

**Interviewee: Craig Guyer, Auburn University Department of Biological Sciences**

Interviewers: Robert Gitzen and Patricia Hartman

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Guyer: ...and the general question is, "How long have I been here?" And I got the job in the fall of 1987, so that's when my recollections would start. So I grew up in Southern California, got the job here not knowing anything about the Southeast. So you're talking to somebody who sort of was born in 1987, relative to understanding anything about the Southeast's natural history and ecology.

Hartman: So the job is what brought you here then?

Guyer: Oh, yeah.

Hartman: Okay.

Guyer: Yeah.

Hartman: Did you think you were going to live here for, since 1986, thirty years?

Guyer: Absolutely not. Probably would have been one of the last states I would have listed as a place that I thought I was going to get a job.

Hartman: So what would you say kept you in this area?

Guyer: Pretty much the people during the job interview won me over. And sort of, since '87, had my eyes open to the fact that this is a remarkably interesting area for a biologist just because it's so diverse. And the race relations weren't anything like what I'd been raised to have necessarily thought to be true. Clearly all that stuff that I heard growing up was true, but there was a lot more that did not get sort of recorded in the lore of where I grew up.

Hartman: So...did you notice that right away? Or was it something that took years to say, "Oh I didn't realize this was like that"? And what prompted you to have that observation?

Guyer: Some of it was local folks challenging, being willing to challenge me when I said things that were clearly from what I'd read, not what I'd experienced. And some of it was just sort of slowly observing what it was like in places I'd grown up and what it's like here. Los Angeles is the most segregated place I've ever seen. You know, one block you've got one ethnic group and you cross the street it's another one, ethnic group. And I'd just never been raised with people pointing that out as a, as sort of a cultural reality.

Gitzen: Have you had many African American or minority quote unquote grad students that have worked in Alabama or what? Kind of curious.

Guyer: Not many, but yeah. Christina Romagosa comes from a Cuban background, David Laurencio started out in my lab, he's from Costa Rica. So we've had a Latin perspective. We haven't been fortunate

enough to recruit anybody of African descent, I would have loved for that to have happened. You do go to places where the old sort of plantation mentality is still present.

Hartman: Have you noticed that change over the last thirty years?

Guyer: Depends on where you are. You can go to some places where again that rural plantation ethic is still engrained and so there's generations that are sort of, or places where they're sort of two generations behind where you'd think they ought to be. Ichauway is this famous ecological field station, still has a very strong plantation ethic. You know if you go to Union Springs here that, there's places there where you go up to the African Americans and they call you boss rather than your name.

Hartman: That's what...because there are a lot of African Americans working there.

Guyer: Yeah.

Hartman: It's just very clear sort of division of...

Guyer: Yeah.

Hartman: Okay. So as a biologist were you, in talking to the different people, I'm sure you got very different perspectives. What kinds of different things did you learn from talking to an African American at Ichauway compared to one of the "bosses?" Does that question make sense?

Guyer: Yeah. If you want sort of practical stuff, like where to go to find certain animals, those guys know better than anybody. The best way to learn a farm is to grow up in it. So if you're out as a kid sort of making your observations that all gets recorded in your brain in ways that make those people both approachable and if you start talking about animals that they like, they may not like them the way you do so I do a lot of work with turtles and tortoises, and all those folks eat them so... But they through that process they know where to go to find them and what they're habits are and what might have happened over the years, whether they're increasing or decreasing. So they've got a lore that's pretty vital.

Hartman: So you hear about people having eaten gopher tortoises in the Depression, but is that still pretty prevalent now, do you think? Or did it persist much longer than..?

Guyer: It's still present but I, to my eye it's decreasing dramatically. Just because it's hard to get them. There's a bunch of them if you've got the skill to be able to pull them out of a burrow, but not many people are willing to learn that skill anymore. It's just easier to go buy something off the store than to try and hook a tortoise and pull it out of its burrow.

Gitzen: Were they traditionally a subsistence food or, not just a subsistence food, but kind of a general everyday meal? I mean a routine meal...?

