



633 Rt. 211 East, Suite 4, Box 4
Middletown, NY 10941
Office: (845) 495-0123 • Fax: (866) 688-0836

Potential Impacts of the Designation of the Northern Long-Eared Bat as a Threatened or Endangered Species

Executive Summary: In January, 2014, the United States Fish and Wildlife Service (FWS) issued the Interim Conference and Planning Guidance (Guidance) for the northern long-eared bat (NLEB). The NLEB was proposed for federal listing as an endangered species under the Endangered Species Act (ESA) in October, 2013. A notice for a six-month extension for the final listing determination for the NLEB was published in the *Federal Register* on June 30, 2014. The public comment period on the proposal was reopened for 60 days and closed on August 29, 2014. A final decision on listing the NLEB will be made no later than April 2, 2015.

The purpose of this document is to summarize the conference and planning guide prepared by the FWS including their overall reason for listing of the NLEB and the effect this listing would have on land use planning, as the implications of the current guidelines will have a serious impact to all construction projects both new and existing and to the utility company transmission line maintenance as well a serious economic impact to the Northeast.

Introduction: At present many questions regarding the requirements for preservation of the (NLEB) remain unanswered. The critical habitat for the NLEB has not been defined and is not expected to be determined until April of 2016. References to the 2014 Indiana Bat Survey Guidance with instructions to 'replace Indiana bat with NLEB throughout' are made in the current planning guidance document, although the two species differ significantly. During a USFWS sponsored trainer class and two web conferences in which members of Ecological Analysis staff participated to discuss the planning process, many of the questions asked of FWS officials were not answered satisfactorily.

The planning and approval processes will be on a project by project basis and will require that the sponsor work closely with the FWS throughout. Because many of the requirements are still not defined, it will be a lengthy process, particularly when the NLEB are determined to be present on property to be developed.

On October 2, 2013, the (FWS) proposed the (NLEB) for listing as endangered under the (ESA). The purpose of this paper is to examine the potential impacts upon various projects that may be subject to the future requirements and restrictions imposed by such designation.

Following an initial comment period during which some 40,000 comments were received, FWS issued the Interim Conference and Planning Guidance (Guidance) for the species in January, 2014. A notice for a six-month extension for the final listing determination was published in the *Federal Register* on June 30, 2014. The public comment period on the proposal was reopened for 60 days and will close on August 29, 2014. The final decision on listing the NLEB will be made no later than April 2, 2015. At that time, the northern long-eared bat may be designated as endangered, threatened or the proposal may be withdrawn. The key to determining the distinction between endangered and threatened is the predicted timing of the spread of white nosed syndrome.

White nosed syndrome (WNS), a fungal disease, is the predominate threat to the NLEB, “especially, throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites.”¹ According to the FWS, the spread of the disease is rapid.

The summer and winter habitats of the NLEB are significantly different. The NLEB spend their winters hibernating in caves and mines, known as hibernacula. During the summer months, these bats roost alone or in colonies underneath bark, cavities, or crevices of live and dead trees.² Roosting occurs in a wide variety of forest types and in trees as small as 2 ½ inches in diameter. Migration between the winter and summer habitats is generally 45 to 50 miles.

The (Guidance) presented by the USFWS regarding the preservation and conservation of the NLEB and its habitats is detailed and thorough. The Guidance defines impacts to the habitat of the NLEB, describes absence/presence survey procedures and presents conservation methods to preserve the NLEB and its habitats.

