

# **2024 RANGE-WIDE INDIANA BAT AND NORTHERN LONG-EARED BAT SURVEY GUIDELINES**

## **FREQUENTLY ASKED QUESTIONS**

(Revised 03/20/2024)

This Frequently Asked Questions (FAQs) document is intended to help address questions related to changes to the U.S. Fish and Wildlife Service's (USFWS) 2024 version of the range-wide bat survey guidelines. Previous versions of the survey guidelines FAQs (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 Guidelines document, those who opt to complete surveys should coordinate with their state's Ecological Services Field Office for any questions or clarifications that are not addressed in this FAQ document.

### **1. How does the listing reclassification status of the NLEB from threatened to endangered change the considerations regarding completing presence/probable absence surveys?**

The USFWS published the final listing rule to reclassify the NLEB as endangered on November 30, 2022, and the final rule went into effect on March 31, 2023. The Interim Consultation Framework went into place in spring of 2023 and will be available for ongoing and new projects that meet the same conservation measures included in the 4(d) rule until final tools for the NLEB are released. However, for proposed or ongoing project activities occurring in the NLEB's current range (see [NLEB website](#) for current range) that will not be completed prior to the expiration of the Interim Framework, we recommend that project proponents discuss with field office(s) if surveys may be prudent to avoid potential delays to their project timelines. As always, it is best to coordinate with the appropriate field office(s) for further direction prior to conducting surveys.

### **2. Is there an established LOE for conducting tricolored bat (TCB) surveys in 2024?**

The 2024 range-wide bat survey guideline protocols may be used for TCB presence/probable absence surveys using the NLEB level of effort (LOE) for the 2024 field season. We collected preliminary data from these datasets to complete an initial evaluation of LOE for TCB to ensure that deferring to the NLEB LOE for 2024 was acceptable. The unique factors and differences from NLEB protocols include:

- The definition of suitable summer habitat for TCB (Appendix A);
- Acoustic or combination acoustic and mist-netting surveys are required for TCB when it is the only species (IPaC species list includes TCB but not IBAT or NLEB) being surveyed for P/A (Appendix C or I);
- Manual vetting is necessary for linear projects when using an approved version of Kaleidoscope Pro if the MLE is  $>0.05$  for all site-nights and 10 or more passes are

auto-classified as potentially belonging to TCB at any site-night. If you choose not to manually vet calls meeting these criteria, then you should assume presence of TCB for the project (Appendix C or I);

- Radio-tracking of TCB should prioritize identification of the immediate roosting area (if the exact roost locations cannot be determined) of the transmitted bat given the frequent difficulty in locating the bats' exact roosting location (Appendix D);
- Emergence surveys of potentially suitable (versus known) roost trees for TCB is not always a viable option given the variability in roosting locations (Appendix E); and
- Internal surveys of potentially suitable hibernacula may be completed for TCB (Appendix H).

**3. When can P/A surveys be conducted in the year-round active range of NLEB and/or TCB?**

In the year-round active portion of the NLEB and/or TCB range, the Service will now accept captures and/or acoustic detections of NLEB and/or TCBs collected March 1 – October 15 in 2024 and treat them the same as traditional summer records. While NLEBs and/or TCBs may be captured in every month of the year in occupied habitat within this region, fall/early winter is not an optimal time to conduct surveys because of lower and inconsistent temperatures as well as reduced availability of insect prey.

**4. Can I mist-net for TCBs in areas outside of the NLEB and/or IBAT range?**

The ranges of TCB, NLEB, and IBAT overlap considerably across the eastern United States (Appendix L, Figure 16), and all three species can be found cohabitating together. However, TCBs also occur in portions of the western U.S. (e.g., Texas, Colorado, New Mexico, etc.) that are dominated by forest limited landscapes, such as grasslands. Therefore, suitable areas for mist-net deployment (Appendix B) may be limited and/or not available. Additionally, TCB frequently fly over water and open, tree-less areas (e.g., grasslands/shrublands) and may be difficult to capture in such habitats. As such, surveyors opting to conduct mist-netting as a P/A survey option for areas with only TCB must use the Combined Acoustic and Mist-netting Approach (Appendix I).

**5. Can I use currently approved software identification programs to determine presence/probable absence of TCB within a project area (linear and non-linear)?**

At this time, BCID can be used to assess presence/probable absence for TCB for both linear and non-linear projects. An approved version of Kaleidoscope Pro may also be used but will require manual review for linear projects in certain situations. In both situations, the 2024 NLEB acoustic LOE must have been used to assess TCB acoustic P/A.