Guyer: Mostly on the subsistence side but there were, talk to some of those folks and if they had family get-togethers, that was something they'd do just because that's how they used to eat and so for family reunions they frequently would send out the local hunter to bring them all in for a meal.

Gitzen: How popular were tortoises to eat compared to other, to aquatic turtles?

Guyer: I don't have really good understanding of that, but my impression is that tortoises were much harder to get, and so everybody was eating snapping turtle. Soft shell turtles are supposedly very tasty, so those are the animals...and you can put out a hoop trap and catch those with not much effort. But to learn how to snake down a hook to the bottom of a tortoise burrow and pull an animal out that's very strong and then do that over and over again is a lot harder work than putting out one net and coming back a day later and getting the same twenty animals. So I suspect it was much harder to subsist off of gophers than other kinds of turtles.

Gitzen: In terms of people's attitudes about the sustainability of that harvest, was there any... Was it sort of catch as you can, literally catch as you can and worry about what's going to go on down the road? Or was there any informal ethic by different people to take this much but not more than that?

Guyer: Yeah, it's variable. And so I... Most folks it's a hunter's mentality and so they look at what other people are doing and can recognize through that that the resource might be depleted. But generally were not in perspective enough to say, "Hey, it's me that might be participating in this thing. I'm doing it in a sustainable way and it's everybody else that's the problem." I've seen that sort of mindset emerge but on the other hand I think most of those people also notice that they've been eating it, the resource, for a long time and the resource is still there. And so from that perspective don't feel like we're necessarily at the precipice. And at that level, they might be right, it's... Not a lot of people were so poor that they were looking for something like a tortoise to survive to the next meal.

Hartman: So considering their declining status, people eating them, probably not the greatest threat to their persistence.

Guyer: No.

Hartman: What do you think is the greatest threat?

Guyer: Oh, it's population growth (human), it's habitat loss, fragmentation, the big things that have been the top of the conservation list forever. And that, that's caused in this part of the world largely by agriculture. Big fields that took huge swaths of habitat and converted it into peanut and cotton farms. That would be the biggest loss for pocket gophers and gopher tortoises, anything in the upland pine is, that's where we lost most of the habitat. What remains is the large hunting plantation, quail hunting plantations, which is largely a very compatible activity for conservation of the sort of vertebrate I'm most interested in. I see that as sort of where the conservation effort for upland longleaf pine organisms on private lands, that's where you've got overlap of interests that could do some things that would be beneficial.

Gitzen: Have you interacted a lot with the quail plantation community...certain plantations or anything like that?

Guyer: Pretty peripherally, but through Sharon [Hermann]. She's been into the big time version through her time at Tall Timbers, including going to sort of the naturalist balls where these unbelievably wealthy

people who've just bought these monstrous chunks of land and have maintained it in ways that keep all the organisms present. And so she's dealt with those people and understands sort of their cultural history much better than I do.

Hartman: So would you say they keep all of the organisms present or...?

Guyer: It's a range of activity, but in general they want to hunt quail and they have enough experience through growing up with the habitat to know what sort of old growth forest looks like. And so they're managing for both the being able to come and shoot the animals and to come and just look out and see a landscape that's what they remember growing up in. And that landscape happens to be the one that the organisms we're interested are evolved in, so...

Hartman: What about perceived threats to quail? That might also occur in that landscape.

Guyer: Yeah... I don't know the quail literature that well, so everything I'm about to say has to be taken with that grain of salt. But we're, I think we're still struggling to figure out why it is that this bird keeps declining everywhere. But, again to my mind it, all of these things you're going to want big chunks of land managed in a way that maintains the aspect of old growth forest and the quail place plantations on private lands is pretty much the only place you see that. And the smaller and smaller those chunks of land get, and the more heavily you manage for just the quail resource, and you chop that land up with a bunch of food plots, and you do these ring-around things where you try and make oak clusters, that gets to the point where the land managers are saying, "Well the more of those I get the more quail I get." Then the more I think that this dynamic of what was happening there maintaining those populations start to crumble. And suddenly the quail populations go down and you put up cameras and you find that it's snakes eating the eggs. And so then you blame the snakes and you're sort of missing the bigger issue that you had this big, broad, expansive functioning ecosystem and the more you sort of tried to tweak it the less it was doing what you wanted it to do.

