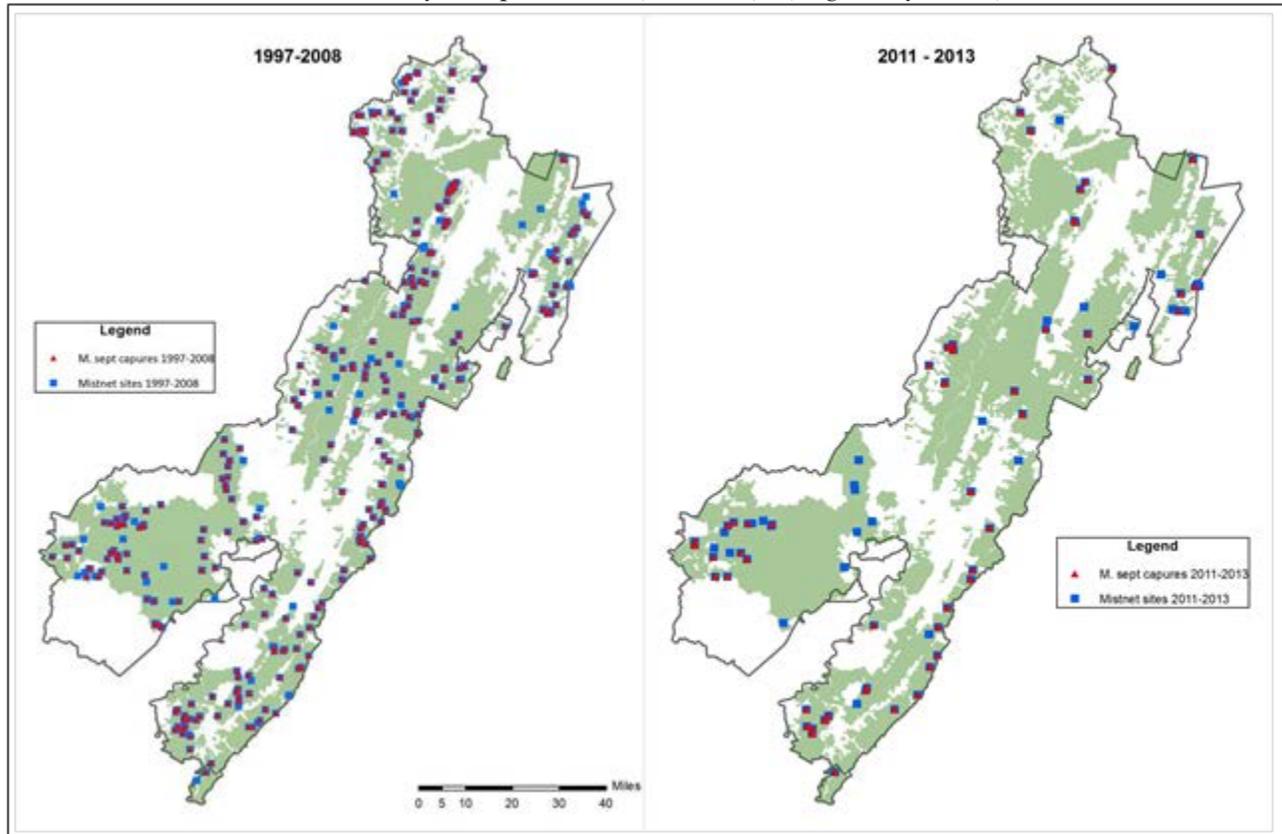
ENVIRONMENTAL BASELINE

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.

Status of the Species in the Action Area

The MNF has conducted extensive mist-net surveys for bats over the last 17 years including surveys at over 420 sites that resulted in more than 11,400 bat captures. These surveys have documented that the NLEB occurs throughout the MNF, as shown in Figure 2.

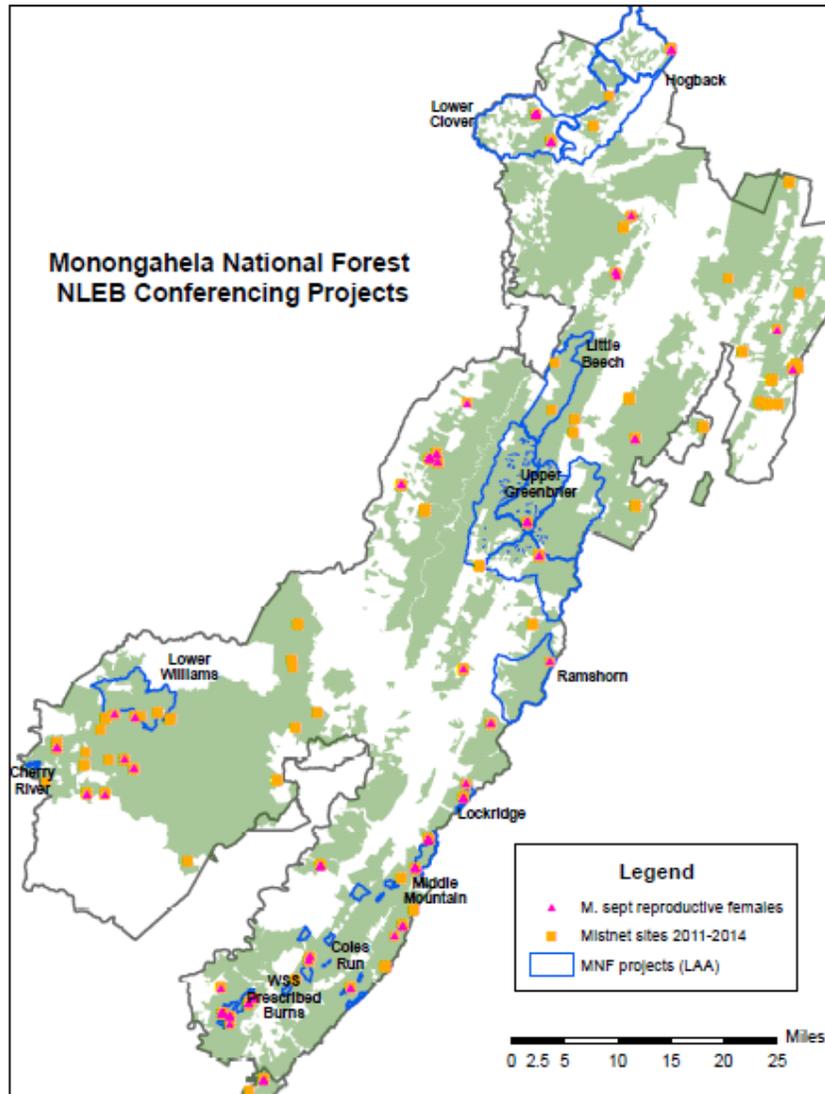
Figure 2: Locations of mist-net sites and NLEB captures pre-WNS (1997-2008) and over the last 3 years post-WNS (2011-13). (Figure by MNF).