If either program provides an MLE  $< 0.05$  for TCB at the site-night level, presence can be assumed for the site or files can be manually vetted to confirm presence. For linear projects with lower LOE requirements, Kaleidoscope Pro has repeatedly provided MLE values  $> 0.05$  (false negatives) in Missouri despite manual verification that the species is present. This is particularly an issue when other high-frequency bats, such as the eastern red bat and gray bat, are present in abundance and only a few TCB sequences are recorded. Manual vetting is necessary for linear projects if the MLE is  $> 0.05$  for all site-nights and 10 or more passes are auto-classified as potentially belonging to TCB at any site-night. For example, if Kaleidoscope Pro indicates an MLE of 0.35 for a site-night for TCB, but there are potentially 13 TCB calls at that individual site-night, manual vetting of that site-night would be necessary. An alternative to this approach is for the project proponent to assume presence of TCB for the project based on having 10 or more TCB passes identified by a USFWS approved version of Kaleidoscope Pro.

**6. Is there a difference in analyzing acoustic survey data in the western portions of the NLEB and TCB ranges (Figure 1 and Figure 2)?**

Currently, there are no automated acoustic ID software programs approved for use in the portion of the NLEB range that overlaps with acoustically similar western species, and the same is true for TCB. The USFWS ensures accuracy of automated acoustic bat ID software programs by testing them against an independent acoustic call library (i.e., master test library or MTL) of known zero-crossing (ZC) and full-spectrum (FS) calls of all Eastern U.S. bat species whose ranges overlap with the IBAT and/or NLEB.<sup>1</sup> While the ZC and FS MTLs are capable of testing software for eastern bats, we have identified some portions of the NLEB range where the species overlaps with western bat species (Figure 1). Similarly, there are portions of the TCB range that also overlaps with western bat species (Figure 2). Figure 2 has been updated for 2024 based on recent data from states. A KMZ file<sup>2</sup> will be available from USFWS Field Offices to assist project proponents in identifying whether their project is in or out of these zones. Until the USFWS is able to test the accuracy of submitted acoustic ID software programs for use in the far western portion of the NLEB range (i.e., western species are incorporated into both the ZC and FS MTLs), we are relying on the use of two or more of the currently available software programs (approved and candidate)<sup>2</sup> in these locations to inform presence/ probable absence for NLEB and TCB.

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<sup>1</sup> The USFWS's standards and testing criteria are available online ([Testing Procedures, Performance Criteria and Approval Process for Automated Acoustic Bat ID Software](#)).

<sup>2</sup> A KMZ file is a zip-compressed .KML file that stores map locations viewable in various geographic information systems (GIS) applications, most notably Google Earth.

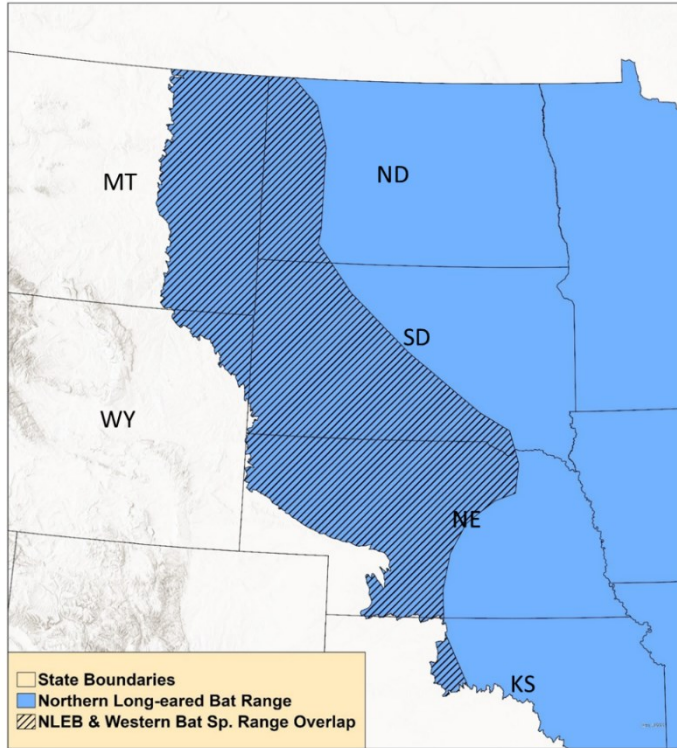


Figure 1. Portion of NLEB range overlapping with western bat species.

