

HABITAT USE AND SURVEY TECHNIQUES FOR A CRYPTIC SPECIES: QUESTIONS AND DISCUSSIONS

Moderator: Jennifer Szymanski

Jennifer Szymanski - I'd like to open the floor up to discuss the validity of some of these survey protocols and the methods. Do you think we're at the point where we have the knowledge and the information to come up with standard survey protocols, and what type of information should be included? Absolute population numbers are rarely attainable... and as a corollary to that, are there standard interpretations to the data? In other words, if you had negative survey results, and the right people at the right time are doing the survey work, does that mean that we have a functionally extinct population? Any thoughts?

Bruce Kingsbury - Jennifer, in your talk earlier you mentioned a group of people who got together and delineated the populations and talked about whether or not they were at risk and that sort of thing. One question that came out of that discussion was "can we actually tell whether or not a population is extirpated?" I would argue that in many cases we cannot demonstrate extirpation of a population. But it seems to me based on what I'm hearing that for the populations that are in relatively good shape you can count on going out and finding snakes. I would argue that rather than saying that the population is present or completely gone with certainty, we need some kind of measure where we go out for a certain amount of time and in certain conditions and if you don't find any snakes you're comfortable with saying the population is definitely low. So I guess what I'm saying is that yes, they are cryptic, but when the populations are good you can find them. If you go out to the site over and over and over again and you don't find them, I think it's reasonable to say that they're either gone or they're what you would call 'functionally extirpated' - the population might remain but it's very low.

Chris Parent - I think we have to use the word 'extirpated' with some degree of caution. If you claim that a population is extirpated and then 5 years later one or two snakes are discovered, it calls into question your credibility as an agency making decisions. That then provides information for anyone who's opposing any move towards any sort of habitat protection or any form of legal protection and they will be able to say 'this agency said these things were gone, and look, there's

some here, so maybe this other area where they're claiming population decline they're wrong about that too'. I think I would agree that absence of evidence is not necessarily evidence of absence, and I would be very cautious about using the term 'extirpated' solely from the perspective of maintaining one's credibility.

Rich Seigel - I think part of the key is that the people doing the survey have to be qualified to do it. You can't hunt massasaugas simply because you're an employee of the state or a federal or provincial agency has told you to go out and do it. You have to know how to do it and you have to know how to do it at that site. I'm not saying that we should do it and everyone else can't... if someone had sent me up here to hunt massasaugas I would have concluded there are no massasaugas in Ontario. I never would have looked in the places I was looking at yesterday during the field trip. Conversely if I took someone from Ontario and told them to go find massasaugas in Missouri, you almost certainly wouldn't find them because you wouldn't go to the right microhabitat. So there's got to be some 'fine-tuning' of who's doing the work. There was some skepticism about where we were getting both positive and negative results. Who was it that was doing the work and did they know what they were doing? How much time did they actually spend? I think you really have to scrutinize those reports and make sure the people who are doing them are qualified to say 'we went out, this is what we did, this is how long we did it, this is when we did it and this is what we found.' It can't simply be that someone went out and did some work for some unspecified period of time and didn't find anything. That's not enough.

Gary Casper - I think a corollary to this discussion is that we shouldn't be too concerned with absence data, we should be concerned with presence data, and not only worry about sites where we can't find them, but it's the sites where we're getting hits that we have data.

Bob Johnson - Presence/absence data is one factor, but I think ultimately we are looking at the system. We want presence/absence data to give some indication of population persistence, stability or status. If you could use that data to come up with the status,

that's what we need. Is there any way of bringing a qualitative factor in terms of that dot persisting or that group of dots persisting? If you can bring a qualitative approach to that presence/absence data, that's the first step - you've got snakes, now what's the likelihood of that population persisting? I understand that there are a multitude of factors that decide whether there's persistence, but for some of the populations in the United States, it's pretty obvious that a dot doesn't really mean presence in terms of a hundred years.

Gary Casper - I guess what I'm saying is if you're doing a status assessment and you have just a slice of time to do it, where you can't prove the animals are present in that slice of time you have to work with, you need to conclude that these populations, in the absence of proof, are going to be considered gone.

Bob Johnson - So the next step is, you find an animal, and now you've got a dot on a ten-kilometre grid and you maybe have one animal in a ten-kilometre grid which is not a population, and you may have fifteen grids so you have the assumption that there's an area with massasaugas in it, and really all you have is a single massasauga or low numbers of massasaugas. Is there a way of sorting this out?