Prior to the arrival of WNS, NLEB was the most common bat species documented in these surveys. From 2003-2008 (pre-WNS), 2,862 NLEB were captured (out of a total of 6,220 bats), representing an average of 46.5 percent of annual captures, with positive detections at an average of 81 percent of all sites annually. Since the onset of WNS, the both the rate of NLEB captures and proportion of sites with NLEB captures have declined at levels that are statistically significant. In 2013, positive detections of NLEB occurred at 57 percent of all sites and the average capture rate was 2.9 NLEB per net site compared to 18.7 per net site pre-WNS. However, the relative abundance of NLEB remains high on the MNF, with the species still comprising 35 percent of all bats captured in 2013. In addition, the spatial distribution of NLEB remains relatively wide-spread across the MNF (see Figure 2) and no significant changes in sex ratio or reproductive condition have been noted in pre- versus post-WNS captures.

Captures of NLEB since 2011 have included reproductively active females, providing evidence that NLEB maternity colonies are present on the MNF including within some of the project areas being addressed by this opinion, as shown in Figure 3.

Figure 3: Locations of Female NLEB Captures in Relation to Project Areas



The MNF has also conducted radio telemetry and tracking efforts on 12 NLEB including 4 males and 8 females that were tracked to roost trees. These bats traveled from 0.08 to 0.78 miles from their capture sites to their roost trees with an average travel distance of 0.48 miles. Females traveled from 0.25 to 0.75 miles. All but one of the roost trees, and all the roost trees used by female bats, were snags in decay class 5 or 6. DBH of the trees ranged from 7.0 to 24.4 inches.

At least seven caves on the MNF are known to support the hibernating NLEB. However, these caves are not known to support large numbers of the species and no more than nine NLEB have ever been found in any one of these caves at a time. Because NLEB often hibernate within

cracks and crevices, it is possible that some additional NLEB were present within those caves during the surveys but were in locations that were not accessible or visible to surveyors. It is also possible that there are other caves or mines on the MNF that also support NLEB, that have not yet been surveyed to determine if the species is present.

Additional information on the status of the species in the action area can be found on pages 1-3 of the conference request, and is incorporated here by reference.

Habitat Conditions in the Action Area

Habitat conditions on the MNF remain approximately the same as described in the 2006 programmatic BO (see page 45-46 of that document). Overall, the MNF provides a large area of mature intact forest, interspersed with younger, managed forests and other habitat types. Approximately 96 percent of the MNF is forested with a number of different forest types including spruce, mixed mesophytic and cove hardwoods, northern hardwood, oak, and pine-oak forest. Over 50 percent of this forested habitat is in the greater than 80 year old age class. Most of the non-forested habitat consists of savannas, grassland, or aquatic habitats such as wetlands, ponds, streams, or bogs. Karst geology and outcrops of cave-forming limestone formations are scattered throughout the MNF, providing a number of known and potential hibernacula for the species (Dasher 2012).

These conditions make the MNF highly suitable for the NLEB, as reflected in the results of the survey efforts above. The NLEB typically uses mature, intact interior forest for roosting and foraging, though younger, managed forests are also used. Roost selection is likely adaptable and variable depending on forest characteristics in an area (Broders *et al.* 2006, Carter and Feldhamer 2005, Ford *et al.* 2006, Henderson *et al.* 2008, Lacki and Schwierjohann 2001, Loeb and O'Keefe 2006, Perry and Thill 2007). While, wetlands, bottomland, and floodplain habitat is used (Foster and Kurta 1999, Carter and Feldhamer 2005), in West Virginia and other portions of the range, NLEB are frequently captured in uplands, particularly mid-upper slopes and ridgetops (Silvis *et al.* 2012, Krynak 2010, Schultes 2002). As a result of the MNF's continued and past management, these preferred habitat types are present and abundant throughout the MNF.

