



Indiana Bat Summer Survey Guidelines (comments)

Cynthia Hauser <cindy.hauser@gmail.com>

Sun, Mar 10, 2013 at 6:53 PM

To: indiana_bat@fws.gov, andrew_king@fws.gov, robyn_niver@fws.gov

COMMENTS ON THE JANUARY 2013 DRAFT REVISED RANGEWIDE INDIANA BAT SUMMER SURVEY GUIDELINES

Thank you for providing the opportunity to review and comment on the proposed 2013 Indiana Bat Protocol. At the heart of the scheduled revisions to survey protocols is the acknowledgement that new information and technologies and changes in environmental factors necessitate updates to survey methods by which to best establish presence and protect the species. As these changes occur, we must evolve our efforts. I am a Qualified Indiana Bat Surveyor in Pennsylvania, I have also been approved for the federal permit, I have experience working with bats while employed by Cal Butchkoski and Greg Turner of the PA Game Commission, as well as, experience assisting with a variety of White Nose Syndrome research efforts. I have provided my comments in three sections: Textual Clarity, Practical Concerns, and Call Identification and Software Concerns. I hope that you will find my questions, and comments useful as you continue to modify this draft.

TEXTUAL CLARITY

One of the problems with the new draft protocol as of this writing is that it is not written in a concise, easy to read manner. The protocol is long and congested with repetitive information. The section on the 'General Process' seems in part to be a justification for the revisions. Perhaps the justifications could have its own dedicated section to unburden the actual protocol from repetitive explanations. It is also confusing to see the protocol divided into appendixes. I might expect to see information such as examples of forms, tables of mist-net vs. acoustic data, diagrams of how to use buffer circles, approved equipment, and examples of acoustic/net set-ups in an appendix, not actual portions of the protocol itself. With a document this long it might also be helpful to included a table of contents. It would be useful to state definitions of often used terms so that there is no need to repeatedly define those terms throughout the text. For example the title "qualified biologist" is defined four times within the text (possibly due to the appendix structure). Also, an additional usage which states "*A qualified biologist who is experienced in handling Indiana bats and attaching radio transmitters must perform transmitter attachments,*" implies that this ability to handle Indiana bats and to attach transmitters is not required to be a qualified biologist in the first place. Furthermore, some wording is awkward and confusing. One example is: "*(b) in areas without, or with minimal, vegetation within 33 feet (10 meters) in front of the microphone; (c) orient detectors parallel when sampling woodland edges*". In 'b', this would be much easier to read and less confusing if it stated "with minimal to no vegetation within...", and in 'c', it is unclear what the detector is to be parallel to: Should the detector be parallel to the forest edge, to the ground? The text should be easy to interpret by anyone, not just those who have experience with acoustic set-ups. The protocol would be easier to follow and understand with some improvements in sentence structure and overall organization of the document. It would be nice to see a definitions section, a justifications section, the protocol, and then in the appendix the additional explanations, charts, examples, and such information that may be useful for clarifications and implementation.

PRACTICAL CONCERNS

- Who conducts acoustic surveys

"Acoustic surveyors must have a working knowledge of the acoustic equipment, analysis tools, and Indiana bat ecology."

"18. Are current federal permit holders considered "qualified" to conduct acoustic surveys? Yes. Current federal permit holders are considered qualified to conduct acoustic surveys due to their direct knowledge and experience working with Indiana bats. However, federal Section 10A(1)(a) permits are not required to conduct acoustic surveys because no take, as defined by the ESA, is expected to occur. The Service may develop a standardized training/certification process covering the various bat survey and identification techniques in the future." (from the FAQ)

Will project proponents need to show that their acoustic surveys are to be and have been conducted by qualified individuals? How will you enforce this since a permit is not required to do the acoustic portion of this protocol? Changing the preliminary assumption regarding net requirements might be a way to ensure that surveys are conducted by qualified individuals. The protocol could be re-written so that project proponents who do not assume presence are required to proceed to the netting phase where a permit is required to conduct surveys. Then a provision could be given for optional acoustic surveys to be conducted by the permittee which could reduce or even eliminate the total netting requirement as described in the current draft. This would then ensure that the surveys are conducted by those individuals who are considered by state and federal agencies to be qualified bat biologists/ecologists. Given the option to net 20 sites per 30 acres or to eliminate most if not all netting, most projects would likely choose the acoustic option as the most economical path. This would satisfy the goals of both the project proponent as well as the goal for the protocol to use the best methods available to determine presence and protect this species.