However, this preliminary outline leaves many unanswered questions and unresolved scenarios, including the above mention lack of defined critical habitat, that may hinder the land use development process as well as drive up the costs for land use developers (i.e. public and private), local municipalities (i.e. town government), utility companies (i.e. water, power) and certain industries (i.e. forestry products). Below are just a few comments, concerns and scenarios that remain unaddressed:

- Since the habitat for the NLEB includes a wide range would applicants need to check yes for endangered species when preparing an Environmental Assessment Form for a project site?
- It is understood that clear cutting would adversely impact the habitat of the NLEB. Would all types of forestry prescriptions (i.e. selective thinning, stand improvements) be considered an adverse impact to the NLEBs habitat during the NLEB active months? Could an overall cutting ban occur?
- Since the NLEB live in most trees, would a taking permit and mitigation be required for any tree clearing?
- What are the additional costs going to be to the applicants? Does the Planning board need to have USFWS and NYSDEC weigh in on every project no matter the size now since this bat can live everywhere.
- Do approved projects have to go backwards and look for the NLEB before work can commence (i.e. cutting trees)?

During a USFWS sponsored trainer class and web conferences, USFWS noted that the process of protecting the NLEB and its habitat will be a learning curve for all those involved and stated that most persons seeking to disrupt an existing land use would need to contact the local FWS for direction. This extra step of contacting local USFWS offices may result in project delays or may actually halt a project not only because of the new protocols being set forth but also because local offices maybe be inundated with a plethora of projects at one time. The enlisting of the NLEB as endangered or threatened is most definitely going to increase project delays and costs across the board for land use developers, local municipalities, utility companies and certain industries. The USFWS is looking to impose seasonal cutting ban on all trees 3” in diameter. The Seasonal ban for NYS would be from March 30th to November 1st; this is when most construction occurs in NYS.

See below for a summary of the Guidance:

¹ “Q and A’s about Proposed Listing of Northern Long-Eared Bat.” United States Fish and Wildlife. July 16, 2014. Web. 8 August 2014. <www.fws.gov>

² “Northern Long-Eared Bat.” United States Fish and Wildlife. July 16, 2014. Web. 8 August 2014. <www.fws.gov>

The following information includes common actions that could affect the NLEB and should be considered in the planning stages of development if the species is listed.

NLEB and/or Winter Hibernacula Habitat³

- Wearing clothing or footwear or bringing equipment that was used in a WNS-affected state or region into a cave or mine in an unaffected state or region may exacerbate the spread of WNS.
- Impacts to hibernacula openings may restrict bat flight and movement and/or may modify air flow or microclimate, reducing suitability of the hibernaculum for bats or decreasing survivorship. A few degrees change may make a cave unsuitable for some hibernating bats.
- Entering a hibernaculum during the winter. Cave-dwelling bats, such as NLEB, are vulnerable to human disturbance while hibernating. Bats use up their energy stores when aroused and may not survive the winter or may result in termination of pregnancy.
- Blasting or drilling within ½ mile of caves or mines where NLEB hibernate during the winter may disturb hibernating bats.
- Impacting water resources that flow into NLEB hibernacula during the winter, which may affect the cave climate.
- Clearing trees within 5 miles of caves or mines where NLEB hibernate, reducing staging/swarming habitat.
- Human ignited fires (e.g., prescribed burning) near caves or mines where NLEB hibernate and where the smoke may enter the cave, disturbing the bats (during winter).

Impacts to NLEB and/or Summer Habitat

- The permanent or temporary removal of forested habitat from a variety of actions may adversely affect the NLEB by reducing the amount of habitat available for roosting, foraging, or travel. Additionally, bats may also be directly disturbed or killed if such projects are conducted while they are present.
- Burning, although potentially necessary to maintain habitat, could disturb or kill bats by smoke inhalation or scorching.
- Although many types of timber management, when properly designed, will not impact (or may improve) NLEB habitat, some types of timber management (e.g. clear-cutting) can reduce the viability of NLEB populations if key areas of a home range are removed.
- Removal of occupied suitable man-made roosting structures.
- Lethal bat removal from occupied homes/structures.
- Use of pesticides and herbicides in a way that exposes NLEBs (e.g., aerial application at night) or significantly reduces their prey.
- Loss of clean water sources (e.g., fill, degradation of water quality), which could reduce NLEB drinking sources, foraging habitat and/or prey.

