

Indiana Bat Project Review Fact Sheet
New York Field Office

This fact sheet is intended to provide information to assist project sponsors, as well as any involved Federal and state agencies, with the review of projects (*e.g.*, residential or commercial development) and activities that occur within the likely range of the Indiana bat (*Myotis sodalis*) within the state of New York (State) to assist in compliance with the Federal Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). **PLEASE NOTE - this fact sheet does not apply to wind development projects as they involve many unique considerations.** Contact the U.S. Fish and Wildlife Service (Service) directly for technical assistance for wind projects. In addition, information on evaluating impacts from wind projects on Indiana bats can be found at <http://www.fws.gov/midwest/endangered/mammals/inba/WindEnergyGuidance.html>.

The Indiana bat is Federally- and State -listed as an endangered species with a range that extends from the Midwest to northeastern and southeastern parts of the United States. Additional information on Indiana bat occurrences can be found at <http://ecos.fws.gov> and <http://www.fws.gov/northeast/nyfo/es/section7.htm>.

In the northeastern United States, multiple state and Federal agencies have investigated Indiana bat movements. In the spring of 2002 through 2007, the New York State Department of Environmental Conservation (NYSDEC) and the Service successfully tracked female Indiana bats from their hibernacula in Essex, Ulster, Jefferson, and Onondaga Counties to their spring roosts, with average distances of up to approximately 40 miles. However, they are capable of flying distances much greater than that and have been documented doing so in other parts of their range (Winhold and Kurta 2006).

The Indiana bat typically hibernates in caves/mines in the winter and roosts under bark or in tree crevices in the spring, summer, and fall. Suitable potential summer roosting habitat is characterized by trees (dead, dying, or alive) or snags with exfoliating bark, or containing cracks or crevices that could potentially be used by Indiana bats as a roost. The minimum size roost tree observed to date is 2.5 inches diameter breast height (d.b.h.) for males and 4.3 inches d.b.h. for females. However, maternity colonies generally use trees greater than or equal to 9 inches d.b.h. Overall, roost tree structure appears to be more important to Indiana bats than a particular tree species or habitat type. Females appear to be more habitat specific than males presumably because of the warmer temperature requirements associated with gestation and rearing of young. As a result, they are generally found at lower elevations than males may be found. Roosts are warmed by direct exposure to solar radiation, thus trees exposed to extended periods of direct sunlight are preferred over those in shaded areas. However, shaded roosts may be preferred in very hot conditions. As larger trees afford a greater thermal mass for heat retention, they appear to be preferred over smaller trees. Additional information on potentially suitable summer habitat can be found in the Draft Indiana Bat Recovery Plan (Service 2007) at <http://www.fws.gov/northeast/nyfo/es/IndianaBatapr07.pdf>.

Streams associated with floodplain forests, and impounded water bodies (ponds, wetlands, reservoirs, etc.) where abundant supplies of flying insects are likely found provide preferred foraging habitat for Indiana bats, some of which may fly up to 2-5 miles from upland roosts on a regular basis. Indiana bats also forage within the canopy of upland forests, over clearings with early successional vegetation (*e.g.*, old fields), along the borders of croplands, along wooded

Indiana Bat Project Review Fact Sheet
New York Field Office

fencerows, and over farm ponds in pastures (Service 2007). While Indiana bats appear to forage in a wide variety of habitats, they seem to stay fairly close to tree cover.

Threats include habitat loss or degradation, human disturbance, disease (white-nose syndrome), contaminants, and collision with wind turbines.

Evaluation of Presence or Absence of Suitable Habitat

To determine whether the proposed project site may provide suitable habitat for the Indiana bat, the Service recommends the following analytical approach¹:

1. Is the proposed project within a county² identified by the Service as known or likely to contain Indiana bats?
 - If no, no further coordination regarding the Indiana bat is necessary at this time.
 - If yes, proceed to Step 2.
2. Is the proposed project at an elevation of ≤ 900 feet above sea level (the maximum elevation we have observed Indiana bat summer use in New York)?
 - If no, no further coordination regarding the Indiana bat is necessary at this time.
 - If yes, proceed to Step 3.
3. Is there any suitable Indiana bat habitat³ present within the proposed action project area?
 - If no, no further coordination regarding the Indiana bat is necessary at this time.
 - If yes, determine whether the proposed project involves any direct or indirect effects to Indiana bats.

Determination of Direct or Indirect Effects

Each project will need an individual assessment of whether direct (those that would result from activities while Indiana bats are present) or indirect effects (those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably likely to occur [50 CFR 402.02]) to Indiana bats are expected.

For example, consider whether a project may result in temporary or permanent increases in noise, vibration, dust, chemical use, lighting, vehicle use, and general levels of human activity. Also, consider whether a project may result in temporary or permanent loss, degradation, and/or fragmentation of roosting, foraging, swarming, commuting, or wintering habitat.

¹ This reflects our current understanding, but future studies may result in a revision to this guidance.

