

Conservation Measures for Indiana Bat and Northern Long-Eared Bat When Implementing NRCS-Assisted Practices in Ohio

Background

The Indiana Bat (*Myotis sodalis*) is listed as an endangered species and the Northern Long-Eared Bat (*Myotis septentrionalis*) is listed as a threatened species under the Endangered Species Act (ESA); the state of Ohio also has also listed these species under state regulations as endangered and threatened, respectively. The ESA requires that all Federal agencies, including NRCS, ensure that their actions do not jeopardize the continued existence of any listed species. NRCS actions should not adversely affect listed species or their habitats. Furthermore, where possible, NRCS actions should enhance the recovery of listed species by improving, restoring or protecting habitat for listed species.

The U. S. Fish and Wildlife Service (USFWS) considers both species to be potentially present in every county in Ohio. When considering effects of NRCS actions on the Indiana Bat and Northern Long-Eared Bat, NRCS must determine if suitable habitat is present and what effect the agency action may have on the habitat. This is done through consultation with the USFWS. If suitable habitat is present, the next step would be to determine if either species are actually present at the project site; the presence or absence of bats would determine which actions might be allowed or prohibited in order to protect the bats and their habitat. The determination of Indiana Bat and Northern Long-Eared Bat presence can be accomplished through the use of several different survey techniques. However, the large number of potential NRCS project sites scattered across the state make the use of surveys for Indiana Bat and Northern Long-Eared Bat presence unfeasible in almost all cases. Alternatively, NRCS may assume the possible presence of Indiana Bats and Northern Long-eared Bat on the project area and implement measures that will avoid adverse effects to both species. This is the approach typically taken by NRCS and is the basis for implementation of the conservation measures described in this document.

The Indiana bat was listed as endangered in 1967 due to several factors including: disturbances at hibernacula; disturbance, removal and degradation of summer habitat, potential chemical contamination from pesticides. White-nose syndrome (WNS) is a new threat that is causing further declines in the species. The northern long-eared bat was listed in 2015 due to significant declines from WNS in the northeastern U.S. As WNS continues to spread within the range of the species, further declines are expected.

Ecology of the Indiana Bat and Northern Long-Eared Bat in Ohio

Both species hibernate during the winter in caves and abandoned mines, although occasionally structures resembling caves or mines may be used. Known hibernacula are limited; Indiana Bats and Northern Long-Eared Bats summering in Ohio may use hibernacula in Ohio or nearby states. They typically enter these hibernacula during October and November.

Hibernacula are selected based on specific characteristics such as desirable humidity or temperature. Bats will often use the same hibernacula year after year. Hibernating Indiana Bats usually form large, compact clusters while Northern Long-Eared Bats roost singly or in small groups. Both species typically depart their hibernacula by late April. Bats will often stay in the area of the hibernacula for a while before moving to their summer habitat. Mortality may be high at this time as the change is stressful and their fat reserves are low after hibernation.

Summer roosting and foraging habitat for Indiana Bats and Northern Long-Eared Bats consists of a wide variety of forested habitats. Although the primary habitat is forested, bats may make occasional use of adjacent or interspersed non-forested habitats such as emergent wetlands, streams, and edges of agricultural fields or pastures. When foraging, Northern Long-Eared bats show a preference for upland forests while Indiana Bats typically are found in riparian forests near streams, wetlands and open water bodies. The forested areas may be small to large woodlots or other wooded areas such as fencerows, riparian forests or other wooded corridors. Wooded areas may be dense or loose aggregations of trees; the amount of canopy cover will vary. Individual trees that have potential roost tree characteristics and are located near other forested habitat may be used by either species occasionally.

A critical component of the forested habitat for both species is the presence of potential roost trees. Roost trees are where the bats spend most of their time when not flying and foraging; they are also where the young bats are born and reared. Bats will typically forage within 1 to 2 miles of their roost site. During summer males typically roost singly or in small groups while females roost in larger groups (maternity colonies) of up to a hundred or more bats. Indiana Bat roost trees for maternity colonies are often larger than other trees in the stand and typically receive solar exposure; therefore trees that are above the canopy, on the forest edge or have few other trees around them may be used more frequently. Northern Long-Eared Bat roost trees tend to have more canopy cover than those preferred by Indiana Bats and they seem much more flexible in their preference for roost tree characteristics. Although maternity colonies will frequently use one primary roost tree, they may move locations throughout the summer.

