

2026 RANGE-WIDE INDIANA BAT AND NORTHERN LONG-EARED BAT SURVEY GUIDELINES

FREQUENTLY ASKED QUESTIONS

(Revised 03/11/2026)

This Frequently Asked Questions (FAQs) document is intended to help address frequently asked or anticipated questions related to changes to the U.S. Fish and Wildlife Service's (USFWS) 2026 version of the Range-wide Bat Survey Guidelines. Previous versions of the Survey Guidelines FAQs (2024, 2023, 2022, and 2013) can be found here (<https://fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>). After reviewing the Bat Survey Guidelines document, those who decide to complete presence/ probable absence (P/A) surveys for Indiana bat (IBAT), northern long-eared bat (NLEB), and/or tricolored bat (TCB) should coordinate with their state's USFWS Ecological Service Field Office for any questions or clarifications that are not addressed in this or previous FAQ documents.

Automated Programs Topics

1) Can I use currently approved software identification programs to determine P/A of TCB within a project area (linear and non-linear)?

Yes. Service-approved acoustic identification programs may be used to determine P/A of TCB. However, because the Service has not formally evaluated software performance for TCB outside the Indiana bat and northern long-eared bat ranges, the use of two approved candidate programs is recommended in those areas.

In the eastern U.S., while often producing distinctive calls, identification issues for TCB are typically caused by species such as the gray bat (*Myotis grisescens*), little brown bat (*M. lucifugus*), eastern red bat (*Lasiurus borealis*) and in some cases, evening bat (*Nycticeius humeralis*). We also anticipate some TCB misidentification issues in western states where high frequency producing non-target species exist. Especially in cases where fewer pulses/shorter sequences are recorded, species such as the western red bat (*Lasiurus frantzii*), little brown bat, and western small-footed bat (*M. ciliolabrum*) may cause misidentifications in either direction (TCB labeled as one of these non-target species, and vice versa). Additionally, due to the similarity of appearance in acoustic call signatures, we anticipate poor distinction between TCB and canyon bat (*Parastrellus hesperus*) where the two species overlap in range.

For these reasons and until the Service completes formal auto-ID program tests, we recommend reviewing TCB results in more than one candidate program and with awareness of what species are likely to cause errors. When using more than one program, the Service recommends a surveyor first run the data through Software #1 and if the species is not detected at this step, then the surveyor can run the data through Software #2 to see if the result is similar. If a species is picked up at the Site-Night level and presence is assumed or visually confirmed by Software #1, there is no need to re-run the data through Software #2. Additional instructions on how to use the software are provided in the Guidelines. These instructions also apply to western state surveys for NLEB.

2) Is it acceptable for a surveyor to use a newer, untested version(s) of a USFWS-approved software program if the most recent USFWS approved species classifier(s) is used?

Wildlife Acoustics and SonoBat routinely issue updated versions of their software programs to address various user interface issues that, they state, have no impact on species classifications. The USFWS only tests a new software version if the software developer indicates that changes could affect the species

identification outcome. For these reasons, we automatically approve new versions of software provided they use previously tested classifiers in the new software version. Therefore, any Kaleidoscope Pro version since 5.4.7 that uses the approved 5.4.0 Bats of North America classifier is acceptable for use. Similarly, any SonoBat 30 versions subsequent to 30.1 (e.g. SonoBat 30.2) are acceptable if the tested and approved Regional Pack classifier is used (e.g. Regional Packs SE[c20250915]). Approved Regional Pack classifiers are provided on our [Automated Acoustic Bat ID Software Programs website](#). We will continue to test any future versions that include changes to filters, conversion processes, algorithms or databases associated with classifications (or any other software changes that could impact analysis results). As our test library improves and new data are added, the Service may also randomly test new versions of currently approved software programs.

Other Guidance Topics

3) How do changes in the Area-of-Influence (AOI) of the NLEB, existing AOI for IBAT, and new AOI for TCB relate to the use of these Guidelines?

The AOI maps within the Information for Planning and Consultation (IPaC) dashboard are used to generate an Official Species List (OSL) that includes species listed, proposed, or candidates for listing that are reasonably certain to occur in an area and for which project proponents should evaluate project impacts. A project proponent should first determine whether their project is within the AOI of the IBAT, NLEB, or TCB by generating an OSL. The AOI consists of occurrence data and models which predict where species may occur based on the presence of suitable habitat. The Guidelines may be used to confirm or reject probable absence within the AOI where no records exist, but where the AOI predicts the species may be present. Completion of surveys is voluntary and not a requirement of Section 7 consultations or Technical Assistance.

4) Why am I limited to completing surveys during only a part of the Bat Activity Period in Appendix A?

Bat activity periods reflect the broader seasonal windows during which bats may be present within a region. These timeframes support regulatory consistency, avoidance and minimization planning, and conservation measures for the target species.

