



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Ecological Services  
Nebraska Field Office  
203 West Second Street  
Grand Island, Nebraska 68801

### Memorandum

To: Federal Agencies, State Agencies and Stakeholders

From: Acting Field Supervisor, U.S. Fish and Wildlife Service, Nebraska Ecological Services Field Office

Subject: Northern long-eared bat (*Myotis septentrionalis*) Proposed Listing

The U.S. Fish and Wildlife Service (USFWS) has proposed listing the northern long-eared bat (*Myotis septentrionalis*) (NLEB) under the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and the state of Nebraska is within its known range. The final listing decision for the NLEB is expected in October 2014 and at this time, no critical habitat has been proposed for the species. During the summer, NLEBs typically roost singly or in colonies in cavities, underneath bark, crevices, or hollows in both live and dead trees and/or snags (typically  $\geq 3$  inches diameter at breast height [dbh]). Males and non-reproductive females may also roost in cooler places such as caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on presence of cavities or crevices or the presence of peeling bark. Currently, we have no information that indicates a tree species preference for the NLEB in Nebraska; however, the literature does indicate the NLEB uses trees such as American elm, cottonwood, honey locust, various hickory species, maple, green ash, hawthorn, and oak trees throughout its range (Foster and Kurta, 1999; Carter and Feldhamer, 2005; Timpone et al., 2010). Occasionally, NLEBs have also been documented roosting in man-made structures (i.e., buildings, barns, bridges, etc.) during the summer, particularly when suitable tree roosts are unavailable. They forage for insects over water, forest clearings and under tree canopies in upland and lowland woodlots and tree lined corridors. During the winter, NLEBs predominately hibernate in caves and abandoned mine portals. Additional habitat types may be identified as new information is obtained.

Pursuant to Section 7(a)(4) of the ESA, federal action agencies are required to confer with the USFWS if their proposed action is likely to jeopardize the continued existence of the NLEB (50 CFR 402.10(a)). Action agencies may also voluntarily confer with the USFWS if the proposed 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 agency retains any discretionary involvement or control over on-the-ground actions that may affect the species after listing, section 7 applies and consultation needs to occur. Therefore, if suitable NLEB habitat is present within the proposed project area, we recommend further coordination with our office to avoid potential project delays should the species be listed.

Additional information regarding NLEB and conference procedures can be found at: <http://www.fws.gov/midwest/endangered/mammals/nlba/index.html>



