2013 Indiana Bat Summer Survey Guidance Overview

(29 April 2013)

BACKGROUND

In 2011, the U.S. Fish and Wildlife Service (USFWS) developed a multi-agency team to consider and propose improvements to the 2007 Indiana Bat Mist-Netting Guidelines for conducting presence/probable absence (P/A) surveys for Indiana bats (*Myotis sodalis*). While the Survey Guidance Team originally envisioned issuing range-wide survey guidelines, changes in Indiana bat abundance and associated detection probabilities indicated that some regional differences in the 2013 survey guidelines were warranted. In 2013, the USFWS's Northeast Region (Region 5) will recommend a much higher level of mist netting (24 net nights/123 acres) than the Midwest (Region 3), Southeast (Region 4), and Southwest (Region 2) regions. The Midwest, Southeast, and Southwest regions will continue to accept 4 net nights/123 acres in 2013, which is the standard 2007 guidance level of effort for mist netting. This regional difference in minimum level of survey effort for mist netting is due to reductions in winter and summer Indiana bat populations in the Northeast associated with White-nose Syndrome (WNS), which have not yet been observed in the Midwest, Southeast, and Southwest.

As you may recall, the public-review version of the survey guidelines that was announced in the Federal Register in January 2013 did not include mist netting as an option in the presence/ absence phase. In our response to public comments received, the team analyzed available data sets and looked to the published literature for survey detection probabilities using netting and acoustic methods. We then compared detection probabilities for a given survey effort to determine an appropriate minimum level of survey effort. The Northeast region is using these calculated detection probabilities to justify their change to 24 net nights of survey effort.

A step-by-step outline of how Indiana bat summer surveys should be conducted in 2013 is provided below. A more comprehensive guidance document for the 2013 survey season will be posted on the USFWS's Indiana Bat Summer Survey Guidance website[1] as soon as possible and before the beginning of the 2013 survey season. Some of these steps below can occur concurrently. Project proponents may also stop at any step after completing the Initial Project Screening (Phase 1), assume presence of Indiana bats, and coordinate with the appropriate USFWS Field Office (FO). Finally, Indiana bat surveys for some proposed projects may require modification (or clarification) of this guidance through coordination with the USFWS FO(s) responsible for the state(s) in which the project occurs[2]

[1] http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html

[2] For example, project sponsors for large acreage and/or landscape-scale projects that do not result in permanent habitat loss and would not pose an ongoing threat of lethal take, especially those proposed by land management agencies, may work with local USFWS FOs to apply different scales of surveys (broad vs. project-level) or different types of surveys, such as long-term monitoring results (e.g., forest-wide acoustic transect data) and/or targeted survey efforts (e.g., sub-sampling of large project areas), to address presence/absence concerns.

PHASE 1 – INITIAL PROJECT SCREENING

Step 1. Coordinate with the U.S. Fish and Wildlife Service Field Office(s)[3] regarding existing Indiana bat summer occurrence information.
[*Projects located within known Indiana bat summer habitat will not proceed to Phase 2 of this process.*]

a) If a project (located within or outside of a known maternity colony home range) is already covered under an existing Endangered Species Act (ESA) incidental take authorization (e.g., HCP, BO), then no further summer surveys are needed, follow the procedures previously authorized by the USFWS FO(s).

b) If there are known Indiana bat summer occurrences (e.g., known roost trees, capture locations, foraging locations) within the project action area[4]; **OR**

if there are no known Indiana bat summer occurrences within the proposed project area itself, but the project area is located within a known maternity colony home range[5]; **OR**

if the project is located outside a known maternity colony home range, but is within the range of the Indiana bat (note this can change over time), then proceed to Step 2.

Step 2. Conduct Habitat Assessment (Desktop or Field-based).

a) If suitable summer habitat is present within the action area, then proceed to Step 3.

b) If suitable summer habitat is absent within the action area, then no further summer surveys are necessary; however, additional coordination with the USFWS FO(s) will be necessary if Indiana bats may be present during any other season and may be affected by the proposed project.