Impacts during Migration

- Wind turbine operation has been documented to kill NLEB, particularly during fall migration.

³ Northern Long-Eared Bat Interim Conference and Planning Guidance, United States Fish and Wildlife, January 6, 2014.

The potential impacts of the designation are wide ranging. Mining, forestry, land development, maintenance of tree growth on power lines, selective and clear cutting of forests are the major areas of impact. The following is a summary of the presence/absence surveys and a full listing of the conservation measures proposed for the NLEB (Appendix) that will particularly affect development projects. These measures are not final and may be modified or eliminated once the species has been classified as endangered or threatened.

Two terms that are essential to the understanding of the process that will be involved in following guidelines for conservation measures are defined here. They are 'Conference' and 'Critical Habitat'.

Conference: A process of early interagency cooperation involving informal and/or formal discussions between the action agency and the FWS pursuant to section 7(a)(4) of the ESA regarding the likely impact of an action on proposed species or proposed critical habitat.

Critical Habitat: Specific geographic areas that contain features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as "critical habitat" after FWS publishes a proposed Federal regulation in the *Federal Register* and then receives and considers public comments on the proposal. The final boundaries of the critical habitat area are also published in the *Federal Register*.⁴

Throughout the NLEB Interim Presence/Absence Survey Guidance for 2014 (summary following), it is constantly recommended that the action agency conference with the FWS. All information as regards to findings must be shared with the FWS. These will be slow processes for planners and for planning boards. As noted below, as much as a year can be lost if samplings are not completed within the proscribed dates.

Further delays in the planning process may be encountered in the anticipated timing of the FWS definition of critical habitat. FWS has not defined the critical habitat and does not plan to prior to April, 2016.

Conduct Screenings to Determine Presence/Absence of the NLEB

The requirements for determining if a project site contains suitable habitats and whether they are occupied by the NLEB are extensive and detailed. All of these requirements are time consuming in the planning process, particularly since some surveys may only be conducted during certain times of the year. Survey protocols are given for each of the four seasons.

Summer presence/absence surveys for the NLEB may be conducted from May 15 through August 15. The FWS is currently evaluating methodologies to determine presence/absence of NLEB and may revise the protocols in the future. At present, the procedures governing the Indiana Bat Summer Survey Guidance, with certain exceptions, should be followed.

⁴ <http://www.fws.gov/midwest/endangered/saving/CriticalHabitatFactSheet.html>

Project proponents will develop sufficient information as to whether potentially suitable winter NLEB habitat exists within a proposed project area. NLEBs have been documented using caves, their associated sinkholes, fissures, and other karst features, quarries, railroad tunnels, and abandoned mine portals and their associated underground workings as winter hibernation habitat. A qualified biologist will determine whether potentially suitable winter habitat exists within the project area. These assessments can be completed at any time of year. Results will be submitted to the FWS for review and approval and will be valid for a minimum of two years. If suitable winter habitat is present it must be left undisturbed until it can be determined if the habitat is occupied.

Fall and spring survey protocols are extensive and require “properly trained and qualified individuals with the appropriate equipment.”⁵ Fall portal/cave surveys must be conducted between September 1 and October 31 and prior to any tree clearing by the project applicant. Spring portal/cave surveys must be conducted between April 1 and April 21 and prior to any tree clearing by the project applicant. Three nights of sampling per week for three weeks is required at each suitable entrance.

The capture of an NLEB during a fall or spring survey requires that the applicant complete three additional nights of sampling per week for three consecutive weeks in order to determine the significance of the portals and caves and their associated underground workings to the NLEB. If the survey season (September 1 to October 31 and April 1 to April 21) ends prior to the completion of the required sampling, any additional sampling must be completed the following spring or fall.

