

Four of the bat species found in Kentucky are listed under the Endangered Species Act: the Indiana bat (*Myotis sodalis*), the northern long-eared bat (*Myotis septentrionalis*), the gray bat (*Myotis grisescens*), and the Virginia big-eared bat (*Corynorhinus townsendii virginianus*). Records for Indiana bats, northern long-eared bats, and gray bats occur in all areas of the state. Consequently, these species are considered potentially present in areas in which they have not been previously documented, but where suitable habitat occurs. Virginia big-eared bat are found in a specific region of eastern Kentucky.

All four species winter in caves, underground mines, or other similar structures. Gray bats and Virginia big-eared bats also use these structures and other structures, such as rockshelters and other karst features, during the summer for roosting and forming maternity colonies. To address the potential for impacts to winter habitat for these four bat species and summer habitat for the gray bat and the Virginia big-eared bat, we recommend conducting habitat assessments to identify any caves, underground mines, or other similar structures in the action area of the proposed project. This action area typically includes a buffer around the footprint of the project. This buffer can vary in size depending on the actions associated with the proposed project. Any features identified should be assessed following the “potential winter hibernacula survey process” described in the most current “Supplemental Indiana Bat Survey Guidance for Kentucky” that can be found at: https://www.fws.gov/frankfort/indiana_bat_procedures.html. Because these species may also occasionally roost in buildings, bridges, culverts, and other human-made structures, we recommend inspecting these structures for the presence of bats or signs of bat use prior to demolition. If bats are found or suspected to be using a structure, further coordination with the Service may be necessary.

In the summer, Indiana bats and northern long-eared bats utilize a variety of forested habitats, including riparian forests, bottomlands, and uplands, for both summer foraging and roosting. Groups of females, known as maternity colonies, give birth and raise their young in roost trees. During the fall “swarming” period, these species occupy the forested habitat around the hibernacula where they mate and acquire additional fat reserves prior to hibernation. They also utilize this habitat during spring emergence before migrating to their summering areas. Suitable roost trees for Indiana bats are greater than 5 inches diameter at breast height (DBH), can be living or dead, and exhibit any of the following characteristics: exfoliating bark, broken limbs, broken tops, cracks, and crevices. Suitable roosting habitat for northern long-eared bats include habitat suitable for Indiana bats as well as trees as small as 3 inches DBH and cavities in trees. If there is forested habitat in the proposed project area, the following options may be available to address potential effects to the Indiana bat and northern long-eared bat:

- The project proponent can modify the proposed project to avoid impacts to suitable roosting and foraging habitat. A habitat assessment may be useful in determining if suitable summer roosting or foraging habitat is present in the action area of the proposed project.
- The project proponent can conduct a survey (acoustical or mist-net) to determine the presence or likely absence of the species in the project area. These surveys must be conducted by a qualified biologist with the appropriate collection permits and in accordance with our most current survey guidance. If any federally-listed bats are captured, we request written notification of such occurrence(s) and further coordination

and consultation. Surveys must be conducted during late spring to early summer between the dates specified in the survey guidance. Results from surveys are valid during the survey season in which they are collected, through the survey season the following year, until the beginning of the survey season of the next following year. Survey results are not recommended to support probable absence of a bat species in an area and during a timeframe in which presence of the species has already been documented. Survey guidance and distribution of known records can be found at:

http://www.fws.gov/frankfort/indiana_bat_procedures.html

- The project proponent can request formal section 7 consultation through the lead federal action agency associated with the proposed project. To request formal consultation, the project proponent would need to submit a Biological Assessment that describes the action and evaluates the effects of the action on the listed species in the project area. After formal consultation is initiated, the Service has 135 days to prepare a Biological Opinion that analyzes the effects of the action on the listed species and identifies actions to minimize those effects.
- The project proponent may provide the Service with additional information through the informal consultation process, prepared by a qualified biologist, that includes site-specific habitat information and a thorough effects analysis (direct, indirect, and cumulative) to support a “not likely to adversely affect” determination. The Service will review this and decide if there is enough supporting information to concur with the determination.
- Potential effects to the northern long-eared bat may be addressed under the Final 4(d) Rule that the Service published for the species on January 14, 2016. This 4(d) Rule identifies certain types of take that are prohibited and establishes specific conservation measures for tree removal activities that, if adhered to, would not result in prohibited take. If the project is in an area in which incidental take would be excepted by the Final 4(d) Rule, the “IPaC Trust Resource Report” and the “Official Species List” generated will include a condition indicating that the species would only need to be considered if the project would involve take other than incidental take. Incidental take is that which may result from, but is not the purpose of, carrying out an otherwise lawful activity. If the project is in such an area, federal action agencies can address potential impacts to the northern long-eared bat by utilizing the 4(d) Rule and provide the Service with documentation of this decision by completing the streamlined consultation framework form at: <http://www.fws.gov/midwest/endangered/mammals/nleb/S7.html>. If the IPaC report does not include a condition indicating that the species only needs to be considered if the project involves take other than incidental take, the Kentucky Field Office can provide further assistance in determining if the proposed project would be in compliance with the ESA.
- The project proponent may choose to mitigate for impacts resulting from the removal of this habitat by providing a contribution to the Imperiled Bat Conservation Fund. By choosing this option, cooperators gain flexibility with regard to the removal of suitable habitat. In exchange for this flexibility, the cooperator provides recovery-focused conservation benefits to the species through the implementation of minimization and

mitigation measures that are described in the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky found at:

http://www.fws.gov/frankfort/indiana_bat_procedures.html.

Though the behaviors between the four bat species vary, forested habitat is important to all four species for foraging and commuting purposes. Indiana bats and gray bats commonly utilize forested corridors along streams, while northern long-eared bats tend to forage more in the interior of forests, and Virginia big-eared bats along forested edges. Forest removal associated with projects can impact bat behavior by eliminating foraging areas and by rendering foraging areas unusable by severing connecting habitat. Modifying or degrading habitat to an extent that results in significant impairment of behavioral patterns could qualify as “take” under the ESA. The effects of forest habitat removal on the landscape should be evaluated for potential impacts to bat foraging and commuting behavior.

All four species of bats forage on insects. Gray bats and Indiana bats, in particular, often forage over streams, rivers, lakes, and ponds, consuming insects that spend the larval phase of the life cycle in water. These insects can be negatively affected by excessive sediment and contaminants in the water. We recommend using appropriate Best Management Practices (BMPs) to minimize impacts to the water quality within and downstream of the project area to protect these important foraging resources.

In summary, to address potential effects to federally-listed bats in Kentucky, please provide the Service with information about the following potential habitat features in the action area of the proposed project:

- caves, rockshelters, abandoned mine portals, or similar features;
- buildings, bridges, or culverts;
- forested habitat; and
- streams, rivers, lakes, ponds, or wetlands.

Please describe how the proposed project may impact these features and any measures proposed to reduce impacts.