Conservation Needs of the Species in the Action Area

The conservation needs of the species in the action area are similar to the needs rangewide. The MNF provides habitat for swarming, hibernating, migrating, and summering NLEB, and the MNF has already been affected by WNS. Therefore, within the action area the conservation needs include: 1) reducing WNS-related mortality and injury; 2) maintaining suitable conditions within hibernacula and protecting them from disturbance; 3) providing suitable habitat conditions for NLEB, swarming, foraging, and roosting; 4) maintaining suitable habitat conditions in identified maternity areas and reducing the removal of occupied roost trees; 5) searching for previously unidentified areas of maternity and hibernation activity; and 6) conducting research to understand the migration patterns of NLEB that use the area during the summer or winter.

The MNF has already been pro-active in initiating a number of voluntary efforts that to contribute to the conservation needs of the species in the action area. The MNF has been voluntarily participating in conducting acoustic survey routes to monitor bat activity over time, and also has participated in various activities to help plan WNS research, recovery, and response efforts. The MNF has initiated efforts to track the NLEB and gather more data on habitat usage for roosting, swarming, and hibernation, and additional work is planned. Staff from the MNF are taking the lead in developing regional and national forest management guidelines for the conservation of the NLEB and forest-dwelling bats in general. In addition, the MNF has been working in partnership with the Service, the Appalachian Forest Heritage Area AmeriCorps, and others to conduct education and outreach efforts on WNS, the importance of bats, and how to protect bat species and the cave and forest resources on which they depend. These measures, in addition to the continued implementation of the conservation measures required under the Forest Plan and associated programmatic BO, contribute to the conservation needs of the NLEB and other forest bat species within the action area.

EFFECTS OF THE ACTION

This conference opinion evaluates the likely effects of 12 ongoing projects on the MNF that are likely to continue past the time that the NLEB may be listed under the ESA. These projects will affect a total of 19,241 acres of potential NLEB habitat on the MNF, including 5,710 acres from timber harvest, 13,400.72 acres from prescribed fire, and 129.40 acres from road decommissioning or construction. Potential adverse effects to the NLEB include direct mortality, injury, harm, or harassment of bats present within the action area when activities are being conducted, and indirect effects as a result of changes in habitat suitability.

There are many similarities in the biology and habitat needs between the Indiana bat and the NLEB, and in most cases general conclusions based on research on one species will also be applicable to the other. Therefore, in many cases the effects discussed and evaluated during previous programmatic and project-specific consultations on the Indiana bat will also apply to the NLEB, and will be referenced and incorporated here. Any areas with significant differences or new information are noted. The potential effects of the proposed actions on the NLEB are also described on pages 6-9 of the conference request, also incorporated here by reference.

Direct Effects

The projects would affect 5,710 acres from timber harvests, and 129.40 acres from road decommissioning or construction. Both of these activities require direct tree removal, which could affect NLEB, and their foraging and roosting habitat. Some tree felling activities associated with the proposed project would occur outside of the hibernation period. Tree removal during the non-hibernation period (April 1 – November 14) may result in mortality or injury (take) of a roosting NLEB, if a tree that contains a roosting bat is intentionally removed or felled accidentally. The potential adverse effects to the Indiana bat from these types of activities are fully described on pages 52-53 of the programmatic BO and also include increased stress,

increased energy demands from searching for new roost areas, and decreased thermoregulatory efficiency, all of which could lead to reduced reproductive success. These same effects would be experienced by the NLEB.

Because there is evidence of NLEB maternity colonies within many of the project areas, there is a higher probability that a NLEB roost tree will be affected than has been evaluated for the Indiana bat. The Indiana bat and NLEB both use similar types of trees as roosts. However, Indiana bats may have more specific roost requirements. Indiana bats use trees with higher solar exposure, and more frequently use snags with sloughing bark versus cavity trees, whereas NLEB are less restricted in roost selection (Timpone *et al.* 2009). As mentioned above, all but one of the NLEB roost trees that have been identified on the MNF have been snags. As a result, the conservation measures in place to protect trees most likely to serve as Indiana bat roosts (e.g. retention of snags and shag bark hickories that are most likely to be high quality Indiana bat roost trees, etc.), will reduce, but not avoid the likelihood that a NLEB primary roost tree will be removed. If a primary roost tree is removed during the non-volant period (mid-May to mid-July) then adults and young could be killed, harmed, or harassed. If an adult bat is not killed during the removal of an occupied roost tree, it may be forced to find an alternative roost tree, potentially expending a significant amount of energy and resulting in harm or harassment of the individual.

The projects will also involve prescribed fires on 13,400.72 acres. Fires may be conducted during the spring fire season (February to May), or the fall fire season (September to December). Conducting prescribed fires outside the hibernation period could result in direct mortality or injury to NLEB by burning, heat exposure, or smoke inhalation. Bats also may be exposed to elevated concentrations of potentially harmful compounds within the smoke (e.g., carbon monoxide and irritants) (Dickinson *et al.* 2009). However, due to the anticipated timing of the burns, non-volant young will not be present during the majority of the burns and most bats should be mobile during the burning activities. The effects of prescribed fire on Indiana bats are described on pages 57-59 of the programmatic BO. NLEB would also be subject to these same effects. However, at the time the programmatic BO was written, anecdotal evidence suggested that volant bats would likely be able to flee from the proposed type of prescribed fire, and the chance of direct mortality of bats was low as long as fires were not conducted when non-volant young could be present. Since that time, additional research has been conducted that documents adult bats flying from roosts as prescribed fire approached, and then returning to roost in the same general area post-burn (Dickinson *et al.* 2009, Lacki *et al.* 2009). In addition, other studies have predicted that risk of direct mortality and injury to bats from prescribed fire is low as long as fire intensity and crown scorch height are low (Dickinson 2010). The results of these studies provide further support for the conclusion that the potential for direct mortality of bats from prescribed burns associated with the proposed action is low. There may be some adverse effects in the form of harm and harassment of NLEB being forced to flee from roosting and foraging areas. However, these adverse effects are expected to be short-term and localized.

