



Study Plan Form for Bat Surveys and Monitoring (v. 2.4)

PROJECT & SURVEY INFORMATION

Project Name: _____ Proposed Survey Start Date: _____

Project Proponent's Name (e.g., client/company/institution): _____

Project Location: State(s): _____ County(s): _____

Latitude: _____ Longitude: _____

REQUIRED: Attach shapefiles and/or Google Earth® KMZ files
(mapping must show project boundaries, impacted forest habitat (if known) and all proposed survey sites)

Files are attached: Yes ☐ No ☐

File link/URL (if applicable): _____

Project Summary. In the space provided below, please provide a description of the proposed action, including any activities that will permanently or temporarily alter the current environment and existing habitat features.

CONTACT INFORMATION

Project Manager/Primary Point of Contact (POC): _____ Phone: _____

Field Survey Crew Leader (if different from POC): _____ Cell Phone: _____

Institution/Company Name: _____

Mailing Address: _____

POC Email Address: _____

USFWS Sec. 10(a)(1)(A) Permit No.(s) (if applicable): _____

State Permit No.(s) (if applicable): _____

Have project proponents been informed that abiding by protective time-of-year restrictions (where available) may be sufficient to avoid take of federally listed bats and (in some cases) may negate the need for a bat survey? Yes ☐ No ☐

Have project proponents been informed that the Service does not require presence/probable absence surveys for federally listed species and that presence can be assumed in a project area containing suitable habitat? Yes ☐ No ☐

Will this survey be conducted on private or public lands? (Check both if applicable): Private ☐ Public ☐

Has permission of all necessary landowners/managing agencies been obtained? Yes ☐ No ☐

If no, explain: _____

Does this project have a federal nexus¹? Yes ☐ No ☐ Unsure ☐

If yes, explain: _____

IPaC² Consultation Code (if applicable): _____

Purpose of Survey: Official P/A Survey ☐ Research ☐ Monitoring ☐
Educational Outreach/Training ☐ Other: _____

Survey Target Species: Indiana bat (IBAT) ☐ Northern long-eared bat (NLEB) ☐
Tricolored bat (TCB) ☐ Other: _____

Has a Phase-1 Habitat Assessment* of the project area been conducted? Yes ☐ No ☐
If yes, how was the habitat assessment conducted? Field ☐ Desktop ☐ Combo ☐
(*if available, attach a written report)

Is suitable habitat³ present (or assumed present) for all “target” species? Yes ☐ No ☐

If no, explain: _____

Does this project fall within the outer-tier⁴ of any “target” species known home range? Yes ☐ No ☐ Unsure ☐

If yes, which species: _____

Project Configuration

Is this project **linear** (>1 km in total length)? Yes ☐ No ☐ Combo ☐ Unsure ☐

If yes, how many 1-km sections containing suitable IBAT/NLEB habitat will be impacted? _____

Is this project **non-linear**? Yes ☐ No ☐ Combo ☐ Unsure ☐

If yes, how many acres of suitable IBAT/NLEB habitat is in the overall project area? _____

If yes, how many acres of suitable IBAT/NLEB habitat will be directly impacted/cleared? _____

PROPOSED METHODS & SURVEY LEVEL OF EFFORT

Identify which method (acoustics, mist-netting, combination) proposed to be used: _____

Has availability of high-quality sites for target species been assessed via ground-truthing to meet the required LOE?

Yes ☐ ☐ No (If No, justify method selection): _____

¹ A project or action that is authorized, funded, and/or permitted by a federal agency.

² <https://ipac.ecosphere.fws.gov/>

³ See Appendix A of the Bat Survey Guidelines regarding suitable habitat definitions.

⁴ See Appendix G of the Bat Survey Guidelines regarding what constitutes “out-tier” of a known range.

