

NCPARC RIMM Meeting
October 30, 2008
UNC-Greensboro

Attendees: Mike Dorcas (Chair), Ann Somers, Gabrielle Graeter, Lori Williams, Jeff Mette, Jonathan Micancin, Ed Corey, Jeff Beane, Kendrick Weeks, Brian Ball, Jeff Humphries

The meeting started at 1:12 pm.

Mike: Welcome to everyone who is here. Let's start by introducing ourselves because we have at least one new person here today. (introductions made around the room) We have numerous things to talk about today as listed in the agenda. First, Jeff Beane wants to tell us about potentially invasive herps in NC.

Jeff B.: *Anolis sagrei* (brown anoles) have been identified and reported at one locality near Wrightsville Beach. They are thought to have come in on planted palms around 2006. (group discussion) *Hemidactylus turcicus* (Mediterranean house geckos) are also established in at least one locality in Wilmington, where they have been observed since at least 2003.

Kendrick: I haven't seen any (exotics) so far in the areas I've worked in the coastal region. (group continues discussion).

Jeff B.: Also, two Cuban treefrogs have been found that I've heard about—one in Wake County in 2008 and one in Durham County in 2007. They were mostly likely individual introductions; no evidence of established populations has been reported. Hopefully, they could not survive the winters here, but around places like Wilmington, it's possible they could.

Group: Can't the Department of Agriculture stop people from importing these palms? What may happen if some of these things get established? (group discusses the example of Burmese python releases in the wild...someone mentions a rumor of a cobra seen in the Fayetteville area.)

Mike: Does anyone have anything else to discuss about exotics? If not, Jeff Mette and Jonathan Micancin (former UNC graduate students) will now talk to us about Southern cricket frogs (*Acris gyllus*) and their status in NC with a Powerpoint presentation.

Jeff M.: (in Powerpoint presentation) Our work involves the two kinds of cricket frogs found in NC, northern and southern cricket frogs. These species differ in range, habitat, morphology, and calls, but they do overlap in some areas. Despite a lot of similarities, there are relative differences in morphology. The similarities, combined with locality data, can lead to misidentification of species distribution (map shown). Published distribution maps are not perfect and often overestimate current and historical ranges.

Regarding historical ranges, the northern edge is in bad shape. There is a zone of sympatry in NC between the two species with overlap in the call of each. The call is still the best way to identify these species. We can look at the “click” structure of each call. It is this unique structure of each call that keeps the species from hybridizing (sound clips of each were played in the presentation). These calls play a role in reproductive isolation. The click structures can unambiguously be identified for each species. We also used a discriminate function analysis Jonathan created to correlate calls with morphological features such as webbing of toes, diameter of anal tubercles, etc. These correlations can be used to look at museum collections and confirm or correct identification of specimens. These tools can help make absolute identification of nonliving specimens. Regarding the status of these species in the state, we looked at museum (NC State Museum of Natural Sciences) collections from the zone of sympatry and syntopy (e.g., where calls overlap) and resurveyed historical sites in the zone of sympatry using Bartlett’s data from the 1960s (showed map of individual species and those areas of sympatry and syntopy for the coastal plain, eastern piedmont, and sandhills). We focused on the northern coastal plain and overlapped the historical map with our surveys to compare past and present distributions. *A. gryllus* (southern cricket frog) distribution is fairly consistent with historical data except in the northern areas. Where they were found, not many records are where they used to be, and we found no *gryllus* in recent surveys in northern areas. Might *gryllus* be in decline in NC but not *crepitans* (northern cricket frog)? Why is this? Both species appear stable south of the middle Cape Fear drainage. Identification and distribution issues may have obscured this decline in the past, and there might be misleading information in field guides. Why the decline? Are there anthropogenic influences? We need more surveys and study of habitat preferences of these two species, particularly in the areas of syntopy where both species call together. From Bartlett’s data, we have lots of records of *gryllus* in the Tar basin, between the Neuse and Tar Rivers, but now we have only found them in the sandhills in the Lee County and Harnett County areas. North of that area appears to be only *crepitans*.

(discussion/questions among group)

Jonathan: We visited the sites Bartlett did as well as survey suitable sites nearby. We tried to describe occurrence at suitable breeding sites.

Mike: How many visits did you make?

Jonathan: These sites were visited once.