The potential for direct effects from timber harvests, road-related activities and prescribed fire could be minimized by avoiding the removal of known NLEB roost trees and by not removing trees or conducting prescribed burns when non-volant young may be present (mid-May to mid-

July), particularly in areas near known NLEB maternity areas. As described in the **Conservation Measures** section above, the programmatic BO and associated Forest Plan includes measures to address these concerns for the Indiana bat, including requirements to retain all known Indiana bat roost trees, establish 2.5 mile buffers around known Indiana bat maternity sites, and to develop additional site-specific protective measures when projects are planned within those buffers around maternity sites. Similar measures could be used to minimize impacts to the NLEB.

Based on the site-specific telemetry data gathered by the MNF, female NLEB have traveled up to 0.75 miles from their capture sites to roost. Restricting the timing of tree removal or prescribed burns within these buffers to avoid the period when non-volant young are present would reduce the likelihood that NLEB would be killed or injured during project activities. Because this opinion addresses ongoing projects, this means that in many cases implementation of the work is already underway and contracts to conduct this work may have already been issued. As a result, we recognize that it may not be practicable to modify all the projects to restrict the timing of activities without affecting legal contracts or the overall viability of each project. We also recognize that because the NLEB is more abundant and widely-distributed on the MNF, implementing this measure on a Forest-wide basis would affect a larger proportion of the MNF than for the Indiana bat. However, implementing this measure where practicable would reduce the potential of direct take of the species.

Indirect Effects

Indirect effects from the action may result from habitat modifications and would primarily involve loss of suitable roost trees and changes to foraging suitability. Effects will vary based on the type of the proposed activity.

Timber Harvest and Road Related Activities

The programmatic BO describes the indirect effects of timber harvests and road related activities to the Indiana bat on pages 53-56. These same types of effects will also be experienced by the NLEB. However, there are some differences in habitat usage between the Indiana bat and the NLEB that may alter the degree and extent of effects. For example, the NLEB appears to be more flexible in their roost tree selection, and are more likely to use live trees and trees with crevices and cavities than the Indiana bat (Carter and Feldhamer 2005, Timpone *et al.* 2010). They also select roosts with more canopy cover than Indiana bats (Timpone *et al.* 2010, Carter and Feldhamer 2005). Two studies that compared canopy cover around roost trees between these two species found that NLEB roosts had 44 to 56 percent canopy cover compared to 18 to 25 percent for the Indiana bat (Perry and Thrill 2007, Sasse and Pekins 1996). NLEB also forage in areas with more canopy cover than the Indiana bat, and focus on foraging in upland mature forest on hillsides and ridges rather than in the riparian areas and clearings that are commonly used by the Indiana bat (Nagorsen and Brigham 1993, Caceres and Pybus 1998, Brack and Whitaker 2001). The NLEB's preference for foraging in heavily forested mid-slope areas suggests these bats feed in and around closed canopies and are likely clutter-adapted (Lacki *et al.* 2009). These factors indicate that timber harvests that significantly reduce canopy cover could

have a more negative effect on roosting and foraging habitat suitability for NLEB when compared to the Indiana bat.

In contrast, various studies have shown that NLEB willingly use and return over time to managed forest stands that have been harvested with various techniques (Cryan *et al.* 2001, Lacki and Schwierjohann 2001, Menzel *et al.* 2002, O'Keefe 2009, Owen *et al.* 2003, Perry and Thill 2007, Silvis *et al.* 2012, Timpone *et al.* 2010, Titchenell *et al.* 2011). Studies in West Virginia found NLEB maternity colonies in intensively managed stands, such as those that had been subjected to 16-inch diameter-limit harvests within the previous 10 years (Menzel *et al.* 2002, Owen *et al.* 2003). This indicates that within broader forested landscapes, stands undergoing partial timber harvests that leave a relatively closed canopy continue to provide suitable habitat for the species. Based on a study of bat activity in shelterwood harvests compared to control sites, Titchenell *et al.* (2011) suggested that forest management practices that reduce the amount of structural volume in the understory to mid-canopy provide suitable habitat for foraging bats, including NLEB. Sheets *et al.* (2013) also found that using silvicultural treatments to create forest openings did not alter the level of activity by NLEB and Indiana bats. Timber harvests that retain a relatively high level of canopy cover and retain some larger trees may also indirectly benefit the NLEB by improving roosting conditions. For example, thinning reduces vegetative competition, promotes larger, older trees, and allows remaining hardwood trees to grow larger. Damage to residual trees during felling can also improve roosting quality and quantity since cavities and crevices are more likely to develop overtime due to resulting pathogen and insect attack at the injury points on the trees. Thus, the long-term effect of standing thinning is increased residual growth of the remaining trees, creating larger diameter and more suitable roost trees. These studies suggest that forest management practices that sustain diversity in tree species, tree-size class, and snag-condition class can be an important tool in providing habitat for NLEB in mixed mesophytic forests; specifically, the use of logging practices that allow for the retention of large-diameter snags along with regenerating forest could provide roosting habitat for both female and male northern bats (Lacki and Schwierjohann 2001).