Photo: FWS

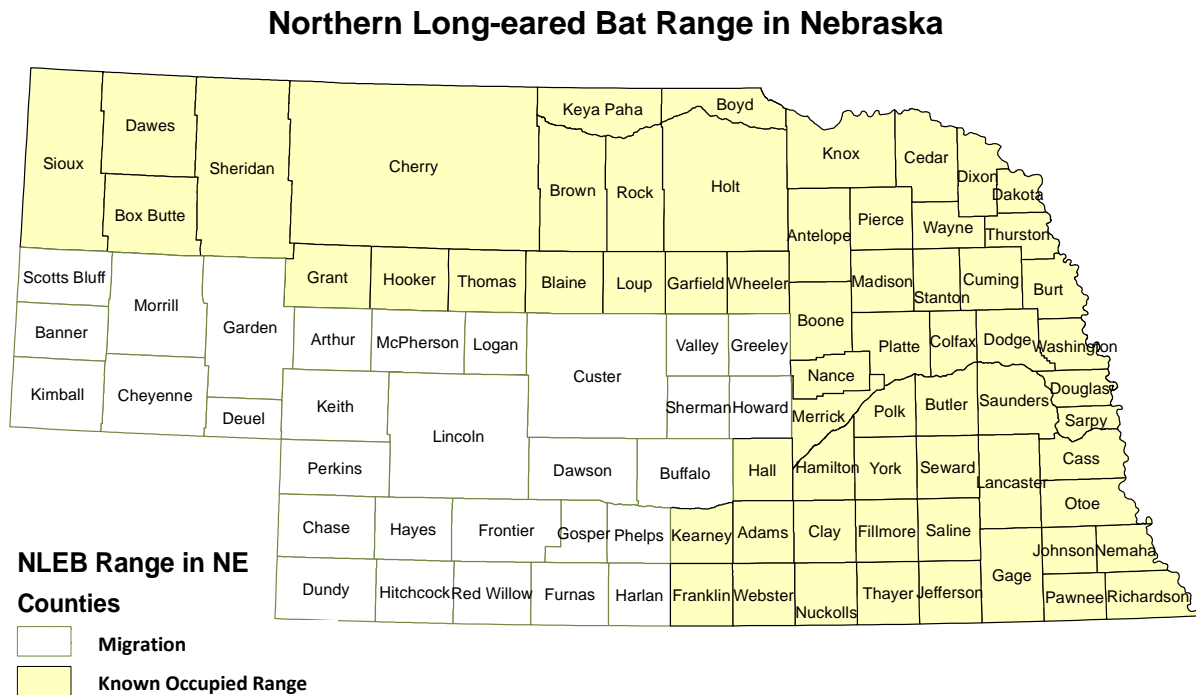


Photo: J. Lackey, 2013

### **Geographic Range in Nebraska**

Currently, there are some data gaps for this species throughout its range. The data available indicates that NLEB concentrations in Nebraska can be found but are not limited to the northwest and southeast area of the state. Although this species is mostly found in forested areas, it can also be found throughout the state in opportunistic roosts during its migration (see Map 1 below). NLEBs are known to use limestone mines near the town of Louisville (Geluso et al., 2004, p. 37) and they are known to use these mines on a year-round basis (Czaplewski et al. 1979, Jones 1964). NLEBs are also known to hibernate in mines along the Platte River southwest of Fontenelle Forest (Czaplewski et al., 1979; Jones et al., 1983). The species is considered to be common in the Fontenelle Forest where it is believed to hibernate (Geluso et al., 2004). Use of buildings in the summer has been linked to the increase in geographic range of the NLEB (Barclay and Cash 1985, Fenton 1970, Sparks and Choate 2000) and NLEB have been removed from buildings in Omaha, NE.

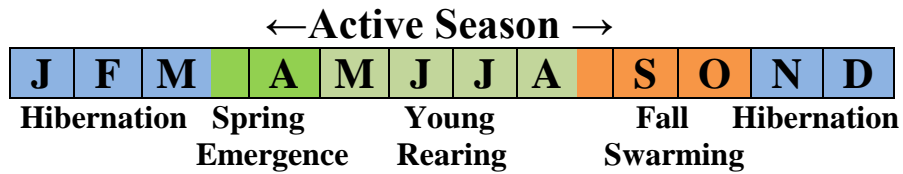
## Map 1: Northern Long-eared Bat Range in Nebraska



### Seasonal Time Periods for NLEBs

The known seasonal timeframes in Nebraska have been compiled from the available literature on NLEB populations in Southeastern Nebraska specifically from Geluso et al., 2004 (Figure 1). NLEB hibernates in caves in southeastern Nebraska from October 15<sup>th</sup> to March 15<sup>th</sup> before beginning migration. Their spring staging (pausing at places along their migration route to rest and feed before proceeding) occurs from approximately mid-March to May 1<sup>st</sup>. During their spring staging, females form small maternity colonies of up to 30 bats in late spring. By April 1<sup>st</sup> females may be pregnant and in their maternity roosting areas. Pregnant females may be encountered from April to May and give birth to a single pup in June or early July (Caceres and Barclay 2000). These pups are born hairless and flightless (non-volant). The pups nurse for about a month and are left at the roost nightly while the mother goes out to feed. The pup begins to fly and explore on its own at four to six weeks, as early as July. Maternity colonies disperse toward hibernacula shortly after young are volant (able to fly) and bats move closer to hibernacula in the fall and mate before they hibernate (fall swarming). Fall swarming, the stage when bats mate and fly in and out of caves every day from sunset to sunrise, is the final stage before hibernation. Swarming starts in mid-August and lasts through the end of October. Even though bats mate during the fall, fertilization does not occur until the females emerge from hibernation the following spring.

**Figure 1. Seasonal time periods of northern long-eared bat in Nebraska**



**Examples of Conservation Measures for NLEB in Known or Potential Habitat**

At this time, since forested, wooded, and riparian areas are suitable habitat for the NLEB, we recommend that if a project requires tree clearing, these activities be done between October 1<sup>st</sup> and March 30<sup>th</sup> during hibernation so as to avoid direct impacts to the NLEB. Additionally, tree clearing activities within five miles of caves or mines where the NLEB is known to hibernate, should be avoided so as not to impact staging/swarming habitat. If the project requires the removal of trees during the summer maternity season, we recommend that a survey be done by a qualified biologist before any clearing is done. In addition, any project that includes blasting and/or drilling should not occur within one-half mile of caves or mines where NLEB hibernate during the winter. If a project is within one-half mile of caves or mines, a survey should be conducted by a qualified biologist to determine the presence or use of the habitat by NLEB.

Until survey guidance for NLEB is developed, the FWS recommends the use of the Indiana bat summer guidance:

<http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>.

A list of known qualified biologists is attached at the end of this document. Current USFWS guidance and recommendations for the NLEB can be found at the following link: (<http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/NLEBinterimGuidance6Jan2014.pdf>).

Survey guidance protocols can be found in Appendix B of the NLEB interim guidance document.

**Guidance for Avoiding Impacts to NLEBs**

The following is a list of recommended conservation measures for the NLEB. These conservation measures are considered 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 the current knowledge of NLEB and the USFWS’ experience with the Indiana bat, and may change in the future as we learn more about the specific needs of the NLEB. If you would like to discuss these conservation measures or would like further information on the proposed listing please contact Mrs. Lourdes Mena within our office at Lourdes\_Mena@fws.gov or (308) 382-6468 extension 23.

## Tree Clearing

- *Avoid killing or injuring the 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 [flying]). Avoid tree clearing from **April 1<sup>st</sup> – September 30<sup>th</sup>**.