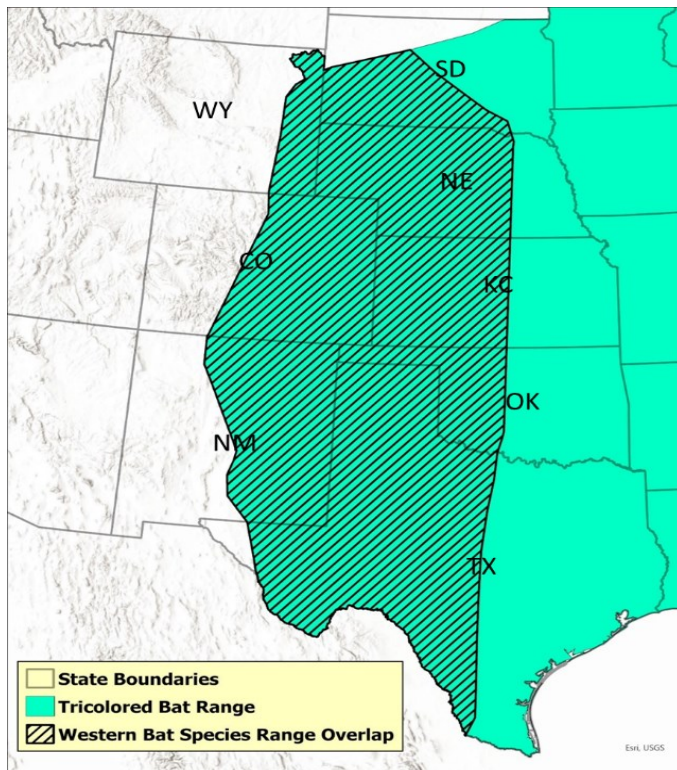


Figure 2. Portion of TCB range anticipated to overlap with western bat species.

**7. Is it acceptable to use a newer untested software version of Kaleidoscope Pro if it uses the most recent USFWS approved classifier?**

Wildlife Acoustics routinely issues new updated versions of Kaleidoscope Pro to address various user interface issues that, they state, have no impact on the algorithms or databases used in species classification. The USFWS/USGS only test a new Kaleidoscope Pro version if there has been a change in coding or an update to the classifier that could change the species identification outcomes. We have sparingly tested new software versions using the same classifier and confirmed that both versions produced identical species identification results. We do not have the capacity to test every new version of software.

For these reasons, we will automatically approve new versions of Kaleidoscope Pro provided that they use the same classifier from the most recently tested and approved version. In other words, we are retroactively approving all Kaleidoscope Pro versions issued subsequent to version 5.4.7 that use the 5.4.0 Bats of North America classifier. 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). Wildlife Acoustics has committed to submitting those for testing. We will also continue to randomly test new versions of KPro that are not submitted for specific testing (i.e., versions that do still use tested/approved classifiers) and will notify Wildlife Acoustics if a new version (starting with v. 5.6.3) does not pass a random test.

**8. What labs are available to submit genetic samples (guano, hair, etc..) to for species identification?**

DNA barcoding, or the identification of species from DNA samples, can be completed in established DNA sequencing facilities capable of generating data to manufacturers specifications in terms of quality and yield and is not limited to USFWS facilities (e.g., the “Species from Feces” lab at Northern Arizona University). Sequencing facilities capable of bi-directional sanger sequencing of selected mitochondrial genes such as cytochrome c oxidase subunit I (COI) are among the most common for species identification considering degraded nature of many of these types of samples; however next-generation sequencing or multifaceted DNA metabarcoding may be suitable in some studies. Optimal sequencing requirements may vary based on study site and sample quality, please coordinate with your state’s Field Office for further assistance in determining local requirements for species identification from DNA.

**9. How should I go about surveying for TCB in 2024 if my project occurs in Florida and overlaps with the range of the endangered Florida bonneted bat?**

Before coordinating with the USFWS Florida Ecological Services Field Office (FLES) on survey plan development, project proponents should submit their project through the Information for Planning and Consultation (IPaC) website (<https://ipac.ecosphere.fws.gov/>) and obtain an official species list. If TCB is the only bat species on the list, then surveyors should follow the Range-wide Indiana Bat and

Northern Long-eared Bat Survey Guidelines to determine presence/ probable absence of TCBs for the proposed action. If the Florida bonneted bat (FBB) is the only bat species on the IPaC list, then surveyors should follow the Florida Bonneted Bat Survey protocols (<https://www.nabatmonitoring.org/fbb>). Figure 3 below is provided to assist project proponents and surveyors by identifying potential ranges for TCBs and FBBs as well as where the species' ranges overlap within Florida.