In summary, timber harvests and tree clearing associated with road-related activities could have both adverse and beneficial effects on habitat suitability for the NLEB. The approximately 5,840 acres of habitat that will be affected by these activities are scattered throughout the 919,000 acre MNF (see Figure 3), so there will be large amounts of unaffected, intact forested habitat adjacent to each treatment area. As a result, we conclude that the overall habitat suitability or availability within the action area should be minimally affected by timber harvest and road-related activities under the proposed action.

Prescribed Fire

The programmatic BO describes the effects of prescribed fire to the Indiana bat on pages 57-59. These same types of effects will also be experienced by the NLEB. Although the information in the programmatic BO is still accurate, additional research has been conducted since that time that further documents how prescribed fire may affect habitat suitability for *Myotis* bats (Boyles and Aubrey 2006, Dickenson 2010, Dickenson *et al.* 2009, Johnson *et al.* 2009, Johnson *et al.* 2010, Lacki *et al.* 2009, Timpone *et al.* 2009). This research suggests that indirect effects may include short-term loss of roost trees and decreases in prey abundance, followed by long-term increases

in roost abundance and suitability, and in prey abundance. These types of both adverse and beneficial effects have been noted for both the Indiana bat and the NLEB. While there are some differences in roosting and foraging habitat preferences between these species, as noted below, there is also much overlap in habitat usage between these species, and in most cases general conclusions based on research on one species will also be applicable to the other.

The Indiana bat and NLEB both use similar types of trees as roosts, although NLEB are less restricted in roost selection (Timpone *et al.* 2009). Prescribed fire can create a greater abundance of potential roost trees for both species because fires can cause bark of live trees to peel away from the sapwood creating the sloughing bark that is often used for roosting (Johnson *et al.* 2010). The availability of suitable roosts (including roosts with cavities and exfoliating bark) is greater in burned areas compared to unburned areas (Boyles and Aubrey 2006, Dickenson *et al.* 2009, Johnson *et al.* 2010). Indiana bats have been found roosting under exfoliating bark in fire-killed maple trees, and have selected these new roost trees over roost trees used in previous years (Johnson *et al.* 2010). Similarly, NLEB have been found to use more roosts in burned areas than unburned areas (74 percent versus 26 percent) (Lacki *et al.* 2009).

Tree species that consistently form high quality bat roosts include shellbark hickory (*Carya laciniosa*), shagbark hickory (*C. ovata*), and white oak (*Quercus alba*). Regeneration of white oak and hickory increases as a result of low-intensity fires and/or repeated fires below open canopies (Johnson *et al.* 2010, Dickinson *et al.* 2009). Similarly, fire creates canopy gaps that allow for regeneration of shade-intolerant species such as black locust, a preferred roost tree species for the NLEB (Dickenson *et al.* 2009, Johnson *et al.* 2009). Therefore, over the long-term, prescribed fire is anticipated to increase the abundance of tree species that form high quality NLEB roosts.

Fires can also create a more open canopy structure that can improve roost quality by increasing the amount of solar radiation reaching the roost. Canopy light penetration was higher and canopy tree density was lower in burned forest than in unburned forest (Boyles and Aubrey 2006). Additionally, canopy gaps in the burned area are associated with slightly higher maximum daily temperatures at roost trees (Johnson *et al.* 2009). Higher roost temperatures could facilitate more rapid growth of developing juvenile bats (Johnson *et al.* 2009). As a result, the abundance of trees with characteristics suitable for roosting, and the percentage of the forested area with suitable bat roosts, should be increased after fires (Boyles and Aubrey 2006). Studies in West Virginia found that the NLEB responded favorably to prescribed fire by using new roost trees that were located in canopy gaps created as a result of the fire (Johnson *et al.* 2009). Conversely, fire may also destroy or accelerate the decline of existing roost trees, particularly of older snags, by burning the bases of the trees and weakening their structure, causing them to fall over quicker (Johnson *et al.* 2009, Dickenson *et al.* 2009). One study found that up to 20 percent of existing standing snags were lost post-fire, and that few new snags were created (Lacki *et al.* 2009).

In summary, prescribed fire may result in both adverse and beneficial effects on roosting habitat through immediate loss of existing roosts and creation of some new roosts, followed by short-term increases in the suitability of remaining and created roosts, and long-term changes in forest

composition towards a greater abundance of trees likely to create suitable roosts in the future. Unfortunately, existing data are insufficient to fully quantify or compare the relative impact of these adverse and beneficial effects. For instance, the long-term tradeoff between roost creation and roost loss in mixed oak forests under burning regimes is unknown (Dickinson *et al.* 2009). One research project concluded that prescribed fire, at minimum, provoked no response from the Indiana bat in terms of roost tree selection, and in some cases may create additional roost resources (Johnson *et al.* 2010). As a result, we conclude the overall effect of the prescribed fire portion of the proposed action on roost suitability may be neutral to potentially beneficial.