Appendix: Conservation Measures for the NLEB ⁶

This section provides a list of recommended conservation measures for the NLEB. Conservation measures are considered any measures that contribute to the conservation of the NLEB and include, but are not limited to, avoidance measures, minimization measures, mitigation measures, and proactive measures. The basis for these suggestions come from our knowledge and experience with the Indiana bat, and may change in the future as we learn more about the specific needs of the NLEB.

These conservation measures should further be considered as advisory recommendations by the FWS since there are no requirements to avoid or minimize impacts to a proposed species unless it becomes listed. Also, note that application of any of these measures should be based on the anticipated effects of a specific project on the NLEB in a specific area; therefore, not all measures will be appropriate for all projects.

The seasonality of NLEB habitat use varies somewhat throughout its range, and thus the time periods associated with conservation measures varies accordingly. These differences are due to local and regional variability in climate, which are known or anticipated to drive NLEB seasonal habitat use. For example, the summer maternity season may be longer in the southerly portions of the species’ range versus the northerly portions. When referenced in a

⁵ Northern Long-Eared Bat Interim Conference and Planning Guidance, United States Fish and Wildlife, January 6, 2014.

⁶ Northern Long-Eared Bat Interim Conference and Planning Guidance, United States Fish and Wildlife, January 6, 2014.

conservation measure, please see the table at the end of this appendix for the appropriate time period based on the project location. (Note: Seasonality for New York and New Jersey is provided at the end of this section.)

The FWS may adjust the seasonal dates or other aspects of these conservation measures based on site-specific and project-specific information.

Conservation Measures for NLEB Hibernacula and 5-mile Buffer:

NLEB may be present in hibernacula during the regional or local hibernation season. They may also be present in larger numbers within a 5-mile radius of hibernacula during spring staging and fall swarming. However, males and non-reproductive females may be closer to hibernacula year-round.

1. Take actions to protect NLEB hibernacula.

Where a known NLEB hibernaculum is experiencing threats, work with the FWS and other partners to provide the necessary protections (e.g. limit human disturbance, install bat-friendly gates, ensure the use of “clean” clothing and gear).

2. Participate in actions to manage and reduce the impacts of WNS on NLEB.

A national plan was prepared by the FWS and other state and federal agencies that details actions needed to investigate and manage white-nose syndrome. Many state and federal agencies, universities and non-governmental organizations are researching this disease in an attempt to control its spread and address its effects.

3. Avoid disturbing/injuring hibernating bats.

- Avoid entering NLEB hibernacula during the hibernation season, unless authorized for survey, research, or other management purposes.
- Comply with all cave and mine closures, advisories, and regulations.
- Avoid burning or other sources of smoke within 0.25 mile of known or assumed NLEB hibernacula during hibernation season, or coordinate with the local FWS office.
- Activities involving continuing (i.e., longer than 24 hours) noise disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) should be avoided within a one-mile radius of known or assumed NLEB hibernacula.

4. Avoid destruction/alteration (e.g., fill, cause collapse of) of caves/mines that may support hibernating bats.

- Avoid woody vegetation or spoil (e.g., soil, rock, etc.) disposal within 100 feet of known or assumed NLEB hibernacula entrances and associated sinkholes, fissures, or other karst features.
- When blasting within 0.5 miles of a known or presumed occupied hibernacula entrances and passages, coordinate with the local FWS office to ensure that the blasting will be conducted in a manner that will not compromise the structural integrity or alter the karst hydrology of the hibernacula.

- When drilling or fracking within 0.5 miles of a known or presumed occupied hibernacula entrances and passages, coordinate with the local FWS office to ensure that the drilling will be conducted in a manner that will not compromise the structural integrity or alter the karst hydrology of the hibernacula. Since fracking can affect lateral geology for much greater distances, a wider buffer may be necessary to protect hibernacula from this activity.
- Avoid modifying cave or mine entrances that may support hibernating bats. If there are safety concerns or concerns about bats (e.g., disturbance, vandalism) at a site, install only “bat friendly” cave/mine gates. Consult the FWS office in your state for more information on “bat friendly” cave/mine gates.

