

Biology Fact Sheet: Indiana Bat

Indiana - July 2010 (ver. 1.0)

Indiana NRCS Guidelines

BACKGROUND

Indiana has an exceptionally diverse selection of natural habitats. This variation of natural habitats in turn supports a number of very rare species, including the Indiana Bat (*Myotis sodalis*). Although bats are often mistreated and misunderstood, these mammals are beneficial and important components of the ecosystem. They also eat many night-flying insects, including crop pests.

The Endangered Species Act of 1973 (ESA) requires that all Federal agencies, including the Natural Resource Conservation Service (NRCS), work toward the conservation of endangered and threatened species. The U.S. Fish and Wildlife Service (FWS) determines which species are covered and regulates the program for their protection. ESA also requires that Federal agencies ensure that their actions are not likely to destroy or modify the habitat of endangered species.

In the past 25 years, the population of Indiana Bats has declined by about 50 percent. As a result, this bat has been classified as a federally-endangered species.

The Indiana bat dwells in caves in Southern Indiana during the winter. In the spring, bats emerge from hibernation and migrate to their summer homes where they separate into smaller social units, forming maternity colonies of up to 100 bats where the young are raised. Summer roosting sites are typically found in dead and dying trees (snags), especially beneath loose bark, and in tree cavities and hollows or in crevices left by lightning strikes. Locations near tree-lined streams and rivers are common. During the spring, summer, and fall, Indiana Bats are found in every county in Indiana.

It is the goal of the following guidelines to help conserve the Indiana bat and its summer habitat within the State of Indiana. These guidelines were developed in coordination with the U.S. Fish and Wildlife Service.



GUIDELINES

The guidelines on the next page will be followed when the installation of a conservation practice or project includes tree removal/felling anywhere in Indiana. Additional restrictions may apply if the project falls within the range of specific Indiana Bat habitat such as a known maternity tree or a cave used for hibernation.

Within the context of this document, the guidance only applies to trees that are at least three (3) inches or greater at Diameter Breast Height (DBH). Native woodland shrubs that are at least three (3) inches or greater DBH are also considered to be trees.



Indiana Bat guidelines include:

1. Small clusters of trees (6 or less) may be removed/felled at any time if **all** of the following are true:
 - a. All of the trees are alive. Live trees are considered to be any tree with >10% live canopy.
 - b. The bark on all of the trees is attached tightly to the trees (as opposed to the type of bark found on Shagbark or Shellbark Hickories which allow space for bats to roost).
 - c. There are no visible cavities, crevices, or splits present.
2. Tree clusters up to 0.25 acre may be removed/felled if performed between October 1 and March 31.
3. Forest Stand Improvement (FSI) - including tree thinning, that involves removing/felling of trees, and which meet NRCS Indiana Field Office Technical Guide (FOTG) Standard 666 (Forest Stand Improvement), is allowed when performed between October 1 and March 31.

4. Standing snags (a tree with <10% live canopy should be considered a snag) that pose a serious human safety hazard will be considered on a case-by-case basis. Contact the local NRCS office for further guidance.
5. Removal/Felling of non-native invasive woodland shrub and/or herbaceous plant species, such as Bush Honeysuckle, Multiflora rose, and Autumn Olive, is allowed at any time. These non-native invasive woodland shrubs are not considered to be trees.
6. Removal/Felling of invasive tree species, such as Tree-of-Heaven, will be performed between October 1 and March 31.

If the project cannot be completed within the parameters listed above, consult with your local NRCS office.

Practices which do NOT meet the Indiana Bat Guidelines, and which will require concurrence by the NRCS State Biologist prior to implementation, include:

1. Removal/Felling of over 0.25 acre of tree clusters at any time.
2. Removal/Felling of trees between April 1 and September 30 (except 'small clusters of trees' as defined above).
3. FSI activities that will remove or fell trees that are conducted between April 1 and September 30.

For other forestry management practices, see the additional guidance found in **BFO Forest Management Guidelines:**

(http://efotg.nrcs.usda.gov/references/public/IN/BFO_Forest_Management_Guidelines2-14-08.pdf).