² Review county information provided at <http://ecos.fws.gov> or <http://www.fws.gov/northeast/nyfo/es/section7.htm>

³ Refer to the Recovery Plan and Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects document located at <http://www.fws.gov/midwest/indangered/mammals/inba/index.html> for description of suitable habitat.

Indiana Bat Project Review Fact Sheet
New York Field Office

Surveys for Indiana Bats

Should suitable Indiana bat habitat be present and should the proposed project have the potential for impacting Indiana bats, a determination must be made as to whether the species is present by conducting species surveys which follow current Indiana bat survey protocols⁴. If the species is present, the potential impacts that may result from the proposed project must be evaluated. Due to the limited time frame when bat surveys can be completed and to avoid project delays, it is strongly recommended that the project sponsor (or involved Federal agency) contact the Service as early as possible during project planning to determine if surveys or additional avoidance and/or minimization measures will be necessary. Should Indiana bat presence be detected, the Service should be contacted immediately for further assistance in determining whether your action may adversely affect Indiana bats. If no bats are detected after protocol surveys, please submit the results to the Service as soon as possible for our review.

Conservation Measures

Conservation measures are designed to minimize the likelihood of adverse impacts or result in beneficial effects to Indiana bats from projects. The following guidance represents general recommendations that may be incorporated into the proposed project design as appropriate.

Project Siting

- Avoid removing or damaging known roosts.
- Avoid impacts to forest patches with known roosts/foraging use.
- 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.
- Maintain at least 35%⁵ of forest habitat within maternity colony home range⁶.
- Restore and/or protect on- and off-site habitat.
- Avoid impacting potential roost trees to the greatest extent practicable.
 - Retain standing live trees that have exfoliating (separated from cambium) bark and are greater than 12 inches d.b.h.
 - Retain black locust, shellbark, shagbark, and bitternut hickories as much as possible, regardless of size or condition (live, dead, or dying).
 - Retain standing snags as much as possible regardless of species.

⁴ Found at <http://www.fws.gov/midwest/Endangered/mammals/inba/index.html>.

⁵ Minimum % forest cover within Indiana bat maternity colony home range (NYSDEC unpublished data).

⁶ For explanation of how to delineate Indiana bat maternity colony home range, please see the Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects document located at <http://www.fws.gov/midwest/Endangered/mammals/inba/index.html>

Indiana Bat Project Review Fact Sheet
New York Field Office

Project Construction

- When >10 miles from a Priority 3 (P3) or Priority 4 (P4) hibernaculum or >20 miles from a Priority 1 (P1) or Priority 2 (P2) hibernaculum⁷, but within the summer range of the Indiana bat, the clearing of potential roost trees, generally ≥ 4 inches should occur from October 1 through March 31⁸.
- When <10 miles from a P3 or P4 hibernaculum or <20 miles from a P1 or P2 hibernaculum, clearing should be conducted from October 31 to March 31.
- Use bright flagging/fencing to demarcate trees to be cleared.

Project Operations/Maintenance

- Minimize lighting impacts (e.g., limit number of lights, direct lights downward, fully shield lights, use motion sensors or timers).
- Avoid use of chemicals (e.g., colorants, copper sulfate) in stormwater detention basins.

As we better understand a given proposed project, including any proposed conservation measures for Indiana bats, we may have additional recommendations. Project sponsors should seek assistance from the Service to develop these measures.

Information to Provide to the Service

The project's environmental documents should identify project activities that might result in adverse impacts to the Indiana bat or their habitat. Information on any potential impacts and the results of any recommended habitat analyses or surveys for the Indiana bat should be provided to the New York Field Office and will be used to evaluate potential impacts to the Indiana bat or their habitat, and to determine the need for further coordination or consultation pursuant to the ESA. We encourage the project sponsor to submit these materials as early in the planning process as possible to all appropriate parties (e.g., involved Federal/State agencies, NYSDEC, Service).

Specifically, the following information should be provided:

- a detailed project description,
- a map of the proposed project area with coarse vegetation cover types (e.g., emergent wetland, open field) in acres,
- a summary table of current vs. proposed future acreage of each cover type,
- provide a summary of the number and description of trees proposed for removal, or if too large to count individual trees, provide the acreage and description of the impact,
- an overlay of new construction on the vegetation map,

⁷ See Service 2007 for definitions of Priority 1-4 hibernacula. Contact the NYFO for information regarding the closest hibernaculum to your project

⁸ Site specific information may allow for deviations from the listed dates. Also, there may be cases (e.g., very small number of trees) when we believe the likelihood of impacts is low regardless of when tree removal occurs.

Indiana Bat Project Review Fact Sheet
New York Field Office

- a description of the forested area onsite, including the type of forest (e.g., oak-hickory), approximate stand age, and presence of dead or live trees with split branches or trunks or exfoliating bark,
- photographs representative of all cover types on the site and encompassing views of the entire site,
- a topographic map with the project area identified, and
- a summary of proposed conservation measures.

References:

- U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.
- Winhold, L. and A. Kurta. 2006. Aspects of Migration by the Endangered Indiana Bat, *Myotis sodalis*. Bat Research News 47:1-11.