5. Avoid/minimize alterations of clean drinking water and foraging areas.

- Protect potential recharge areas of cave streams and other karst features that are hydrologically connected to known or assumed hibernacula.
- Set back equipment servicing and maintenance areas at least 300 feet away from streambeds, sinkholes, fissures, or areas draining into sinkholes, fissures, or other karst or mine features.
- Follow available standards on spill prevention, containment, and control.
- Restrict use of herbicides for vegetation management near known or assumed NLEB hibernacula to those specifically approved for use in karst (e.g., sinkholes) and water (e.g., streams, ponds, lakes, wetlands).
- Implement strict adherence to sediment and erosion control measures, ensure restoration of pre-existing topographic contours after any ground disturbance, and restore native vegetation (where possible).

6. Avoid disturbing/killing/injuring NLEBs during spring staging/fall swarming.

- Avoid clearing of suitable spring staging and fall swarming habitat within a 5-mile radius of known or assumed NLEB hibernacula during the staging and swarming seasons.
- Activities involving continuing (i.e., longer than 24 hours) noise disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) within a five-mile radius of known or assumed NLEB hibernacula should be avoided during the spring staging and fall swarming seasons.
- During spring staging and fall swarming, use tanks to store waste fluids to ensure no loss of bats by entrapment in waste pits within 5 miles of known or presumed hibernacula or assumed NLEB hibernacula.
- Avoid prescribed burning or other sources of smoke in known or assumed NLEB habitat during the swarming/staging or hibernation season, or coordinate with the local FWS office.

- Operate wind turbines during periods (e.g., months, hours, wind speeds) when NLEB activity is unlikely.

7. Avoid or minimize the spread of White-Nose Syndrome (WNS).

- If you must enter a cave or mine that could harbor hibernating bats, and it does not have a cave and mine closure policy, follow approved WNS decontamination protocols (see whitenosesyndrome.org/topics/decontamination). Under no circumstances should clothing, footwear, or equipment that was used in a WNS-affected state or region be used in unaffected states or regions.

8. Maintain spring staging/fall swarming forested habitat within a 5-mile radius of known or assumed NLEB hibernacula.

- Retain snags, dead/dying trees, and trees with exfoliating (loose) bark ≥ 3 -inch diameter at breast height (dbh) in areas \leq one mile from water.
- Minimize impacts to all forest patches.
- Maintain forest patches and forested connections (e.g., hedgerows, riparian corridors) between patches.
- Maintain natural vegetation between forest patches/connections and developed areas.

Conservation Measures for NLEB in Known or Potential Summer Habitat

NLEB may be present in suitable summer habitat during the regional or local summer season.

9. Determine where NLEB occur in the summer.

- Coordinate with partners to gather and evaluate NLEB location information.
- Review both positive and negative data (e.g., acoustic transect surveys).
- For wind facilities, review project pre-construction surveys and post-construction fatality reports for detection of NLEB.
- We recommend that large landholders (e.g., U.S. Forest Service, Department of Defense, National Wildlife Refuges, state natural resource agencies) perform baseline bat surveys.

10. Take actions to protect NLEB and their habitat within known NLEB homeranges.

11. Avoid killing or injuring NLEB during tree clearing activities.

- Do not clear maternity colony summer habitat during the summer maternity season to avoid direct effects to females (pregnant, lactating, and post-lactating) and juveniles (non-volant and volant).