Gary Casper - Now you're at the next level - you've got a hit, now how are you going to rate that in terms of population viability? I think you can have a measure of effort, snakes per man-hour found would be a simple obvious one where you can compare studies.

Bob Johnson - What is the unit we want to use? Is it simply person-hours? I guess Rich made the point that it has to be experienced person-hours...

Bruce Kingsbury - I would say yes, because I would say we have no alternative. You can't go out and trap them or do anything else. I think we are restricted to this technique.

Göran Nilson - I don't know if this is a possible way, but we look for shed skins as indicators.

Gary Casper - Most massasauga skins don't persist for very long...

Göran Nilson - Do they shed their skins at the same time every year?

Rich Seigel - It's spread out over the year - I see very few shed skins.



Bob Johnson - OK, so if we have a qualified person-hours index - do we take that and search the entire habitat, or do like Chris does and focus in on rookeries and other areas where we know we can find snakes?

Christopher Phillips - We can't do that for most of our sites. We have to search every square foot to find anything... there are no cues, no tipoffs at all.

Bruce Kingsbury - I think as far as what to do with this functional extirpation business - I think that's of legal importance and of focal importance for conservation. We need to be able to say that if we go and search an area a number of times, that we need to be concerned - that needs to be a flag. Otherwise, someone could just say, 'Oh, well, they're just cryptic.' I'm not saying that we give up on these sites, but we need to get excited about something going wrong.

Richard King - I think we get hung up a lot on presence/absence, and I don't know if it's really that meaningful. If they're there, and you send out people who know where to look, you're going to find them. Conversely, if you send people out and they look for a day, two days, and don't find anything, that doesn't mean they're not there. We don't know if they're extirpated, we just didn't find any - but maybe it doesn't matter. If we spent enough time looking for them, and we didn't find them, let's just say that's not a viable population.

Christopher Phillips - Just by saying they're not viable, that's too optimistic. I'm afraid that someone's going to come back and say 'they can be fixed, it's just management problems.' There has to be a concrete decision made that that population is unviable, and that means that nothing can be done, it cannot be saved no matter what we do. I don't like this idea that 'Yes, it's unviable, but we can bring it back.' I want it to be that if we put in 20 man-hours over spring and fall using

qualified people, and I see no snakes, we can write it off. Not just call it unviable - write it off. You're hung up on words here, you don't want to call it extirpated, but there's nothing we can do realistically to help this population.

Chris Parent - In the fall of 1994 I spent 2 months in Killbear looking for rattlesnakes. At that point I had 5 years of experience in the park, I had 5 years of experience with eastern massasauga rattlesnakes, and at that point I had done radiotelemetry work. I spent 2 months in that park searching whenever I could, and in 2 months of doing nothing but looking for rattlesnakes, I found only 2 of them. That represents someone who knows what they're doing, who knows the site, who knows the snake, and yet I was nearly shut out from finding anything.

Christopher Phillips - That's the key though - 'nearly'. You found the snakes. Two's better than zero, and two says a whole lot more than zero.

Chris Parent - That's true, but the point I wanted to make that the figure you mentioned was 20 hours...

Christopher Phillips - I just grabbed that out of the air. I just want to know if we can come to a decision that puts guidelines on it so that we all do the same thing.

Ron Black - One of the assumptions that I think you're making is that you have an intimate knowledge of their habitat requirements before you do the search, and if you don't have that you can't do a search very efficiently. So there's a real risk in that situation of declaring a population functionally extirpated. We can see across the range there's some real habitat differences, and maybe we don't understand the whole range of the snake in terms of their habitat preferences.

Bruce Kingsbury - Just to get back to the issue of search time, there's two ways of using twenty person-hours or a hundred person-hours. One is, when you know that they were there and you go back and look for them and you can't find them, that should be a flag. If the flag goes up and you go in with a team of experienced people, and they look and look and look and still can't find them, then maybe that's when you should make a triage decision and say, 'maybe we should spend our money over there instead of here'.

