



**Vermont Fish and Wildlife Department
Survey Procedures and Guidelines for
Endangered and Threatened Bats
Updated July 2023**

Surveys to determine the presence of threatened and endangered bat species are required where land use development projects may potentially impact these species or their habitats—particularly those requiring State permits, including Act 250 and Section 248. Threatened and Endangered bat species in Vermont are: Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), little brown bat (*Myotis lucifugus*), eastern small-footed bat (*Myotis leibii*), and tricolored bat (*Perimyotis subflavus*).

The following survey procedures and guidelines are provided to clarify what the Vermont Fish and Wildlife Department (VFWD) would consider to be valid survey methods for determining the presence or probable absence of these state- and federally-listed species.

Projects using federal funds and/or requiring a federal permit (e.g., Clean Water Act Section 404 permit) require review by the U.S. Fish and Wildlife Service (USFWS) for impacts to federally threatened and endangered species such as the Indiana bat and northern long-eared bat. As part of its review, the USFWS may also require surveys be conducted.

For the purposes of efficiency, the following survey procedures and guidelines of the VFWD are intended to satisfy survey requirements of the USFWS. Please see the latest [USFWS Range-wide Indiana bat and Northern Long-eared Bat Survey Guidelines](#), which can also be used for tricolored bat presence/probable absence surveys. The VFWD may have additional, state-specific requirements relevant to a specific project or species that is state protected but not federally protected. ***Project applicants are strongly urged to contact the USFWS and VFWD for formal endorsement of the proposed survey methods for their specific project.***

Eligible Qualified Professional Contractors

Capture and handling surveys conducted to satisfy the VFWD must be conducted by qualified professional contractors deemed eligible for a Vermont Endangered and Threatened Species Takings Permit to survey for endangered and threatened bats. Eligible contractors must meet specific criteria set forth by VFWD that are primarily based on the contractor's experience in surveying, identifying, and handling Vermont's endangered and threatened bat species. A list of eligible contractors can be provided by VFWD. Eligible contractors should apply for an Endangered and Threatened Species Takings Permit no less than 60 days prior to commencement of surveys. Professionals conducting acoustic surveys only should have demonstrated experience and expertise in this survey method and analysis for all of Vermont's bat species.

Mist-Netting and Acoustic Survey Guidelines

Landowner permission is required prior to conducting surveys. VFWD endorses the survey methods in the latest [USFWS Range-wide Indiana bat and Northern Long-eared Bat Survey Guidelines](#) for both mist-netting and acoustic surveys. See the USFWS website for the most recent version. The guidance regarding level of effort to detect presence/probable absence should be considered a minimum, and the VFWD strongly encourages contractors to enhance the sampling level when possible.

It is highly recommended that contractors contact the VFWD for a review of proposed survey procedures prior to submitting a permit application.

Data Collection

Data required during the surveys shall be recorded on data forms (hard copy or electronic) provided by the VFWD, or on other forms approved by the VFWD bat biologist prior to conducting the survey. Data requirements include, at a minimum, GPS locations of net sets (NAD 83, decimal degrees), description of net sets, weather, and species, weight, sex, age, forearm length, wing condition, and reproductive condition, and capture time of all bats captured.

Banding

Indiana, northern long-eared, and little brown bats shall be banded with bands provided by the VFWD in cases where recapture or resighting is likely. Bands may be provided upon receipt of the Endangered and Threatened Species Takings Permit or should be obtained by contacting the VFWD bat biologist. All unused bands shall be returned to the VFWD along with submission of the final report.

Photo-Documentation

All endangered and threatened bats captured during the survey shall be photo-documented using quality digital cameras. Photographs should highlight key facial features and calcars.

Collection of Genetic Samples

Some permittees may be requested by VFWD to collect one or more samples of genetic material (e.g., fecal, hair, or wing punches). This is particularly important if species identity is uncertain.

Decontamination Procedures

All permittees must fully comply with the latest USFWS White-nose Syndrome Decontamination Protocol (go to whitenosesyndrome.org for the most recent version). Permittees should review the protocol to make sure they have the necessary equipment and supplies to comply with the protocol.

Radio-transmitters on Captured Reproductive Females

Should a reproductive female Indiana or northern long-eared bat be captured during the survey, the VFWD may require the contractor to obtain, have prepared, and affix a radio transmitter (frequency range 150.00 to 152.00 MHz), or with prior approval nanotags, to

at least one animal to locate roost trees or roost structures on and off the project site. The contractor may be required to locate tagged bats at their roost trees for the life of the transmitter following capture, as well as to conduct exit counts on each new roost tree located during that period. The permittee should consult with the VFWD bat biologist prior to survey work to determine if telemetry work will be required or recommended.

Notification of Capture of Threatened and Endangered Species

Permittees must notify VFWD *within 48 hours* of the capture of a state endangered or threatened bat and USFWS of the capture of a federally endangered or threatened bat. Such notification allows VFWD and USFWS to determine whether additional investigation or monitoring of captured and released bats is warranted by either the permittee or VFWD.

Reporting Requirements

A survey report and all data must be submitted to VFWD in compliance with the State Endangered Species Takings Permit. Reports and data may be required to be provided in a digital format meeting VFWD data standards.

Further Information

For further information or to review survey procedures and guidelines, please contact:

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Threatened and Endangered Bat Permits

To apply for a Vermont Endangered and Threatened Species Permit, please contact:

Jon Kart
Wildlife Biologist & Permit Specialist
Vermont Fish and Wildlife Dept.
1 National Life Drive, Davis 2
Montpelier, VT 05620
Tel: 802-595-1810
E-mail: jon.kart@vermont.gov

Threatened & Endangered Species Takings Permit application forms can be found online at: [Threatened & Endangered Species Takings Permits](https://vtfishandwildlife.com/conservation-planning/endangered-and-threatened-species/threatened-endangered-species-takings-permits)
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