ACOUSTICS

Total number of detector sites proposed to be surveyed: _____ Number of detector nights/site: _____

Total number of detector nights for entire survey: _____

Total proposed number of calendar nights to complete the entire survey: _____

Detector(s) (Brand, Model): _____ Microphone(s): directional ☐ omnidirectional ☐

Recording Format: Full Spectrum Zero-Crossing

FWS-Approved⁵ Acoustic Bat ID Software: **KaPro**: vers.____ Classifier, NA vers.____ **BCID** vers.____
SonoBat: vers.____ Classifier _____ Other:_____

Species to be included for automatic software ID classification analysis:

EPFU ☐ CORA ☐ COTO ☐ LABO ☐ LACI ☐ LANO ☐ LASE ☐ TABR ☐ MYCI ☐ MYEV ☐ MYGR ☐ MYLU
MYLE ☐ MYSE ☐ MYSO ☐ MYTH ☐ MYVO ☐ NYHU ☐ PESU ☐ Others:_____

Will qualitative analysis (i.e., manual vetting) be used? Yes ☐ No ☐ Unsure ☐

Name(s) of qualified biologist(s) conducting qualitative/manual identifications (attach resume or link with qualifications):

MIST-NETTING

Total number of net sites to be surveyed:_____ Total number of net nights/site: _____

Total number of net nights for entire survey (No. of sites X No. of net nights/site): _____

Total proposed number of calendar nights to complete the entire survey: _____

- A) Maximum number of net set-ups that will be operated/checked (10-min interval) on a given calendar night at a given survey site: _____
- B) Minimum Number of personnel present to operate/check X (see A) net set-ups on a given site: _____
- C) Proposed Staffing Rate (A divided by B): _____

Staffing Rate

Number of Section 10-permitted biologists per net site (or state-permitted in USFWS R5): _____

Do you propose to band bats? Yes ☐ No ☐

If yes, please answer the following:

What species will be banded? COTO ☐ MYGR ☐ MYLU ☐ MYSE ☐ MYSO ☐ PESU ☐

Others:_____ All captured bats:_____

If banding *Myotis* sp. or PESU, specify band size: _____

Describe your proposed bands (color and letter-numbers) and banding scheme: _____

Will banding pliers be used? Yes ☐ No ☐

Will any biological samples be collected from captured bats (e.g., guano, hair, swab, wing punch)? Yes ☐ No ☐

If yes, explain: _____

Name of institution or facility to conduct DNA analysis: _____

⁵ <https://www.fws.gov/media/automated-acoustic-bat-id-software-programs>

RADIO-TRACKING

Will any bats be radio-tagged and tracked? Yes ☐ No ☐

If yes, please answer following:

Which species will be radio-tagged? _____

Name of USFWS Section 10 permitted biologist(s) who will apply transmitter(s): _____

Make/model and approximate weight of transmitter(s) to be used: _____

Manufacturer date and estimated life-span of transmitters to be used: _____

Frequency range (MHz) of transmitters (e.g., 150.xxx or 172.xxx): _____

If radio-tracking multiple targeted bats/species, what criteria will be used in selecting which bats will be tracked? _____

Will all radio-tagged bats be tracked (min. of 4-hrs. search effort/day) to their diurnal roosts for the minimum recommended period of 7 days? Yes ☐ No ☐

If no, explain: _____

Will night-time foraging data/telemetry be collected? Yes ☐ No ☐

Glue used for attaching transmitters: Type: _____ Name: _____

Manufacturer: _____ Other: _____

EMERGENCE SURVEYS

After diurnal roost sites of radio-tagged bats are identified, will emergence surveys be conducted at each identified roost (assuming landowner permission is obtained)? Yes ☐ No ☐

If yes, how many emergence surveys/roost? _____

Have you identified a small number (e.g., ≤10) of potentially suitable roost trees* that you propose to conduct emergence surveys for? Yes ☐ No ☐

(*If yes, provide photographs of each tree documenting that all of the tree can be observed by the surveyor along with coordinates (lat/long and/or KML/shapefile) of all trees to be surveyed.)

POTENTIAL HIBERNACULA SURVEYS

Are you aware of any known hibernacula used by the target species within the project area itself or nearby?

Yes ☐ No ☐ Unknown ☐

If yes or unknown, list sites or explain: _____

Has your desktop analysis identified any natural or man-made features that could be used as a hibernaculum by any of the target bat species? Yes ☐ No ☐ Unknown ☐

If yes, underground features (e.g., caves, mines, tunnels, bunkers, cisterns) present: Yes ☐ No ☐

If yes, above-ground features* (e.g., crawl spaces) present: Yes ☐ No ☐

If unknown, explain: _____

Are you requesting approval of a field survey for potential hibernacula at this time? Yes* ☐ No ☐

(*If yes, attach a separate narrative explaining how the project area(s) will be surveyed for potential hibernacula.)