Survey windows are narrower than overall activity periods and are intentionally restricted to times when resident, breeding individuals are most likely to be present and detectable. Arrival and departure dates vary annually based on climatic conditions, and migrating individuals may be present outside peak residency periods. Limiting surveys to this defined window increases confidence in presence/probable absence determinations.

5) Do you have examples for how to calculate LOE for a survey using the combo approach?

EXAMPLE #1: The construction of a new bourbon distribution center (non-linear project) in KY falls within the range of the target species according to IPaC. A Phase 1 Habitat Assessment (see Appendix A) determined that 95 acres of suitable habitat for IBAT, NLEB, and TCB would be permanently removed to construct the project. The permitted bat biologist contracted to complete the P/A survey calculated that only 35% of the project area is possible to sample with high quality mist netting set-ups. Using equation A (Proportion of Effort using mist-netting x highest mist-netting LOE for surveyed species' = Total survey LOE in nights accomplished by mist-netting), a total of 3 nights of mist-netting effort ($0.35 \times 6 = 2.1$; rounded up) are recommended for this project impacting under 123 acres of suitable habitat. Using equation B ((1 - PoE used in A, above) x highest overall species acoustic LOE prescribed = Total number of survey nights necessary to meet the recommended acoustic LOE), the proposed project would need a total of 10 nights of acoustic effort ($[1 - 0.35] \times 14 = 9.10$; rounded up) for the proposed project.

EXAMPLE #2: The construction of a new state highway (linear project) in north TX falls only within the hibernating range of TCB and outside the range of NLEB/IBAT, according to IPaC. An assessment of summer habitat determined that only 19 km of the project area contains suitable habitat for the species and will be permanently removed. The permitted bat biologist contracted to do the work was instructed to perform mist-netting (minimum linear LOE for 19 km mist-netting is 4 net nights/km = 76 net nights). Following coordination with the USFWS FO and a site assessment, only 2 km of the project footprint contained sites with high-quality mist-netting locations for TCB. Since the combination approach is necessary in TCB-only range (see p. 14 in Bat Survey Guidelines), the surveyor determined that 10% of the project could be surveyed via mist-netting; with the total combined LOE requiring 68 detector nights ($0.895 \times 76 = 68$) and 8 mist-net nights. For mist-netting, the surveyor selected 4 net sites and netted for 2 nights, for a total of 8 net nights. For acoustics, the surveyor selected 17 acoustic detector sites spaced evenly throughout the 17 km footprint not sampled with mist-nets for 4 total nights of recording (17 detector sites \times 4 nights = 68 total detector nights). In total, the surveyor had 8 net nights and 68 detector nights for the full project, for a total combined LOE of 76 sampled nights.

Tricolored Bat Topics

6) I want to conduct voluntary P/A surveys for TCB, which habitats are optimal for placing my mist-nets and/or acoustic detectors for the species?

Acoustic and mist-net surveys should be placed in habitats where TCBs are most likely to forage, commute, or otherwise be detected. TCBs use a variety of forested habitats for roosting and foraging and may also use adjacent or interspersed non-forested habitats, including emergent wetlands and the edges of agricultural fields, old fields, and pastures. The species frequently forages along forested edges of large openings, riparian corridors, streams, ponds, and other water bodies.

Unlike NLEB and IBAT, TCBs generally avoid dense, unbroken forest interiors and narrow forested road corridors. Surveyors proposing to add TCB to an IBAT and/or NLEB survey should evaluate whether selected net or detector locations are appropriate for intercepting TCBs. Additional sampling locations in habitats associated with TCB may be warranted.

7) Is there an established LOE for conducting TCB surveys in 2026?

The Service has not issued a formal, species-specific LOE for TCB because the species is not currently listed under the Endangered Species Act. However, a preliminary review conducted by USFWS and USGS indicates that the 2026 mist-net and acoustic survey LOE established for northern long-eared bats is sufficient to demonstrate P/A of TCB throughout its range. The LOE applies to survey duration and effort, not to habitat selection. Surveyors should carefully consider differences in habitat use between TCB and other species when developing site-specific survey plans.

8) Does the Service recommend mist-net surveys for TCBs in areas outside of the NLEB and/or IBAT range?

Although TCB overlaps extensively with Indiana bat and northern long-eared bat across much of the eastern United States, it also occurs in portions of the western United States characterized by open or sparsely forested landscapes (e.g., grasslands and shrublands). In these areas, mist-netting opportunities may be limited, particularly where forest corridors or accessible water features are absent. Because TCB frequently forages over open habitats and water, mist-netting alone may lead to false-negative outcomes in such settings. Therefore, surveys within TCB-only range (no range overlap with IBAT and/or NLEB) should use either the acoustic or the combination approach.