For areas being cleared of five or less trees, the effects of the activity are considered “insignificant and discountable” and the project may proceed.

- *Minimize other direct effects to the NLEB*

Avoid clearing of summer habitat during the time of year when females are pregnant or the pups are non-volant (April 1<sup>st</sup> – September 30<sup>th</sup>).

Avoid conducting construction activities after sunset in known or suitable summer habitat to avoid harassment of foraging NLEBs.

- *Maintain summer maternity habitat*

Retain and avoid impacting potential roost trees, which includes live or dead trees and snags  $\geq 3$  inches dbh, which 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.

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.

- *Avoid disturbing/killing/injuring NLEBs during spring staging/fall swarming*

Avoid clearing of suitable spring staging and fall swarming habitat within a five-mile radius of known or assumed NLEB hibernacula during the staging and swarming seasons.

- *Maintain spring staging/fall swarming forested habitat within a five-mile radius of known or assumed NLEB hibernacula*

Retain snags, dead/dying trees, and trees with exfoliating (loose) bark  $\geq 3$ -inch 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.

### **Bridge Construction and Demolition**

- *Conduct humane exclusion of the NLEB in structures*

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. The use of existing Indiana bat protocols for bridge inspections is recommended.

### **Prescribed Burning**

- *Avoid disturbing/killing/injuring NLEBs during spring staging/fall swarming*

Activities involving continued (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 five 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 USFWS office.

### **Definitions**

**Home range:** Areas that include maternity, foraging, roosting, and commuting habitat, typically occurring within three miles of a documented capture record or a positive identification of NLEB from properly deployed acoustic devices, or within 1.5 miles of a known suitable roost tree.

**Known habitat:** Areas known to be used by NLEBs. (1) All suitable habitat located within five miles of a documented hibernaculum; (2) All suitable habitat located within three miles of a documented NLEB capture record; (3) All suitable habitat located within 1.5 miles of a documented maternity roost tree; (4) Hibernacula with known NLEB occurrences or is otherwise identified by the USFWS as important to future NLEB recovery efforts.

**Maternity habitat:** Suitable summer habitat used by juveniles and reproductive (pregnant, lactating, or post-lactating) females. Maternity foraging and roosting habitat typically occurs within three miles of a documented maternity capture record or a positive identification of NLEB from properly deployed acoustic devices, or 1.5 miles of a suitable roost tree that has been documented as a maternity roost tree.

**Occupied habitat:** Known and suitable habitat that is expected or presumed to be in use by NLEBs at the time of impact. See Table 1 in Appendix D for estimated occupancy dates.

**Suitable habitat:** Summer and/or winter habitat that is appropriate for use by NLEB.

**Suitable winter habitat** (hibernacula) is restricted to underground caves and cave-like structures (e.g. abandoned mines, railroad tunnels). These hibernacula typically have large passages with significant cracks and crevices for roosting; relatively constant, cooler temperatures (0-9 degrees C) and with high humidity and minimal air currents.

**Suitable summer habitat** for NLEB consists of the variety of forested/wooded habitats where they roost, forage, and travel. This includes forested patches as well as linear features such as fencerows, riparian forests and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1000 feet from the next nearest suitable roost tree, woodlot, or wooded fencerow.

**Suitable spring staging/fall swarming habitat** for NLEBs consists of the variety of forested/wooded habitats where they roost, forage, and travel within five miles of a hibernaculum. This includes forested patches as well as linear features such as fencerows, riparian forests and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1000 feet from the next nearest suitable roost tree, woodlot, or wooded fencerow.

**Suitable roost tree:** During summer NLEBs roost singly or in colonies in cavities, underneath bark, crevices, or hollows of both live and dead trees and snags, typically  $\geq 3$  inches dbh.

**Unoccupied habitat:** refers to suitable habitat not expected to be in use by NLEBs at the time of impact.

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<http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/NLEBinterimGuidance6Jan2014.pdf>

### **List of Known Qualified Biologists for Northern long-eared bat Surveys**

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|--|---|
| 1. Jeremy White<br>402-554-3294<br>Omaha, NE<br><a href="mailto:jeremywhite@unomaha.edu">jeremywhite@unomaha.edu</a> | 4. Patricia Freeman<br>402-472-6606<br>Lincoln NE<br><a href="mailto:pfreeman1@unl.edu">pfreeman1@unl.edu</a>       |
| 2. Keith Geluso:<br>308-865-8548<br>Kearney, NE<br><a href="mailto:gelusok1@unk.edu">gelusok1@unk.edu</a>            | 5. Russ Benedict<br>641-628-5173<br>Pella, Iowa<br><a href="mailto:benedictr@central.edu">benedictr@central.edu</a> |
| 3. Cliff Lemen<br>402-472-3471<br>Lincoln NE<br><a href="mailto:clemen2@unl.edu">clemen2@unl.edu</a>                 | 6. Ken Geluso<br>kgeluso@unomaha.edu  |
|  | 7. Jason Damm<br>Terre Haute, Indiana<br><a href="mailto:jdamm1@ivytech.edu">jdamm1@ivytech.edu</a>                 |