Are you submitting the results of a Phase 1 Habitat Assessment of potentially suitable hibernacula identified from field surveys? Yes* ☐ No ☐

(*If yes, provide a Phase 1 Habitat Assessment Data Sheet for each potential hibernaculum/portal(s)⁶ identified to be surveyed.)

⁶ If multiple cave entrances/portals, please list all locations.

BRIDGE & CULVERT ASSESSMENTS

Will any bridges or culverts be surveyed for bat presence? Yes ☐ No ☐

If yes, please answer the following:

Structure type(s) (check all that apply): Bridge ☐ Culvert ☐ Other ☐

If "other", explain: _____

Survey methodology for structure(s) (check all that apply):

Visual inspection ☐ Guano collection ☐ Emergence survey ☐ Acoustics* ☐

Mist-net* ☐ Harp-trap* ☐ Other _____

(*Due to site-specific conditions of structures, coordination with the local USFWS Field Office and appropriate state agency(ies) is necessary before proceeding with these survey methodologies)

Will guano be collected and analyzed to confirm species ID? Yes ☐ No ☐

If "yes", name of institution/entity performing analysis: _____

Acknowledgment that USFWS bats & transportation structures virtual training materials¹⁰ have been viewed: Yes ☐

ADDITIONAL SURVEY INFORMATION

Will the proposed bat survey deviate from the current version of the USFWS Survey Guidelines?⁷ Yes ☐ No ☐

If yes, provide justification for any departures or modifications to the guidelines (if applicable) below:

I hereby acknowledge that the information being provided to the Service is accurate and complete as of today's date.

Signature: _____

Date: _____

⁷ Proposed surveys deviating from the current Range-wide Bat Survey Guidelines will only be accepted with a thoroughly described justification; coordinate with your local USFWS Field Office (<https://www.fws.gov/our-facilities>) for acceptable modifications.

United States Department of the Interior

Fish and Wildlife Service



SITE-SPECIFIC AUTHORIZATION - BAT SURVEYS

Our Field Office has reviewed your study plan and found it to contain sufficient information for our approval. When signed, this statement serves as your site-specific authorization to conduct the proposed activities at the specified locations included in the attached Study Plan Form and supporting files and must be carried with your federal permit when conducting work for this project. All activities must be carried out with strict adherence to permit conditions and authorizations specified in your federal permit as well as your state permit(s) (if needed). The section 10(a)(1) (A) permit authorizing the activities (if applicable) must remain with the surveyor at all times. For proposed activities on private lands, this authorization is not valid without explicit private landowner permission.

In addition to the final survey report, please use the appropriate U.S. Fish and Wildlife Service (USFWS) bat survey data spreadsheet, available on the Range-wide Bat Survey Guidelines website⁸, for reporting live capture and acoustic survey results. To mitigate the risk of viral transmission between bats and humans (e.g., SARS-CoV-2), USFWS requests anyone directly handling or working in close proximity to bats follow current guidelines prepared by the CDC⁹ and IUCN Bat Specialist Group¹⁰ in addition to the following the standard WNS decontamination protocols¹¹.

If the work expands beyond the scope of your original study plan or if there are adverse effects to bats that were not anticipated, cease all survey and/or research activities, and contact this office prior to continuing. Additionally, if a federally listed bat is captured, this USFWS Field Office must be notified within 48 hours.

Field Office POC: _____

email: _____

phone: _____

Authorized as Proposed

Authorized with Conditions (see below)

Not Authorized. (see comments)

Signature: _____

Date: _____

⁸ <https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>

⁹ <https://www.cdc.gov/healthypets/covid-19/wildlife.html>

¹⁰ https://www.iucnbsg.org/uploads/6/5/0/9/6509077/amp_recommendations_for_researchers_final.pdf

¹¹ <https://whitenosesyndrome.org/mmedia-education/national-wns-decontamination-protocol-u-s>