Hartman: So as far as predator control efforts, have you seen them in action at different plantations particularly?

Guyer: Not directly, but indirectly enough to know that we've stubbed our toe in attempting to control predators when we might have been better off again making sure we had what the forest had in the first place that allowed the predator and prey to equilibrate, the way they sort of evolved. But at some level again, at this point now the predator communities are probably out of whack enough that there has to be some management effort done there to... especially if you're trying to keep that one bird present. That does show up as a, in modern landscapes, as something that has to be done somehow to keep the animals there.

Gitzen: As a threat to gopher tortoises do you think the same predators, or at least the mammalian predators, are much concern to the...?

Guyer: Yeah the meso-mammal predators probably are increased and so they probably, they are taking that resource. If you measure, if you put transmitters on baby tortoises and measure that resource they

all end up pretty much in raccoon and opossum guts, but snakes are getting them as well. So I... But I don't think that's happened in a way that is causing a decline in tortoises. I think they're designed to live long enough that every once in a while there'll be some decrease in that mammal community, and then the tortoise has a burst of recruitment and that's sort of how they've evolved to get through that process to begin with. So I, nobody's ever tested this, but there's an idea in the tortoise community that rabies comes through and wipes out all the raccoons and opossums, and there's a short burst of time when you get a whole bunch of tortoise that recruit into the population. And that's sort of how they managed to do that for millions of years.

Gitzen: Have you noticed changes in the meso-carnivore community since you go here?

Guyer: I have not. The only one I've noticed is armadillos. They had just invaded Lee County when I got the job and now are clearly much more abundant now than they were when I first got here. But that's an animal that if you go back to Pleistocene it used to be here, so it's one that got pushed back for whatever reason and now has returned. So I'm not personally concerned with that one, as long as, again, we can find big chunks of land to, that might function the way those landscapes used to function ecologically.

Hartman: Are there some invasive species that you think would be a particular, that are a particular threat to the longleaf pine ecosystem?

Guyer: Cogon grass is one that comes to mind. Fire ants is one that I've got to mention just because I replaced Bob Mount and you guys should interview him because he's got the longer term perspective, he grew up in this part of the world and can give you the, sort of a deeper historical perspective. And he's pushed that and I trust his judgement on that, I think he's right. I think he oversells it, but I think he, there are some instances where that organism came up and disrupted certain other species. Not to the point where it caused any of the entire forest structure to disintegrate, but certainly impacted some certain species.

Gitzen: Has the fire ant distribution changed in density? Have you noticed any systematic change since you came, or was it already...were everywhere when you got here more or less?

Guyer: They were everywhere when I got here. I've heard people say they're declining, but that's not my, that's not something I picked up in sort of just my wanderings.

Gitzen: People will talk about, at least at Tall Timbers, that without soil disturbance, in that kind of old growth pine that's burned frequently, there are tracts without fire ants...Do you have any feeling that a healthy long leaf pine community is a fire ant free community?

Guyer: Yeah, I'd...

Gitzen: Yeah nothing like that.

Guyer: I'd have to see that to believe it. But on the other hand, I think that's generally true of these invasive species. They're coming in on edges and finding it difficult to penetrate into the center of a

group of organisms that sort of co-evolved. But as soon as you create a patch where the edge is greater than the core, then that's when. And we've got a lot of that where you still have things like tortoises present, but they're being assaulted by cogon grass coming in and privet and Japanese climbing fern, all these things that would suddenly choke things off from the edges. So I can definitely see that, but would want to believe that the heart of the Wade Tract was immune to fire ants. But I, if I remember right, I think they are on the Wade Tract.

Hartman: And where is that located?

Guyer: Wade Tract is Thomas County, South Georgia. It's the prettiest tract of longleaf that I know of. And it is old growth in the sense that the trees have never been cut and the soil's never been plowed. And so it's got ground cover that's intact and surrounded by a nice plantation. But it's right out on the outside of the outskirts of Thomasville, Georgia. So it's all these problems of encroachment from the edges, that place is going to have to deal with that.