- Assessment/summary of weather conditions

"At a minimum, nightly weather conditions for survey sites should be checked using the nearest NOAA National Weather Service station and summarized in the survey reports."

A NOAA service station can give a general sense of the weather, but it does not represent the on-site conditions. The weather conditions at the top of a ridge can be very different than the weather conditions in a valley. Storms can train over a small area, and cold temperatures sink into the valley on calm nights; winds build speed crossing lakes or are active aloft on ridge-tops, while valley or forested sites may only register a light breeze. How important is it to you for surveys to be conducted within the stated weather parameters? I understand that use of NOAA weather stations is stated as a minimum expectation, but perhaps it is a minimum that is better left unstated. If you just say that "nightly weather conditions for survey site should be summarized in the survey reports", then while a few people may use the NOAA, or use it as a back up in the event of say a broken thermometer, most will likely use more accurate methods. Certainly, NOAA is a method by which the FWS could compare the collected data, but in my experience, current standard practice is to take along thermometer, and personally assess weather on site throughout the night. A weather recording instrument, such as the kestrel, could be an option for those surveyors who want to set up acoustic sites and leave them unattended until morning. In fact, it might be a good idea to recommend in the protocol that surveyors use an onsite method for monitoring the weather. If NOAA data will be accepted as a minimum, then simply don't make onsite methods a requirement, just a recommendation.

- Detector deployment

" all sampling to be conducted for at least six suitable nights. To reduce the survey duration, additional detectors may be added at individual survey sites accordingly: 5 nights for 2 detectors per site, 4 nights for 3 detectors per site, and 3 nights for 4 detectors per site"

This adds up to 6, 10, 12 and 12 detector nights per site respectively, which seems reasonable. Do additional detectors at a site need to be deployed in slightly different locations/directions near the same point, deployed within a region such as a sq. kilometer along a linear line, or are they to be deployed

together with same location and directionality?

- Problems with the calculation for net-nights per buffer

"3. For each buffer circle identified, mist-netting, distributed throughout suitable habitat near positive acoustic sites, should be conducted using the following schedule (overlapping buffer circles do not affect the minimum number of net nights recommended):

- a. 1 positive acoustic site within a buffer circle = 10 net nights*
- b. 2 positive acoustic sites within a buffer circle = 14 net nights*
- c. 3 positive acoustic sites within a buffer circle = 18 net nights*
- d. 4+ positive acoustic sites within a buffer circle = 20 net nights"*

The calculation of net-nights should be reversed, or better yet, done away with. If you have four Indiana bat acoustic sites within a 1 mile radius, the likelihood of capturing an Indiana bat within that buffer is higher than it is in a one mile radius with only one positive site. I looked at the FAQ for this, and I understand the reasoning behind the calculation. According to the FAQ, the logic is that there is ultimately less effort expended per positive acoustic site. However, regardless of the number of sites, you are still sampling within a one mile radius. The sampling density (net nights per square mile) increases along with the increase in acoustic positive sites. So, using the calculation method in the protocol, we are to put less effort/sq mile into capturing the Indiana bats in the areas with an apparent lower population density, and more effort for the areas with the greater population density. Given the findings presented by Carl Anderson during NEBWG that it takes 40-50 net-nights to capture an Indiana bat in locations with a known Indiana bat population, the use of this calculation seems irrelevant. All buffers should contain a minimum of 20 net nights, and even then the chance of an Indiana bat capture is still only near 50% in the best locations. Changing to a single standard effort per buffer would also drastically simplify the protocol and its implementation. All positive sites would still be utilized for the final buffer boundaries, and for any appropriate conservation planning. However, with the expectation that with a single positive site, 20 net nights will occur, surveyors and clients can immediately begin preparations to allocate the necessary resources for the next phase. The calculation to determine net nights per buffer, makes the protocol more complex than it needs to be.