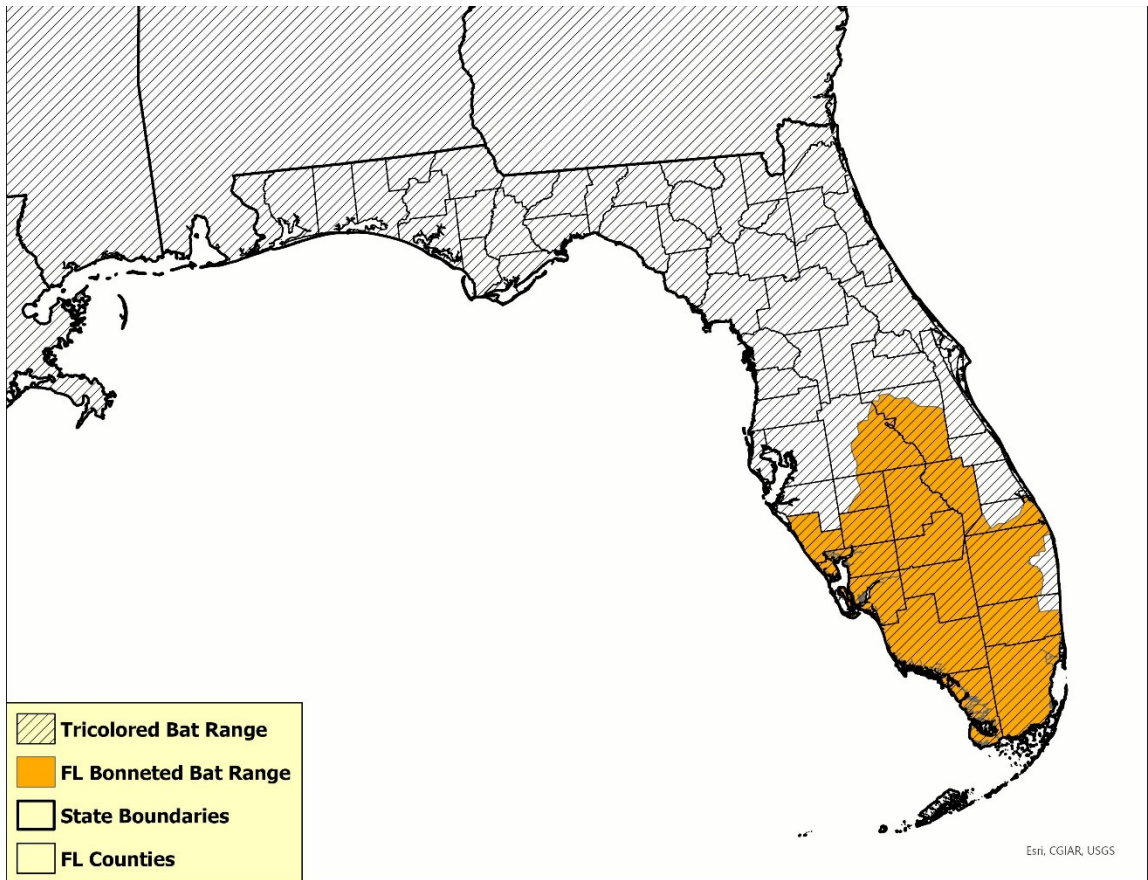


Figure 3. Potential TCB and FBB ranges in Florida.

If the IPaC species list includes both TCB and FBB, it may be acceptable to complete a single survey for both species if the surveyor conducts an acoustic survey. The FLES requires that only acoustic survey methods be used for FBBs because of the methods effectiveness in determining presence/probable absence. Surveyors must also use the more rigorous of the two USFWS approved survey protocols listed above based on the use of the most current year's approved survey guidelines. This will ensure that the LOE is adequate to confidently determine presence/probable absence within the proposed project area. Please coordinate with the FLES to determine which survey protocol should be used.

**10. I want to conduct a P/A survey for TCB, which habitats are optimal for placing my mist-nets and/or acoustic detectors for the species?**

Acoustic and mist-net surveys should target areas TCB forage and are likely to be

intercepted. TCB use a wide variety of forested/wooded habitats where they roost, forage, and travel and may include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures. TCBs prefer foraging along forested edges of larger forest openings, along edges of riparian areas, and over water. Unlike NLEB, TCB avoid foraging in dense, unbroken forests, and narrow road cuts through forests. Therefore, surveyors should consider differences between species foraging preferences and make sure a variety of habitats are covered in surveys assessing presence for multiple species.

**11. 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 that are 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. This guidance is designed to determine whether IBAT or NLEB (or TCB in 2024) are present and may be applied to those projects for which any of these species are included in the OSL to determine presence or probable absence. The individual appendices of this guidance may be applied as appropriate based on the specifics of the project.