Prescribed fire may affect foraging habitat by changing the structure of the forest and by changing the abundance of prey within the area (Dickinson *et al.* 2009). NLEBs have shown a preference for foraging in heavily forested mid-slope areas, regardless of burn condition, suggesting these bats feed in and around closed canopies and are likely clutter-adapted (Lacki *et al.* 2009). These studies suggest that the reduction in canopy closure as a result of prescribed burning could have a negative effect on foraging suitability for the NLEB. However, that same data do not indicate that bats avoid foraging in or around areas that have been burned. For example, the size of female NLEB home ranges and core areas did not vary between bats radio tracked before and after fires, and the home ranges of these bats were located closer to burned habitats following fires than to unburned habitats (Lacki *et al.* 2009). The researchers for this study suggest that NLEBs responded to habitat alterations resulting from prescribed fires by shifting the location of their foraging areas to take advantage of changes in insect prey availability (Lacki *et al.* 2009). Immediately after fires, insect abundance typically declines (Lacki *et al.* 2009). Therefore, fires conducted in the late winter and early spring may reduce abundance of bat prey during critical periods when bats are coming out of hibernation, are migrating, or are pregnant (Johnson *et al.* 2009). However, over a longer-term (within one year), abundance of coleopterans (beetles), dipterans (flies), and all insects combined has been shown to increase following prescribed fires (Lacki *et al.* 2009). These increases can last for up to 16 years post-burn. Because lepidopterans (moths and butterflies), coleopterans, and dipterans are important groups of insect prey for *Myotis* species, researchers have concluded that fire does indeed improve foraging conditions in the long-term by increasing prey quantity in the form of insects attracted to post-fire dead wood (Lacki *et al.* 2009, Dickinson 2010). As a result, we conclude that prescribed fire may have a short-term adverse and long-term beneficial effect on prey abundance, and thus foraging habitat suitability in the action area.

Effects Related to White-nose Syndrome

This BO assumes that WNS will affect all NLEB present within the action area over the proposed life of the project. Bats affected but not killed by WNS during hibernation may be weakened by the effects of the disease and may have extremely reduced fat reserves and damaged wing membranes. These effects may reduce their capability to fly or to survive long-distance migrations to summer roosting or maternity areas. Affected bats may also be more likely to stay closer to their hibernation site for a longer time period following spring emergence. Since there are a number of NLEB hibernacula within the MNF, there is a potential that bats affected by WNS may be more likely use the action area for at least temporary foraging and roosting rather than migrating longer distances to established summer home ranges.

While none of the MNF's proposed actions will alter the amount or extent of mortality or harm to NLEB resulting directly from WNS, the proposed action does have the potential to increase or decrease the chances that WNS-affected bats present in the action area will survive and recover. For example, WNS-affected bats roosting in the area immediately after emerging from hibernation may have damaged wings and therefore could be less able to quickly fly away from fire and smoke during the prescribed burn. As a result, there may be an increased chance of WNS-affected bats being killed or harmed as a result of the project, particularly if burns are conducted early in the spring (April –May). Alternatively, the proposed project may alter NLEB habitat in a manner that could increase the vigor and recovery of any WNS-affected bats using the area. As described above, the proposed project is likely to improve roosting and foraging habitat over the long-term through snag creation and improvement in abundance and diversity of insects. Therefore, after project implementation, there may be more foraging and roosting opportunities. WNS-affected bats could thus save energy by reducing the distances they travel after emerging from hibernation or when moving between roosting and foraging areas. They could also have increased foraging success. This could allow bats to more quickly regain fat-reserves, and therefore increase the chances of recovery from the effects of WNS.

Research into how WNS affects bat physiology and behavior is ongoing, and current information is not sufficient to quantify or predict the full range and scope of potential effects, or compare the relative likelihood and significance of the potential adverse and beneficial effects described above. The MNF's monitoring of both Indiana bat hibernacula and summer occurrences within MNF, as required under the programmatic BO, will provide further information on the scope and type of effects that WNS has on bats within the action area, and will contribute to our understanding of these potential effects throughout the range of the species. The continued implementation of this monitoring effort, with amendments to include the NLEB, will provide additional documentation on how the MNF's actions are affecting the chances that WNS-affected bats present in the action area will survive and recover.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Any actions conducted on MNF lands will either be conducted by the MNF, or will require approval by the MNF and thus will require separate section 7 consultation. Therefore, cumulative effects, as defined in the ESA, are not expected to occur on MNF lands.

Summary of Effects

Potential effects of the action include direct effects to NLEB present within the action area when activities are being conducted, and indirect effects as a result of changes in habitat suitability. Direct effects include mortality, injury, harm, or harassment as a result of removal or burning of

occupied or established roost trees. The conservation measures already in place to protect Indiana bats through the Forest Plan and associated programmatic BO will also serve to reduce the potential for direct effects to the NLEB. However, given the NLEB's less specific roost requirements, greater abundance and wider distribution on the MNF compared to the Indiana bat, the potential for direct take of the NLEB is greater. Overall, the potential for direct mortality of NLEB from prescribed burns associated with the proposed action is overall low. However, the potential for direct effects from timber harvests, road-related activities and prescribed fire is greatest when activities are conducted when non-volant young may be present (mid-May to mid-July).

Indirect effects from the action may result from habitat modification and primarily involve changes to roosting and foraging suitability. Timber harvests and tree clearing associated with road-related activities could have both adverse and beneficial effects on habitat suitability for the NLEB. Prescribed fire may also result in both adverse and beneficial effects on roosting habitat through loss and creation of existing roosts, and long-term changes in forest composition towards a greater abundance of suitable roosts in the future. Prescribed fire may also have a short-term adverse and long-term beneficial effect on prey abundance, and thus foraging habitat suitability in the action area. The overall effect of the prescribed fire portion of the proposed action on habitat suitability may be neutral to potentially beneficial. Given the scope of the projects in relation to the overall action area, these projects will not substantially alter the overall availability or suitability of NLEB roosting or foraging habitat.