Pregnant females begin forming maternity colonies in April or May. Young are born in June and are typically able to fly and forage on their own by August. Beginning in August or September, both species begin the migration back to their hibernacula. Prior to entering the hibernacula they may swarm in the area near the hibernacula. This is also when bats mate and put on fat reserves to carry them through hibernation.

Potential roost trees are live trees or standing snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets

large enough can be a potential roost tree if the right characteristics develop, the following species have been identified as having relatively high value as potential Indiana Bat or Northern Long-Eared Bat roost trees:

Silver Maple (*Acer saccharinum*)
Sugar Maple (*Acer saccharum*)
Shagbark Hickory (*Carya ovata*)
Shellbark Hickory (*Carya lacinosa*)
Green Ash (*Fraxinus pennsylvanica*)
White Ash (*Fraxinus americana*)
Eastern Cottonwood (*Populus deltoides*)

Northern Red Oak (*Quercus rubra*)
Post Oak (*Quercus stellata*)
White Oak (*Quercus alba*)
Black Locust (*Robinia pseudoacacia*)
Slippery Elm (*Ulmus rubra*)
American Elm (*Ulmus americana*)

Conservation Measures

The following conservation measures are to be followed when NRCS assisted practices are applied that may affect potential habitat in wooded areas used during spring, summer or fall or near potential hibernacula. Where potential habitat is present, the presence of Indiana Bats or Northern Long-Eared Bats will be assumed. If appropriate surveys have been done and they indicate Indiana Bats or Northern Long-Eared Bats are not present, these measure are not required; however their implementation is recommended as they may help conserve these species. These measures are intended to protect the bats and their habitat where potential habitat occurs. These measures are to be provided to landowner or operator of the land where the practice is to be applied. Additionally, include appropriate measures in job sheets or similar specifications.

If the project cannot be implemented in accordance with these measures, contact the NRCS State Biologist for guidance prior to implementation.

Conservation measures for summer habitat

Summer habitat includes forested areas that have potential roost trees. In this guidance, reference to trees means trees or *native* woodland shrubs that are ≥ 3 inches dbh. The goals of these measures are to prevent incidental take of Indiana Bats or Northern Long-Eared Bats that may be utilizing roost trees during the summer, reduce disturbance of bats during the important reproductive period and to promote the development and conservation of forests that provide appropriate habitat for both species. Because Indiana Bats and Northern Long-Eared Bats may use many different individual roost trees over the course of a season and because the duration of potential roost trees (especially dead ones) is ephemeral it is important to try to maintain a diversity of potential roost trees within a forest stand.

1. Do not remove areas of early successional woodland habitat (trees less than 3 inches dbh) greater than 20 acres. Although this is not potential roosting habitat, it may be potential foraging habitat for Indiana Bats. Areas less than 20 acres may be cleared or altered.

2. Do not clear forested areas with trees greater than ≥ 3 inches dbh between April 1 and September 30. Clearing means removal of all or almost all trees. This applies whether potential roost trees are present or not. An exception may be made for small clusters as described below.
3. Small clusters of trees (6 or less) may be felled or removed at any time if **all** of the following are true:
 - a. All of the trees are live. Live trees are considered to be any tree with $>10\%$ live canopy.
 - b. The bark on all the trees is attached tightly to the trees as opposed to loose bark as on shagbark hickory or shellbark hickory.
 - c. There are no visible cavities, crevices, hollows or splits present.
4. Avoid removing live potential bat roost trees (defined above) if at possible. If they must be removed, removal must be done between October 1 and March 31.
5. Do not fell or remove standing snags (a tree with $<10\%$ live canopy) except when they pose a serious human safety hazard. If they must be felled for safety, only cut them between October 1 and March 31.
6. Control of non-native invasive shrub species such as autumn olive, bush honeysuckle or glossy buckthorn may be done at any time. These species are not considered to be trees for purposes of this guidance. Control of these species may benefit the Indiana Bat and Northern Long-Eared Bat by allowing regeneration of desirable tree species.
7. Control of non-native invasive tree species such as tree of heaven that involves felling the tree may be allowed at any time if the tree is less than 3 inches dbh or, if ≥ 3 inches dbh, there are no visible cavities, crevices, hollows or splits present. If the tree does not meet these conditions it may be felled or removed only between October 1 and March 31.
8. Control of non-native invasive tree species such as tree of heaven may be allowed at any time if control is by means such as basal bark treatment or hack-and-squirt and the tree is not removed.
9. If girdling trees for snag creation, crop tree release, etc. using a chainsaw, no more than 35 trees per acre may be girdled during the April 1 to September 30 time period. Trees are to be girdled only; they are not to be dropped or felled during this time period. None of the trees should be potential roost trees as defined above and none should be shagbark or shellbark hickory. If more than 35 trees per acre are to be girdled using a chain saw, it must be done between October 1 and March 31.
10. Prescribed burning in woodlands shall not be conducted between April 15 and September 30. When conducted at other times, known primary maternal roost trees

within the burn area shall be protected by the use of temporary fire breaks or other measures.