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BFO Forest Management Guidelines for Informal Section 7 Consultations on Indiana Bats (*Myotis sodalis*) within the State of Indiana

These guidelines were developed by the Bloomington Field Office (BFO) of the U.S. Fish and Wildlife Service (FWS) to conserve the federally endangered Indiana bat (*Myotis sodalis*) and its summer habitat within the State of Indiana. Adherence to these guidelines will result in forest habitat that is suitable for Indiana bat use, but may not represent optimal habitat. Maintaining or creating optimal Indiana bat maternal habitat typically would require more intensive management practices than provided here. This is a working document and periodically will be revised as new data warrant.

Because the risk of incidental take of Indiana bats in forest stands managed in accordance with these guidelines is discountable or insignificant, the BFO typically will provide written concurrence letters to managers seeking Section 7 compliance (i.e., informal consultation will suffice). However, if these management guidelines cannot be followed or conflict with other management goals or directives, then forest managers are strongly encouraged to contact the BFO to discuss all of their options (e.g., greater management flexibility may be achieved via formal Section 7 consultation).

FOREST MANAGEMENT GUIDELINES

1. At least 60% canopy cover (on a stand-by-stand basis, depending on size of stands) shall be maintained after any timber harvest activities.
2. Shagbark hickory (*Carya ovata*) or shellbark hickory (*C. laciniosa*) trees shall not be harvested or manipulated during timber stand improvement (TSI) activities, unless the combined density of these species exceeds 16 trees/acre. If present, at least 16 live shagbark and shellbark hickory (combined) >11" dbh must be maintained per acre.
3. Standing snags shall not be felled/removed, except where they pose a serious human safety hazard (a tree with <10% live canopy should be considered a snag). Snags that have no remaining bark and no visible cracks, splits, or hollows may be felled as well as any snags leaning more than 45° from vertical.
4. The following species of trees have been identified as having relatively high value as potential Indiana bat maternity roost trees:

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| shagbark hickory (<i>Carya ovata</i>) | eastern cottonwood (<i>Populus deltoides</i>) |
| shellbark hickory (<i>Carya laciniosa</i>) | northern red oak (<i>Quercus rubra</i>) |
| bitternut hickory (<i>Carya cordiformis</i>) | post oak (<i>Quercus stallata</i>) |
| silver maple (<i>Acer saccharinum</i>) | white oak (<i>Quercus alba</i>) |
| sugar maple (<i>Acer saccharum</i>) | slippery elm (<i>Ulmus rubra</i>) |
| green ash (<i>Fraxinus pennsylvanica</i>) | American elm (<i>Ulmus americana</i>) |
| white ash (<i>Fraxinus americana</i>) | black locust (<i>Robinia pseudoacacia</i>) |

(Tree species based on literature and unpublished roosting data).

On average, at least 3 live trees per acre >20" dbh (of the high-value species listed above) shall always be maintained in the stand (a tree with <10% live canopy should be considered a snag). These "leave trees" must be the largest trees of the listed species remaining in the stand. An additional 6 live trees per acre >11" dbh (of the species listed above) must also be maintained. The "per acre" requirement can be expressed as the average per acre on a stand-wide basis, depending on the definition of a stand.

If there are no trees >20" dbh to leave, then 16 live trees per acre must be left, and these must include the largest specimens of the listed species remaining in the stand.

5. No timber harvest or TSI activities shall occur within 100 feet of a perennial stream or within 50 feet of an intermittent stream.
6. No felling of trees >3" dbh while Indiana bats may be present from 1 April through 30 September (i.e., trees may be felled from 1 October through 31 March).

PRESCRIBED FIRE GUIDELINES

1. Prescribed burns shall not be conducted from 15 April through 15 September in burn areas containing potential bat roost trees/snags >3" dbh.
2. Temporary fire breaks shall be created/maintained around any known Indiana bat primary maternal roost trees that fall within a proposed burn area prior to the burn.

NOTE: If any of these guidelines cannot be followed or additional clarification is needed, then please contact the BFO.

NOTE: If proposed forest/timber management actions or prescribed burns will occur within a 5-mile radius of a known Indiana bat hibernaculum, then please contact the BFO for additional guidance. Indiana bat hibernacula in Indiana are known to occur in Crawford, Greene, Harrison, Lawrence, Martin, Monroe, Orange, and Washington counties.