While the MNF's proposed action will not alter the amount or extent of mortality or harm to NLEB resulting directly from WNS, the proposed action does have the potential to both increase and decrease the chances that WNS-affected bats present in the action area will survive and recover. The continued implementation of the MNF's monitoring effort will provide additional information on the effect of the MNF's actions on WNS-affected bats. No cumulative effects are expected.

Based on the analysis above, the proposed action should not significantly reduce the ability of the action area to meet the conservation needs of the species. The proposed action will not affect any NLEB hibernating or migrating bats. The MNF's previous and ongoing efforts have served to identify areas of NLEB maternity activity, and after completion of the action, the area will continue to provide suitable habitat conditions for NLEB foraging and roosting during the summer and fall swarming period. While there is potential for direct take of the species, given the small-scale of the proposed action in relation to the action area, and the current distribution and abundance of the NLEB on the MNF (as described in the Environmental Baseline), the NLEB should be able to continue to survive and reproduce on the MNF.

CONCLUSION

After reviewing the current status of the NLEB, the environmental baseline of the action area, the effects of the proposed action, and the cumulative effects, it is the Service's conference opinion that the proposed action is not likely to jeopardize the continued existence of the NLEB

because: 1) the proposed action area is small relative to the species range, and therefore, includes only a small fraction of their overall population; 2) the proposed action will only affect a small portion of the action area and will not substantially alter the overall availability of NLEB habitat within the action area; 3) while the proposed action may result in direct effects through loss of occupied roost trees, the potential for this has been minimized as a result of the conservation measures; and 4) the proposed action will result in both beneficial and adverse indirect effects to habitat suitability, but the adverse effects will not result in the conversion of any forested habitat into a habitat type that is unsuitable for the NLEB and thus the NLEB will be able to continue to utilize habitats within the action area. No critical habitat has been proposed for this species therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without any exception. Harm is further defined to include significant habitat modification or degradation that results in death or injury to species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2) of the ESA, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of the incidental take statement. The prohibitions against taking the species found in section 9 of the ESA do not apply until the species is listed.

AMOUNT OR EXTENT OF TAKE

If NLEB are present or utilize an area proposed for timber harvest, prescribed fire, or other disturbance, incidental take of NLEB could occur. The Service anticipates that actual incidental take of NLEB as a result of the projects evaluated in this conference opinion will be difficult to quantify and detect due to the bat's small body size, widely dispersed individuals under loose bark or in cavities of trees, and unknown areal extent and density of the roosting and foraging populations within the MNF. Monitoring to determine take of individual bats within an expansive area of forested habitat is a complex and arduous task. Unless every individual tree that contains suitable roosting habitat is inspected by a knowledgeable biologist before management activities begin, it would be impossible to know if a roosting NLEB is present in an area proposed for harvest or prescribed burn. Inspecting individual trees is not considered by the Service to be a practical survey method and is not recommended as a means to determine incidental take. However, the areal extent of potential roosting and foraging habitat affected can be used as a surrogate to monitor the level of take.

As detailed in Table 2 below, the Service anticipates that no more than 19,241 acres of potential NLEB habitat will be disturbed as a result of these ongoing project activities on the MNF, including 5,710 acres from timber harvest, 13,400.72 acres from prescribed fire, and 129.40 acres from road decommissioning or construction.

Table 2: Estimated acreage affected by ongoing management activities on the MNF that may contribute to take of NLEB.

Project Name	Location (Ranger District)	Indiana bat incidental take authorized in project BOs*	Remaining Acreage (NLEB incidental take)		
			Timber	Prescribed Fire	Road Decommissioning/ Road Construction
Hogback	Cheat	1,940.60	888		
Lower Clover	Cheat	467.00	105		
Lower Williams	Gauley	1,704.00	1,150		
Cherry River	Gauley	645.00	41		
Little Beech Mountain	Greenbrier	1,377.00	800		
Upper Greenbrier North	Greenbrier	3,336.00	2,726	610.00	121.0/8.4
Ramshorn Prescribed Burns	Greenbrier	4,699.00		4,699.00	
Shock Run Prescribed Burns	Marlinton	721.00		721.00	
Lockridge Prescribed Burn	Marlinton	2,439.19		2,439.00	
Middle Mountain Stewardship	Marlinton/White Sulphur Springs	678.00		435.00	
Cole's Run (2002)	White Sulphur Springs			58.00	
WSS Prescribed Burns	White Sulphur Springs	4,438.72		4,438.72	
Total Request			5,710	13,400.72	129.40

* Project-specific incidental take based on 2006 Revised Forest Plan Programmatic Biological Opinion, and subject to conditions therein

If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation. In this case, the MNF must also immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures provided.

Please note that most projects authorized under this conference opinion will continue to be implemented over a number of years, and therefore the annual amount of incidental take will be much less. As per the terms and conditions of the 2006 programmatic BO, the MNF annually reports the total amount of incidental take that occurs each year and for each project. This number is compared to the maximum annual Indiana bat incidental take as authorized in the programmatic BO. If it is determined during future project planning or the course of project implementation that either the authorized amount of project-specific incidental take as detailed

above, or in previous project-specific consultations regarding the Indiana bat, or the maximum amount of annual Indiana bat incidental take from all projects as calculated in the programmatic BO, may be exceeded, additional consultation with the Service will be required.

REASONABLE AND PRUDENT MEASURES
AND
TERMS AND CONDITIONS

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize incidental take of NLEB. The Service advises the MNF to consider implementing the following RPMs while the species is proposed for listing.