- Relevance of bat information

"information on all bats captured during the survey including, but not limited to: capture site, height of capture in net, date of capture, time of capture, sex, reproductive condition, age, weight, right forearm measurement, band number and type (if applicable), and Reichard's wing damage index score"

As we process bats, it is important that the information we collect has purpose. In my experience while working for the Pennsylvania Game Commission, I have observed that the height of capture in net is information that is no-longer used by the state agency for any analytic purpose. Is capture height used by the FWS for any purpose? I believe it was originally used to help identify parameters for net sizes and placement. Since the new protocol states that net size is not relevant as long as nets are set to best fill the flyways, then what is the point of collecting capture height data? Also, is assessment of wing damage index scores in the summer still being utilized for any research? Are the Reichard's wing scores useful at all now that WNS wing damage is better assessed using UV light? Is there sufficient reason to subject all bats to this extra handling? Could we instead be required to check off healthy/not healthy, and if not healthy, comment on signs of injury or disease which might also include a wing score assessment? This would limit the added stress caused to bats by longer processing times and exposure to lights. A healthy/not healthy check box could also help identify emergent disease concerns, as it would be simple to query the checked boxes to identify regions of possibly unhealthy bat populations. Information that is no longer relevant should be eliminated from the data collection requirements, to reduce handling time for bat processing.

- Species verification

"Photographs of all net set-ups, as well as all Indiana bats and the first 10 little brown bats captured from each project, so that the placement of netting equipment and identification of species can be verified."

This doesn't address the potential for mis-identification of Indiana bats as other myotis. It would be good to extend this to require photographs of at least one bat per species captured, and photographs of the first ten identified as any myotis species in addition to photos of all *M. sodalis*.

CALL IDENTIFICATION AND SOFTWARE CONCERNS

The overall intent of the new protocol is a forward looking goal which seeks to utilize the best tools at hand to protect the Indiana bat. I believe that everyone can agree that the desire to include acoustic monitoring as a survey tool is mutual, and that it will be beneficial to the species. Unfortunately, we do not yet have a consistent, reliable method to analyze the acoustic data that we collect. The recent attempts to develop call analysis software are important advances in technology, and when software is found to be sufficient for distinguishing Indiana bat calls from other bat calls, it should be incorporated into the the Indiana bat survey protocol. However, it appears that it will take at least another summer of testing, possibly longer for any software to reach an approval stage.

Project proponents, bat ecologists, and government agencies need to have and use the tools that result in data that will stand up to scrutiny. At the same time, we want to be able to make use of this tool once it does. The most important concern is that the software analysis does not report false negatives. Some comparative research presented at the NEBWG conference in January, show that one type of software is reporting a percentage of Indiana bat calls while another software analyzing the same data set is reporting Red bats or Little brown bats. The software currently available through the FWS website, EchoClass, was identifying Indiana bats in Maine, which is outside the known Indiana bat range, and which could be false positives. The contingency plan to first determine the presence of bat calls at or above 35kHz is quite reasonable, as it narrows the scope of netting to only areas with probable presence of myotis, and eliminating the need for unnecessary netting. Until the software reaches an acceptable state, I feel it is important to continue to net areas with any calls at or above 35kHz, regardless of the software analysis for species for the next two or three years, perhaps until the next revision is due. During those years the effectiveness of the software can be improved and proven for the purposes of the protocol. The protocol could give a standard minimum effort for all locations with the presence of calls at/above 35kHz, and could also require additional standard level of effort in locations where analysis indicates confidence in Indiana bat call presence. The areas with calls at or above 35kHz areas can serve as a control to alleviate concerns regarding call analysis issues.

I realize that for states not affected by WNS, this will likely result in much higher amounts of netting effort than in WNS affected states where myotis populations are severely diminished. However, this would serve to transition to the goal of only netting where Indiana bats are indicated by software analysis. It also eliminates some areas of netting while increasing it in places with possible presence, and it could simplify the process for the possible addition of state/federally endangered bat species resulting from WNS. I think the key word for the creation of the 2013 protocol is "transition". Let's begin to incorporate the use of acoustic technology to find and protect the Indiana bat, but wait for better analysis tools before we rely on it as the primary measure for presence/absence to the species level. The protocol will be revised again within five years, and by then the technology will hopefully be refined enough to utilize software tools for consistent, reliable identification of individual species by calls.

Thank you for reading and considering my comments. I hope that these comments will be helpful as you finalize this revision of the Indiana Bat Summer Survey Guidelines.

Cynthia Hauser

814-644-1718
cindy.hauser@gmail.com