Jeff M.: But, a few of the Harnett County sites were visited more than once, for example, sites from CASP routes, rural farm ponds, etc.

Ed: How confident are you that the frogs will be calling at the same time?

Jeff M.: We conducted road surveys and used the same methods to allow for comparisons. In the future, it will be important to give more attention to these basins,

like in the CASP surveys. If we're not tripping over cricket frogs, they are in decline. That is how they've been described in the past when they were abundant.

Kendrick: Do weather patterns have an effect?

Jeff M: Certainly, the drought did not help; it has to play some role.

Jonathan: There is anecdotal evidence that *crepitans* will start breeding early, but there will still be male *gryllus* calling when female *crepitans* are numerous (discussion among group).

Jeff M.: We are working with two snapshots of time. We don't have continuous data. If *gryllus* is expanding or receding in good rain years or bad, we can't say based on these methods.

Mike: I'm not doubting that this species has declined. However, we should be skeptical when claims are made that species are disappearing or in severe decline. One tool we have is to use a program like PRESENCE, with multiple visits (three to each site), that lets us track detection probability and changes in percent occupancy over time. I recommend exploring this analysis and technique. Another thing, there could be a problem with going back to historical sites only. If they were present at sites in the past, and if some sites were never visited, these species may pop up in new places but we'd never know it. We should visit potential, new sites in addition to historical sites. We might assume that at some point, they may fall out at historical sites. (discussion among group)

Jonathan: We haven't included negative data here, places where we searched and did not find them. (discussion among group)

Mike: Regarding CASP data, who ran the routes in that area?

Ed: I've got four of the routes in that area, but I can't recall what I heard where.

(discussion among group on subject of Bartlett not publishing any of his data)

Jeff B.: No one has ever paid any attention to cricket frogs before now. These things have been taken for granted. No one has done any kind of study other than Peter Bartlett's work years ago. Maybe this is why nobody knows if there is really a decline or not. (discussion among group)

Mike: With the differences between *crepitans* and *gryllus*, it's that *crepitans* is now in areas that used to have *gryllus*?

(Jeff M. shows distribution map again)

Group: Are there any other records out there?

Jonathan: If we have some measurements, we can run them through the DFA (discrete function analysis) which will tell you what you have (e.g., measuring the tubercles, etc.).

Jeff M.: We rarely reversed an identification of Bartlett's based on DFA. There are older records from NC and more from the same time period, but we decided to focus just on Bartlett's collection.

Jonathan: There were other issues over the summer, too, such as road safety, dogs barking, people threatening to call the police, etc.

Ann: This is a good thing to bring to our attention today. Do you have a proposal for us?

Mike: Yes, do you have a proposal for this group and/or for CASP?

Jonathan: It might be difficult to get most CASP volunteers to identify the two species. We used recording equipment (e.g., Froglogger) and oscillagrams, with absolute reliability. The clicks in the calls do not overlap. The females can tell them apart. There should be no hybridization. It would take volunteers with the skills to I.D. and/or those with the recording equipment to help. (discussion among group)

Ann: Do you need our help? Do you need another leader for continuing this work?

Jeff M: CASP may be the best tool to use if volunteers are trained. I intend to go out and do road runs next season if I am still in NC.

Ed: One potential problem is that the CASP data do not get entered until the fall.

Mike: Jeff Hall has the volunteer list of folks who have those routes. What about placing nonrandom routes in target areas?

Lori: We have done the same thing in Cherokee County to target mountain chorus frogs.

Mike: Has anyone talked to ECU about getting involved? Could a student take this on? (discussion among group about continuing this work)

Ed: Does distribution have something to do with habitat, such as a sand influence in the upper coastal plain? Sandbanks area?

Jonathan: It appears that *gryllus* likes more sandy habitat. With regards to changes in climate, they tend to overwinter in unusual ways.

Jeff M.: Bartlett correlated his work with longleaf pine. Could a decline of that habitat be a factor?

Ed: When anyone is out and observes *gryllus*, it would not be hard to take notes about the habitat and vegetation communities, etc. The general public or a CASP volunteer or whoever could take note of the communities around these observations.

Jeff M: Right now, we need to know why *gryllus* is where it is.

Jonathan: Before we get into experiments to look at causation, there is still a lot to look at with correlations, community types, land use, etc.

Jeff B.: And there is no evidence of hybridization?