12. Minimize other direct effects to NLEB.

- Avoid clearing of summer habitat during the time of year when females are pregnant or the pups are non-volant (consult the FWS office for these times).
- Minimize use of pesticides (e.g., rodenticides, sticky traps) in and around structures with roosting bats.
- During prescribed burns, where the proposed perimeter fire line is constructed by hand, construct it at least two tree-lengths away from any known NLEB habitat, or potential roost trees that have been identified. If such trees are adjacent to a fixed part of the fire line such as the road, a trail, or the river, they will have fire line constructed around the bases, so long as their remaining in place does not jeopardize firefighter safety.
- Whenever possible, conduct prescribed burns outside of the summer maternity season. Burns conducted during the summer maternity season should be low/moderate intensity to minimize direct impacts to NLEB.
- Fire-effects monitoring should be used before, during, and after the burns to ensure that burning conditions and effects are within the desired ranges.
- Use tanks to store waste fluids to ensure no loss of bats by entrapment in waste pits.
- Avoid conducting construction activities after sunset in known or suitable summer habitat to avoid harassment of foraging NLEBs.
- operate wind turbines during periods (e.g., months, hours, wind speeds) when NLEB activity is unlikely.

13. Avoid/minimize altering clean drinking water and foraging areas.

- Minimize use of herbicides and pesticides. If necessary, spot treatment is preferred over aerial application.
- Minimize use of chemicals (e.g., colorants) in/around storm water detention basins.
- Minimize potential lighting impacts (e.g., reduce the number of lights, use motion sensors, use shields/full cut-off lens, angle lights downward and away from forest).
- Contaminants, including but not limited to oils and solvents, should be strictly controlled so the quality, quantity, and timing of prey resources are not affected.

- Implement sediment and erosion control measures, ensure restoration of pre-existing topographic contours after any ground disturbance, and restore native vegetation (where possible).
- Site equipment servicing and maintenance areas at least 300 feet away from waterbodies (e.g., wetlands, streams). Follow available standards on spill prevention, containment, and control.
- Avoid filling, channelizing, or degrading streams, wetlands, and other watering areas.

14. Maintain summer maternity habitat.

- Retain and avoid impacting potential roost trees, which includes live or dead trees and snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, or cavities. Do not remove trees surrounding potential roosts to maintain the microclimate.
- Where possible and not a safety hazard, leave dead or dying trees standing.
- Avoid reducing the suitability of forest patches with known NLEB use.
- Maintain or improve forest patches and forested connections (e.g., hedgerows, riparian corridors) between patches.
- Clearly demarcate trees to be protected vs. cut to help ensure that contractors do not accidentally remove more trees than anticipated.
- Avoid/minimize tree clearing that fragments large forested areas or tree lined corridors. For example, route linear features along the edge of a woodlot instead of through the middle of it; use horizontal directional drilling for pipeline crossings of wooded stream corridors and upland tree lines.

15. Conduct humane exclusion of NLEB in structures.

- Minimize use of pesticides (e.g., rodenticides, sticky traps) in and around structures with roosting bats.
- If bats (of any species) are using structures (e.g., barns or other out-buildings) as roosts, and these structures are proposed for removal, removal should be performed outside of the summer maternity season, unless there are human health or safety concerns associated with the structure. Consult a nuisance wildlife specialist for humane exclusion techniques¹.
- Prior to the initiation of any construction activities on bridges, including the removal of any bridge structures, we recommend the underside of each bridge be carefully examined for the presence of bats. If any bats are found roosting in the bridge, contact your state FWS office.

¹ Ensure that all required state and federal permits are in place.

Conservation Measures for NLEB During Migration

16. During spring and fall migration, operate wind turbines during periods (e.g., months, hours, wind speeds) when NLEB activity is unlikely.

17. Use of feathering below a cut-in speed of 6.9 m/s at night during migratory seasons has been used to avoid mortality of the Indiana bat. When NLEB are potentially exposed to wind turbines, we suggest that this cut-in speed be used to avoid mortality of migrating NLEBs.

Estimated annual NLEB seasonal habitat use time periods for New York and Northern New Jersey.

State	Hibernation Season	Summer Maternity Season	Fall Swarming Season
New York	October 1 – May 1	April 1--September 30	August 1—October 30
Northern New Jersey	November 15 – April 1	April 1--September 30	August 15 – November 15