Rich Seigel - I think it's sort of ironic in some ways that we're having this debate about when we can or should call something extirpated. Yet we're not looking at the flip side of this, which is that we keep populations listed as being stable based entirely on records from unqualified people. So there's a museum record from the

1950's, and someone says 'I saw a massasauga there in 1986' and we list that in official government documents as extant. So we're applying these stringent criteria here, we're debating whether we'd call something extirpated after twenty hours, forty hours, two months of a qualified professional searching for it... we're debating whether to accept that negative or not, but at the same time we're accepting records of populations being extant with virtually no data. That to me is a bigger issue than what we're debating. We're going to assume that there are populations out there that don't exist, and we're going to come up with a status assessment that is much more optimistic than should be the case.

Ron Black - It sounds to me like we need to describe some search procedures for different habitats, go out to known areas, stratify them in terms of what we feel the population is in that area, do some searches in those areas, and then that will lead us down the road to being able to define how much searching is needed.

Bruce Kingsbury - It also gets back to what Bob was asking about.. how do you link this to what the population size is elsewhere? We can do that by doing these surveys in selected areas where we have at least some handle on how many snakes are actually there.

Christopher Phillips - But you've got to be careful then, because you've got some highly efficient searching going on. If I send Chris out, he knows how many snakes he has, he knows the density, and we're going to calibrate that and get a bunch of people to do that... how would we randomize Chris' search? Because that's not fair in my study. I have nothing to key in on, I'm going to be doing a zig-zag pattern through old fields, fescue... I have nothing to key in on. My ten hours can't be calibrated against his ten hours, there's no way. I like the calibration idea, but we can't do it like that.

Rich Seigel - I think what we need are some kinds of categories. You have places that you know there are populations, based on people who are experienced, and you have numbers for what they would get per unit number and you have that for eight or ten or twelve places. Then you've got these other places where qualified people looked and didn't find anything, and those go on our map with a question mark beside them, and maybe those need more effort because the snakes might be there. Then you have those places where all you have is a dot on the map that represents that no one qualified has searched there, but someone reported a massasauga there maybe five or ten years ago. Those are the places that qualified people need to go next. So I think we need to stratify it a little bit, be-

cause you're right - we can't say, 'we didn't find any snakes in twenty hours of searching, so they're extirpated'.

Christopher Phillips - So, three categories that are rigorously defined, and now all we have to do is define them.

Jennifer Szymanski - If we were to try to implement that right now, to go through all of the data and put it into those three rigorous columns, there's no way we could be anywhere close to making a listing decision, because way too much of the range would be unsurveyed.

Rich Seigel - I agree, but what we're saying is 'what do we do from now on?' We need to decide what we're going to do from this point forward.

Jennifer Szymanski - So what are the recommendations? When do we carry out these surveys, under what environmental conditions, what is the time duration of the survey?

Rich Seigel - The consensus for when we do surveys would be spring emergence and fall return and hibernation, I think that would be reasonable. As for times... two days?

Christopher Phillips - We also need to explicitly spell out the environmental conditions under which the survey can be carried out. It has to do with temperature, cloud cover, and various other things. We also use pedometers in our studies, and they can be very useful to measure area covered.

Michel Villeneuve - I also think it's important to be aware of the snake's entire range. I have an interesting example on Beausoleil Island, the north end of the island is covered in fox snakes, you see them in the spring, you see them mating, you see them laying eggs, they're there through the fall. So we assumed for decades that the entire population resided on Beausoleil Island. But we put a transmitter in one of those fox snakes, and it left the island entirely and went to another island. In the spring we went there where they hibernate communally, and we found a whole pile of snakes. We put transmitters in a bunch of them and we found out that all those snakes were migrating back to Beausoleil Island - the entire population was residing on another island relative to their overwintering site, and this hibernaculum was within ten feet of a cottage. Now, some radio-telemetred snakes travelled five kilometres by water to other islands so obviously this was a very significant overwintering site. We dealt with the cottager and explained the significance of the site to him, and without him knowing about that, he could easily have destroyed that hibernaculum. As a matter of fact, this year he rebuilt his cottage but because we worked out an agreement and we shared this information with him, he made sure he wasn't going to interfere with these snakes. But the point is, this entire population could have been destroyed by this particular cottager, not knowing anything, because he arrives in the spring and he's never seen a fox snake before. He didn't even know what they were - he's from Ohio. So I think we should use whatever tools are available to us, and I know that radiotelemetry is expensive but we need to know the entire picture.