Jeff M.: Anecdotal evidence only. Might the problem be that in the past people have prematurely called “weird-looking frogs” hybrids? Also, you can see amplexus between the species, but the females don’t look “happy”! There seems to be no conclusive evidence of hybridization.

Jeff B: What’s weird about how they overwinter?

Jonathan: Up north, at least, they don’t bury themselves except in preexisting cracks in shorelines, in areas where they are subject to freezing. There is a weird zone of high freeze risk up there, and they don’t seem to do a good job of buffering themselves.

Jeff M.: There have not been many, or any, long-term mark-recapture studies with these species, either.

Jonathan: Annual survivorship is around 5%.

Jeff H.: What about life expectancy? 16 months?

(discussion among group.....not likely that cricket frogs ever survive for two breeding seasons)

Jeff H.: Did Bartlett collect most of the breeding females from these sites? If so, could that have pushed them over the edge?

(discussion among group.....Where is Bartlett now? Ask him? He was a former Duke student?.....)

Mike: We better move on to some other things on the agenda. We’ll ask you to summarize your findings and give us some recommendations for what to do with CASP routes.

Ann: You could apply for a grant from NCHS for recorders and other equipment.
(discussion among group)

Mike: Let’s move on. Next, Jeff Beane will talk to us about an issue with field herpers.

Jeff B. Zach Orr brought this up to me several months ago. The fieldherpers.com website has potential to cause problems. It is causing people to descend on sensitive places in droves to see certain animals. Another example is fieldherpersforum.com; there are several of these type of websites.

Mike: Do we want to discourage people from getting interested in field herpetology?

Ann: Are they collecting?

Jeff M.: If it's illegal, they just don't post it.

Mike: I know some people active with these websites, and I know that they only photograph animals, not collect. There has to be a balance. We should be happy to see lots of people interested in field herpetology.

Jonathan: Are they interested in conservation?

Ed: Some are, but others are more interested in good pictures. I've posted photos on this website before. The web masters discourage posting specific locations. I think what is happening could be negative, but overall I think it is positive. Not everyone would get to see these animals otherwise.

Jonathan: I don't think everyone should be entitled to see these animals. There is the example with *Gyrinophilus* (spring salamanders) being overcollected around Chapel Hill.

Ed: I don't think everyone who goes on fieldherpforum.com will go out in the field.

Jeff B.: The question is whether these sites are doing more harm than good or if they are neutral.

Mike: I can see potential detriments, but I can see that with herpetologists not on these sites who have overcollected from the same sites over and over. We should encourage those people to be responsible. (discussion among group regarding pros and cons of these kind of websites, who is responsible for the content on them, etc.)

Jonathan: We see that similar web postings and field activities with amateur ornithologists, for example, has resulted in significant contributions to that field. Herpetology is a much higher impact activity, however.

Jeff H.: Can't we get these people to get involved in a positive direction? Channel them with data collection, etc.? (discussion among group)

Mike: Considering all the other issues we have to deal with in conservation, in most situations, maybe this kind of thing presents minimal impacts. Certainly in some cases there is impact. Given the bigger picture, it's my feeling that it is vastly overestimated. Maybe people should go on these posts and talk about these issues.

Ed: There have been discussions on this topic on these forums. There's good and bad out there.

Mike: Let's move on. Ann has an update on the box turtle project.

Ann: We've picked out a date for the leader's training for this year. It's March 25th and 26th. We are not sure about the details yet or how we'll choose people. This one will be at the NC Zoo (Asheboro). John Groves will work on this for us. The WRC may help financially. We had 12 people trained in 2008, and at least half of those have active projects now. The database is a big part of this project. We may want to do a grant proposal for Davidson to establish an online form. The WRC database that is being created could be an appropriate place for the data to reside.

Gabrielle: Within the WRC, we already have a statewide aquatics database. Now the WRC is working on a terrestrial database that will be comprehensive and statewide. It will include everything from specific projects to observational data. Part of that is this box turtle project. Data from this will be housed within this new database. I will compile datasheets and Excel files, but in the future we hope they (volunteers) will be able to enter their data online. The box turtle dataset is the one on top of the priority list for inclusion.

Ann: I hope we'll get to make some comments on the database and how it is established.

Gabrielle: Once I get comments back from IT, we'll enter some test data to see if everything is working. Also, it will be password protected. We are having a meeting in Raleigh tomorrow (Oct. 31) with all the WRC herp biologists and Scott Anderson and Jamie Hammermann to start discussing this.

