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Indiana Bat Summer Survey Guidance Team,

Overall, I want to say that I fully support the effort to revise summer surveys for the protection of Indiana bats. I have worked for 4 consulting companies and seen far too many shortcuts taken in the survey process. To be successful, the current netting protocol requires specific locations and execution that is often not implemented for a variety of reasons (legitimate and illegitimate). I applaud your effort to make a consistent, less subjective protocol for sampling for Indiana bats.

This second draft of the revised guidelines is much improved over the initial release; however, I still have some comments that may help improve the documents. As requested, I have listed specific comments on the attached spreadsheet and outlined some general comments below. Please feel free to contact me with any questions.

- You will see in my comments that I am skeptical of the implementation of protocol aspects by some consultants. I feel that they will take every opportunity to loosely interpret requirements and do the 'minimal' effort that is least likely to detect/catch Indiana bats.
- A large criticism of the protocol is that it allows for false positives. However, I have never heard a rebuttal that the current (2007) netting protocol allows for so many false negatives. I would like to hear the service be more vocal in the proven science concerning the shortfalls of netting (not to mention the possibility that some biologist misidentify bats). I feel that the service needs to make it clear that they are charged with protecting the species and enforcing the ESA, not catering to industry or biological consultants.
- In general I think that the contingency plan needs to be re-evaluated. This plan is the same as the protocol, with the ability to use whatever ID method one desires. While I agree that acoustic detection of MYSO can establish presence, I think that step 4 is unreliable (especially visual analysis) due to the lack of program availability/testing. I feel that for the contingency plan, you can eliminate step 4 and establish presence based on mist-netting efforts (at the effort established in the protocol around acoustic sites with high frequency calls) as is currently done. This would better 'blend' the 2007 and new protocols, allowing a transition period before full implementation.

Thank you,

Michael Whitby

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**Reviewer's Name & Affiliation:** Michael Whitby, Contract Assistant Research Wildlife Biologist, US Army Corps of Engineers, ERDC

Document Name	Page #	Comment
Draft Guidelines (Jan 2013)	3, 7	Is this suitable roosting and/or foraging habitat. Clearly open areas can be foraging habitat (I once tracked a pregnant MYSO foraging on a golf course for the life of the transmitter). Definition of suitable habitat needs to be clear.
	3, 7	The definition of suitable habitat (Paragraph 2 and footnote) needs to be clarified. I see references to 3" and 5" dbh, which is it? Do these sites have to be measured to be sure? This is the cornerstone of determining whether a survey needs to be conducted and should be explicit.
	7	Personnel - I feel that a permitted Indiana bat biologist should make all habitat assessments. This statement essentially says that anyone with a forestry/natural resource management/biology/etc. degree who has never seen a bat can make the assessment. Being that determining habitat 'unsuitable' can allow the take of a bat, if present, I feel the service has grounds for more stringent qualifications.
	9-10	This "Habitat Assessment Datasheet" appears inadequate. There are many questions left by this appendix and datasheet. How are sites to be sampled? How many datasheets per project (1 per habitat, 1 per project)? Is a site visit required?
	11	Personnel - what is proper training and experience? Is a 30 sec 'training' by the consulting company adequate?
	12	I see that if 10 bat calls are recorded, 4 (40%) must be identified. Is there a required percentage of files that must be bat calls? As I read, you could record 1000 files, find 10 calls, identify 4 - this is likely a horrible recording environment that should not have been sampled but is currently acceptable.
	13	Orientation - I agree detectors need to be aimed 45 degrees vertical. However, it needs to be clear that the cone of detection needs to be 45 degrees and not the microphone/detector. For example, the cone of detection does not point straight out PVC weatherproofing (and is different with different PVC tubes....see Chris Corbin's 2013 SBDN presentation).
	14	If more than 1 detector is used at a site (i.e. 3 detectors for 4 nights), how far/close must they be to
	14	Is reporting required in the 48 hours after I remove my detector (site completion), from the survey night, or from when I run my data (possibly a few days later)?

		<p>SUBMISSION OF ACOUSTIC SURVEY RESULTS - can it be required to submit to the new USGS database being developed and provide USFWS with a link/output of that submission</p>
		<p>If netting is conducted August 15, telemetry is allowed until at least a week later. I feel that telemetry results after August 1 may be suspect as most young are volant and colonies may be breaking apart. Please be cautious in interpreting low colony counts or moving/disappearing bats after August 1. (i.e. these factors may indicate low use of project area in June/July but not necessarily in late August)</p>
		<p>Personnel - thank you for including WALKING as a requirement. Please make sure this stays. I have seen biologist run 3+ sites from a four-wheeler and inexperienced techs left to remove bats (and often accidentally let them go before ID).</p>
		<p>I understand the need for flexibility in net placement, however this leaves the possibility to place 10-20 nets at a single site for one night. I feel that some requirement of minimal distance between nets may be necessary (and possibly multiple days to account for weather). This could possibly be done based on the number of positive acoustic sites (i.e. if there are 2 positive detection sites, include that 2 net sites at least the same distance apart must be included).</p>
		<p>Documentation - since a federally permitted biologist is required I do not see why photo documentation of MYLU is required (or even MYSO, but I always do that for the client anyway). Or is the service admitting that people who can't ID bats have permits?</p>
		<p>#6 - I question the requirement to document height in net. The point at which a bat is taken out does not necessarily indicate where it flew in. Additionally, people measure from so various points (bottom of net, ground, vegetation, etc.) and estimations are subjective. I would hate for somebody to actually analyze that data given the unreliability and variability.</p>
		<p>I am unsure if 5 transmitters per biologist should be required. However, I do feel that all biologist need to have transmitters ready (which often is not done). Maybe this requirement should be based on the net site/walking distance (i.e. must have 2-3 at a 'net site')</p>
		<p>#4 suitable habitat includes foraging areas (p. 7), why is telemetry only focused on roost sites? If a colony is roosting 2 miles from a project area but extensively uses the project area for foraging the project still has a major impact on MYSO. Conducting foraging telemetry for 1-2 nights may prove useful in accessing impact.</p>
		<p>#1 - I do not see a benefit to recording exit counts every 2 minutes - How will this data be used? Additionally, this causes a researcher to look away from the roost to record data. First/Last emergence is doable without detracting from counting.</p>

Contingency Plan	Step 4. Please list qualifications for visual analysis (and way to verify someone just doesn't say 'I didn't see any MYSO calls').
Acoustic Software Testing Criteria	#2. Is the service truly asking for call library files? What will they be used for? I completely understand the request for a summary of the call library (and also suggest that the recording environment (i.e. field, open forest, etc) be included)
	#3. Most software allows the user to 'turn off' certain species I think there should be some unmodifiable way to run species identification to assure that the user selects all possible species (including MYSO) and/or some unmodifiable way to record what species were selected.
	#4. I don't understand how genus level identification is useful. Genus does not necessarily mean similar calls (e.g. EPFU/LANO are extremely similar calls.) Additionally, if identified to species the calls can later be 'lumped' to genus.
	#6. I do not support qualitative assessment for accuracy rates. It has been shown that human ID is not consistent, therefore the same researcher would have to evaluate all programs.