11. When conducting Forest Stand Improvement (practice 666) (regardless of timing of the work), it is recommended that the work result in the following stand conditions:

- a. Retention of at least 60% canopy cover.
- b. Retention of at least 16 live shagbark or shellbark hickories >11 inches dbh trees per acre, if present.
- c. If hickory is not present in sufficient numbers, substitute with other high value potential roost tree species (listed above); retain at least 16 live trees >11 inches dbh per acre of combined species, if present.
- d. Retention of at least 3 live trees >20 inches dbh per acre if present; these trees should be from the high value species listed above; the retained trees should be the largest trees of the listed species.

Conservation Measures for Areas near Hibernacula

Indiana Bats and Northern Long-Eared Bats typically hibernate in caves or abandoned mines. Since many bats may congregate in these hibernacula it is important to protect these areas from disturbance. In addition, the areas around these hibernacula are important as that is where bats stage or swarm in spring and fall. The USFWS expects additional measures for projects within 5 miles of known Indiana Bat or Northern Long-Eared Bat hibernacula. Consultation with USFWS will determine if the project site is within a 5 mile radius of a known hibernacula. Addendum A to this document contains lists of townships that have at least one of these buffer areas.

The following conservation measures are intended to protect hibernacula from disturbance and protect forested habitat close to the hibernacula. Consultation with USFWS will determine if any exceptions to these measures, particularly those that may improve habitat for bats, will be allowed.

Within 1 mile of hibernacula entrances:

1. Follow conservation measures for summer habitat above, with the following additional requirements.
2. No felling or removal of any trees or snags except when the trees or snags pose a serious human safety hazard.
3. No prescribed burning in woodland between March 15 and November 15. Prescribed burning done between November 16 and March 14 will only be performed under conditions that will dissipate smoke away from hibernacula entrances.

4. No activity within 200 feet of hibernacula entrances when occupied by Indiana Bats or Northern Long-Eared Bats.

Within 1 to 5 miles of hibernacula entrances:

1. Follow conservation measures for summer habitat above, with following additional requirements.
2. No felling or removal of potential bat roost trees between March 15 and November 15.
3. No prescribed burning in woodland between March 15 and November 15.

Addendum A

Townships with Known or Potential Indiana Bat or Northern Long-Eared Bat Hibernacula

Indiana Bat

Adams County - Brush Creek, Jefferson, and Adams Townships
Ashland - Green and Hanover Townships
Athens County - York, Dover, and Trimble Townships
Cuyahoga County - Independence, Middleburg, Parma, and Strongsville Townships
Darke County - Butler, Twin, and Monroe Townships
Fairfield County - Berne, Hocking, and Madison Townships
Geauga County - Chester, Russell, and Bainbridge Townships
Highland County - Madison, Penn, Liberty, Marshall, and Brush Creek Townships
Hocking County - Good Hope, Perry, Laurel, Marion, Falls, Benton, Washington, Green, Starr, and Ward Townships
Knox County - Brown Township
Lake County - Willoughby and Kirtland Townships
Lawrence County - Elizabeth, Aid, and Decatur Townships
Montgomery County - Clay and Perry Townships
Portage County - Aurora and Streetsboro Townships
Preble County - Monroe, Harrison, Twin, and Washington Townships
Richland County - Monroe and Worthington Townships
Ross County - Paint Township
Scioto County – Bloom, Nile, Union, Rush, Valley, Jefferson, Harrison, Porter, Clay, Washington, and Vernon Townships
Summit County - Macedonia, Twinsburg, and Hudson Townships

Northern Long-Eared Bat

Ashland County – Hanover Township
Athens County – Trimble Township
Champaign County – Salem and Wayne Townships
Hocking County – Green and Ward Townships
Lawrence County – Decatur and Elizabeth Townships
Perry County – Coal Township
Preble Township – Harrison Township
Summit County – Twinsburg Township