Step 3. Assess potential for adverse effects to Indiana bats.

a) If the project is not anticipated to result in adverse effects to Indiana bats (as proposed), then no further summer surveys are necessary, coordinate with the USFWS FO(s).

b) If the project may result in adverse effects to Indiana bats but the impacts can be adequately assessed and conservation measures can be designed to minimize those

[3] Coordination should also be done with the appropriate state natural resource agencies and any involved Federal Action agencies whenever "USFWS" coordination is listed. USFWS FO(s) may direct project sponsors to state agencies for existing occurrence information. Coordinate with your local USFWS FO(s) to understand the process for their area of jurisdiction.
[4] The "action area" is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. [50 CFR Section 402.02]
[5] See USFWS Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects (Questions 4 & 5) http://www.fws.gov/midwest/endangered/mammals/inba/WindEnergyGuidance.html

effects without additional presence/absence information (this includes **all** proposed projects within known maternity colony home ranges, but may include other areas as well), then no further summer surveys are necessary, coordinate with the USFWS FO(s) regarding an assessment of the project's potential effects, development of conservation measures, and determination of the need for any ESA incidental take authorization.

c) If the project does not meet the conditions of 3a or 3b, then proceed to **Phase 2**.

PHASE 2 - PRESENCE/ABSENCE SURVEYS (NETTING OR ACOUSTIC SURVEYS)

During the summer of 2013, presence/probable absence of Indiana bats may be determined by conducting either Step 4 (mist-netting) or Step 5 (acoustics) as outlined below. It is the project proponent's choice as to which option to use. The summer survey season is from 15 May through 15 August for either survey option. If netting is chosen as the preferred P/A method and an Indiana bat(s) is captured, then surveyors may immediately begin Phase 4/radio-tracking. Project proponents must decide whether they will proceed to Phase 4 in coordination with the USFWS FO before any mist netting occurs.

Step 4. Conduct Mist-Netting Surveys following Regionally-based protocols[6]

Northeast Region[7] of the USFWS (CT, DE, MA, MD, NJ, NY, PA, WV, VA, VT):

Linear projects: a minimum of 6 net nights per km of suitable summer habitat.

Non-linear projects: a minimum of 24 net nights per 123 acres of suitable summer habitat.

- 6 sites, 2 nets/site for 2 calendar nights = 24 net nights
- 4 sites, 2 nets/site for 3 calendar nights = 24 net nights
- 3 sites, 2 nets/site for 4 calendar nights = 24 net nights

Maximum of 3 nights of consecutive netting at any given net location. After 3 consecutive nights of netting at the same location, you must change net locations or wait at least 2 calendar nights before resuming netting at the same location.

a) If no capture of Indiana bats, then no further summer surveys are necessary[8].
b) If capture of Indiana bat(s), then stop or proceed to **Phase 4** as previously decided in coordination with the FO.

[6] The Indiana bat populations in the Northeast Region have been most heavily impacted by white-nose syndrome; therefore, we recommend higher survey effort when compared to the Midwest, Southeast, and Southwest Regions.
[7] Map available here http://www.fws.gov/where/
[8] NOTE: For Phase 2 Presence/Absence Surveys, wherever the phrase "no further summer surveys are necessary" occurs within this document, the USFWS FO(s) is in affect assuming probable absence of Indiana bats.

Midwest (IL, IN, IA, MI, MO and OH,), Southeast (KY, TN, NC, GA, AL, MS, and AR), and Southwest (OK) USFWS Regions:

During the summer of 2013, the Midwest, Southeast and Southwest Regions will continue to accept results from surveys following our current Indiana Bat Mist-Netting Guidelines[9] for this phase. However, we encourage project sponsors to work closely with our local field offices to determine whether the addition of acoustic methods is recommended (as has been the case for several years by some field offices).

Linear projects: a minimum of 4 net nights per km of suitable summer habitat.

Non-linear projects: a minimum of 4 net nights per 123 acres of suitable summer habitat.

- 1 site, 2 nets/site for 2 calendar nights = 4 net nights

a) If no capture of Indiana bats, then no further summer surveys are necessary.
b) If capture of Indiana bat(s), then stop or proceed to **Phase 4** as previously decided in coordination with the FO.

OR

Step 5. Conduct Acoustic Surveys[10]

Linear projects: a minimum of 2 detector nights per km of suitable summer habitat.