Ann: One goal from our 2008 project leaders was to troubleshoot the data about what needs to be in there, etc. We can't expect our project leaders to have a working knowledge of Excel. We have been coaching some of them over the phone even.

Gabrielle: It should streamline the process once this database is going. We should also be able to minimize errors with dropdown menus, etc.

Ann: If you'll take the lead on providing us with input when you can, that would be good.

Mike: So, briefly, there is an effort underway to coalesce data?

Lori: Yes, this will be an internal, statewide database for WRC's Wildlife Diversity Program. It will feature the herp datasets from all regions in the state first. We don't know much about it at this point, but we will be having our first meeting in Raleigh tomorrow to discuss it.

Mike: So someone could provide an update on this at the upcoming NC/SEPARC meeting?

Ann: So, that is progress. The bog turtle database will get in there, too, at some point. If anyone has ideas for box turtle project leaders, let me know.

Mike: To update everyone on the Herp Atlas, it is still going well with over 13,000 records now entered. If you look at the maps for species like box turtles, we are seeing a fairly statewide distribution. We have hundreds of users now and a data export program so it is quicker to send photo vouchers to people who have requested data. It is now faster researching your own records. We've received some SCDNR funding, too.

Kendrick: If we send data in tabular form, they can't be added to the interface to show distributional data?

Mike: If you send data in Excel, we can import those data in. There is something in the code now that imported data aren't showing up in the shaded portions like data would that are entered manually. This is only a display problem not a problem with the data being in there. So, now maps may be underestimating the actual numbers of records we have, with box turtles for example.

Lori: On a different note, did anyone participate in the "Frog Radio" experiments with the researchers from NCSU recently in Raleigh?

Jeff H. I was there. It was very cold! They had ten speakers set up every ten meters. They were testing to see how well people are discerning frog calls at different distances with these pilot studies.

Ed: One thing they are looking at is how human detection compares to mechanical detection (e.g., with a Froglogger). There was a lot of environmental noise that day, and weather conditions were very bad.

Mike: On another topic, Jeff B., can you fill us in on the new curator position at the museum?

Jeff B.: Bryan Stuart is the new curator. His specialty is southeast Asian herps. He is interested in building a tissue bank for all the species in the state.

Mike: Anything else anyone wants to discuss? I got an e-mail from Jeff Marcus (piedmont WRC Wildlife Diversity supervisor) that said an intern was to be hired for the piedmont to look at things like thresholds for wetland buffers, development recommendations, etc. However, the current hiring freeze with WRC now could affect this.

Jeff H.: We have a couple of WRC people (Kacy Cook, Jacquelyn Wallace) in the piedmont working with county governments to direct growth in certain ways. There is a lot of confusion about buffer recommendations, etc. We need to compile the herp data, bird data, etc. that are out there on these things, such as movement data, habitat needs, etc. There is no money right now, though, to do this. (discussion among group)

Jeff H.: I also want to announce the Herp Society meeting Saturday (Nov. 1) in Raleigh.

Gabrielle: Also, for an update on the upcoming NC/SEPARC meeting, it will be February 19-22 in the mountains in Montreat, NC. The abstract deadline will be extended to November 5th.

Mike: Are the speaker slots filling up?

Gabrielle: I haven't checked in the past couple of days. Some of those will fill us fairly quickly. We are also working on getting sponsorship for the meeting from NC-based groups, organizations, businesses, etc. Let me know if you have any ideas for sponsors.

Ed: Will there be just a NCPARC component of the joint meeting?

Gabrielle: Jeff Hall met with the EO working group and got some ideas for how to do that. We may do that with the symposium sessions, which will have 5-6 different topics. One of the topics will be NC Herp Conservation, so that one will serve as a NCPARC meeting. Task teams will meet on Saturday afternoon. They will be like we had last year, plus there will be additional SEPARC task teams that have met previously, too. We'll be asking some of you to help with logistics. Also, the meeting is less expensive than last year. Registration through SEPARC (see www.separc.org for details) opens in mid-November through January 23rd. There will be different options to choose from, and Montreat will handle the housing options.

Mike: That's it for today. Thanks to all who came to the meeting today.

The meeting adjourned at 3:05 pm.

Respectfully submitted by,
Lori A. Williams