If this conference opinion is adopted as a biological opinion following the listing of the species, these RPMs with their implementing terms and conditions, will be non-discretionary. In that case, these RPMs and the associated terms and conditions must be undertaken by the MNF so that they become binding conditions of any funding, permits, contracts and/or approvals issued, for the exception in section 7(o)(2) to apply. In order to be exempt from the prohibitions of section 9 of the ESA, the MNF, and any contractors acting under the MNF must comply with the following terms and conditions which implement the RPMs and outline reporting/monitoring requirements. The MNF will have the continuing duty to regulate the activity covered by this incidental take statement. If the MNF (1) fails to require MNF staff, associates, and/or any contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, authorization, contract or funding document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the MNF must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.12 (I)(3)].

Each RPM is listed in italics, followed by numbered terms and conditions that implement each RPM.

RPM 1: The MNF shall minimize the potential for direct take of NLEB.

- 1.1 The MNF shall review project activities conducted under this opinion to determine whether any activities evaluated in this opinion will occur within 0.75 miles of any recently documented NLEB maternity activity. Recently documented maternity activity is defined as the capture of a reproductively active female or juvenile NLEB between May 15 and August 31 of 2011 or any subsequent year.
- 1.2 For any activities to be conducted within 0.75 miles of recently documented NLEB maternity activity, the MNF shall, when practicable, avoid and minimize conducting tree clearing activities or prescribed fire during the period when non-volant young may be present (mid-May through mid-July).

- 1.3 If the Forest Service determines it is not practicable to implement 1.2 for a specific project activity, the Forest Service shall provide a Service with written documentation detailing the rationale for this determination, as well as the number of acres that will be affected by each type of activity (e.g. prescribed fire, road construction).

RPM 2: The Forest Service, in cooperation with the Service and the WVDNR, shall continue to monitor the status of the Indiana bat and the NLEB on the MNF as described in RPM 2 of the programmatic BO with the following modifications as indicated in underlined text.

- 2.1 The MNF shall continue to cooperate with the WVDNR and the Service to conduct their bi-annual population monitoring of Indiana bat and NLEB hibernacula within the action area.
- 2.2 The MNF shall continue to seek identification of Indiana bat and NLEB maternity sites and evidence of summer use on the MNF. Unless otherwise agreed to by the Service, surveys shall be conducted annually using survey methods, level of effort, and frequencies that follow guidelines and protocols established by the Service. Proposed survey strategies, level of effort, and areas shall be coordinated with the Service and the WVDNR prior to initiating annual efforts. The Service and the WVDNR shall be notified within the next business day of the capture of an Indiana bat or NLEB. If Indiana bats or NLEB are captured, follow up surveys using radio telemetry or other Service-approved methods shall be used to identify potential roosting and foraging areas. The appropriate number of each species of bat to be tracked and level of effort for telemetry shall be coordinated with the Service and the WVDNR prior to initiating annual efforts. The MNF shall provide the Service and the WVDNR with a report of all survey results by January 1 of each year.

RPM 3: The MNF shall avoid the removal of known NLEB roost trees.

- 3.1 If any NLEB maternity or group roosts are identified within the project areas now or in the future, these roosts will be marked and will not be removed during any project-related activities, unless required to address public or worker safety. The MNF will evaluate planned activities around the roosts and establish appropriate buffers or protective measures so that project-related activities are not likely to damage or destroy the roosts, or make them unsuitable. Roost trees used by individual male NLEB, and with no evidence of use by multiple bats, as demonstrated through emergence counts, are exempted from this requirement. If it is not practicable to avoid a roost tree, additional coordination with the Service shall be conducted.

RPM 4: The Forest Service shall monitor tree removal activities and prescribed burning on the MNF to determine whether measures to protect the NLEB, and the terms and conditions of the BO are being implemented as required.

- 4.1 In order to track the amount of incidental take actually implemented, by November 15 of each year, the MNF will provide the Service with a report of the total amount of acres of tree removal and prescribed burning conducted during the prior fiscal year, and cumulatively to date. The report shall also provide a list of individual projects implemented that year and the amount of acres affected for each activity type of that project. Throughout the year, the MNF shall also monitor the amount of incidental take implemented to ensure the cumulative total acreage of incidental take is not exceeded.
- 4.2 When reporting annual incidental take under RPM 4 below, the MNF shall indicate the number of acres for each project where avoidance and minimization measures were implemented under 1.2 above.

CONSERVATION RECOMMENDATIONS

Section 7(a) (1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

As described above in the Conservation Needs of the Species in the Action Area section, the MNF has already been pro-active in participating in a number of efforts to contribute to the conservation of the NLEB and other forest bat species. These efforts contribute to the conservation and recovery of the Indiana bat and NLEB consistent with Section 7(a)(1) of the ESA. The Service strongly supports these efforts and encourages the MNF to continue these and similar conservation efforts in the future.

In order to be kept informed of actions minimizing or avoiding adverse effects, or benefitting listed species or their habitats, the MNF should notify the Service if any of these additional conservation actions are planned or if additional measures consistent with these conservation recommendations are implemented.

REINITIATION

This concludes the formal conference for the MNF's ongoing actions. You may ask the Service to confirm this conference opinion as a biological opinion issued through formal consultation if the NLEB is listed. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the NLEB as endangered or threatened, and/or designation of critical habitat for the NLEB, and subsequent adoption of this conference opinion, the MNF shall request initiation of consultation 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.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the NLEB has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the NLEB may occur between the listing of the species and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

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