Non-linear projects: a minimum of 6 detector nights per 123 acres of suitable summer habitat.

3 or more detector locations per 123 acre "site" shall be sampled until at least 6 detector nights has been completed over the course of at least 2 calendar nights (may be consecutive).

- 3 detectors for 2 nights each (can sample the same location or move within the site)
- 2 detectors for 3 nights each (must sample at least 3 locations)
- 1 detector for 6 nights (must sample at least 3 locations)

[9] See Appendix 5 in USFWS. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision, U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp. Available online http://www.fws.gov/midwest/endangered/mammals/inba/inba_drftrecpln16ap07.html.

[10] Acoustic surveys are available as a Presence/Absence option throughout the range (i.e., Northeast, Midwest, Southeast, and Southwest Regions).

a) Optional coarse screening - for high frequency (HF) or myotid calls (depending on available filters) or Proceed to Step 6

ii) If no positive detection of HF calls (≥35 kHz) or myotid calls, no further summer surveys necessary.

iii) If positive detection of HF or myotid calls, then
(a) proceed to Step 6 for further acoustic analysis; **OR**
(b) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
(c) assume presence and proceed to **Phase 3**.

Step 6. Conduct Additional Acoustic Analyses for each site that had HF or Myotid calls from Step 5a or ALL sites if Step 5a was not conducted.

Two or more of the currently available 'candidate' acoustic bat ID programs (i.e., BCID, EchoClass, Kaleidoscope Pro and SonoBat) must be used. Beginning with acoustic data from night one at each acoustic site, run each night's data for each site through a minimum of two candidate acoustic ID programs. Review results by night and site from each acoustic ID program used and flag each file indicating a positive probable detection of Indiana bats.

a) If no detections of probable Indiana bats by any candidate programs used in analysis, then no further summer surveys necessary.

b) If detections of probable Indiana bats[11] by any candidate programs used in analysis, then
i) proceed to Step 7 for qualitative ID; **OR**
ii) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
iii) assume presence and proceed to **Phase 3**.

Step 7. Conduct Qualitative Analysis[12] of probable Indiana bat calls from Step 6.

Qualitative analysis[13] must also include a comparison of the results of each acoustic ID program by site and night (including: number of call files flagged as probable Indiana

[11] Further guidance regarding minimum detections (e.g., % of probable Indiana bats/myotids on a given night at a given site) is forthcoming.

[12] Individuals qualified to conduct qualitative analysis of acoustic bat calls must have experience: (1) gathering known calls. This provides a valuable resource in understanding how bat calls change and the variation present in them; (2) identifying bats in various bat communities; (3) recording and identifying calls recorded in numerous habitat types; and (4) individuals must have multiple years of experience and must have stayed current with qualitative ID skills. A resume (or similar documentation) will be required to be submitted along with final survey reports for anyone making final qualitative identifications.

[13] Qualitative analysis of each acoustic site and night with probable detections of Indiana bats during Step 6 must include the entire night's call data and not just those files making it through the acoustic analysis tools as probable Indiana bats in Step 6.

bats by each tool used; an evaluation of other species identified by the acoustic ID program; individual file level agreements and disagreements on Indiana bats between programs; and a qualitative analysis of ALL probable Indiana bat call sequences to further evaluate that the correct ID has been recommended by the program used).

a) If no visual confirmation of probable Indiana bats, then no further summer surveys necessary.

b) If visual confirmation of probable Indiana bats, then

   i) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
   ii) assume presence and proceed to **Phase 3**.

PHASE 3. CONDUCT MIST-NETTING SURVEYS TO CAPTURE INDIANA BATS.

If netting was not conducted as the P/A method, then netting may be conducted in Phase 3 to capture and characterize (e.g., sex, age, reproductive condition) the Indiana bats that are present in an area and to facilitate Phase 4 efforts. We encourage working with the FOs to develop Phase 3 netting plans based on best available information (e.g., positive acoustic locations). There are no minimum requirements for this phase as this is not a P/A phase.

a) If no Indiana bats are captured, then coordinate with the USFWS FO.

b) If Indiana bats are captured, then proceed to **Phase 4**.

PHASE 4. CONDUCT RADIO-TRACKING AND EMERGENCE SURVEYS.