Gitzen: What were your early projects when you started here?

Guyer: First project was gopher tortoises in Mississippi. The De Soto National Forest has a seed orchard where they grew the longleaf pine that produced the seed combs that then reforested pretty much the Southeast. And they had to redo their seed orchard and there were tortoises on it. And that's in the part where they had been listed under the endangered species act. So my first grant was to go over there. We had the big government grant coming in here from Alabama trying to tell us how to run our... Yup.

Gitzen: Did you get a lot of crap from people about that...?

Guyer: Yeah. We were crossing state boundaries and there was a place where you had Forest Service was present there, Fish and Wildlife Service was present there, part of its run by the Army. So you had all these agencies that also tend to be territorial and so it was... It certainly got my lab off the ground, but it was interesting from that perspective, you're trying to appease many masters.

Hartman: So were you getting pushback from the community as well, or was it more agency oriented, or both?

Guyer: The community, they've reacted the same way pretty much everywhere we've gone. They recognize you're from outside but they're also interested in you. A lot of those places don't have a lot of outsiders, so they want to come talk to you, and as soon as... the first thing they want to do is sort of challenge you. If you're working with tortoises, everywhere we've ever gone the first thing they say is, "Oh well yeah, well I eat them. Tel me what your recipe is for them." But they're just basically trying to prod you to see sort of what your mindset is. Not necessarily that they're telling you sort of, "Get out of my backyard."

Hartman: So are there particular things, aside from their distribution or where you might want to go look for them, are there other things that surprised you that you've learned from community members that aren't affiliated with any research?

Guyer: Yeah, pretty much everywhere we've worked we've also bumped into someone that the community knows of that's sort of the "tree-hugger." Somebody generally who's grown up in that area, not necessarily well educated, but very knowledgeable about the area. And there's always been somebody that the community would say, "Hey, go talk to this person." Because that's the person who pulls gopher tortoises off of roads and puts them in their back yard, for example. We've always bumped into somebody in the local community who's doing that because they don't want all their animals to necessarily go in a pot or cross the roads and get squished. And so they've got a diverse culture in every community. So there's always that person. And that's generally the people we grew up being as biologists.

Hartman: Right.

Gitzen: If we were to drive and go stop in Hurtsboro...get out and start asking, "Hey, we're interested in tortoises and pocket gophers and wondering there's anyone [unsure]."

Guyer: Yeah, there'll be somebody that the community would eventually say, "Hey, you need to go talk to this person."

Hartman: So you mentioned that also you get a sort of a testing of people asking about, "Oh, what's your favorite recipe?" Do you hear a lot about stories of people saying, "Oh yeah, I saw a snake the other day and I killed it," or rattlesnake round-ups, those kind of things that... What kind of stories do you hear about that?

Guyer: The snake stories pretty, also, the same. Again, these are folks who've grown up with them and have to deal with the fact that they're in their yard all the time. And also folks just take the practical view of, "I'm going to whack its head off because it's going to get my dog or my kids or my grandkids," or whatever. So that's pervasive everywhere you go. But on the other hand you also, that's those same communities, if you're in them long enough and start talking about them, you sense that there's a part of their culture that doesn't necessarily want to wipe them out. So they all like telling stories of coming out of a tree stand and there was that rattlesnake sitting right there, scared the crap out of me but they write songs about that stuff and have lore that they tell around the campfire. So it's not that they necessarily want to get rid of it, it's just they grew up in a, with a different mindset of what that resource is all about.

Hartman: So have you gotten, heard any stories about...the lore associated with those kind of critters or predators?

Guyer: Yeah. The case of venomous snakes, the lore is pretty much all bad. And so it's, you know, beds of moccasins, everybody talks about that. And not just that they've heard about it, they know somebody who was fell down in one and could've been killed and, "they all were coming after me and so I had to shoot it to save my life." And if you try and tell them that that's, you know, actually that's a place where you were looking at water snakes, that you never find water moccasins that thick, that's the point where you'll lose them. Because they're so convinced that the lore is right that you're not going to educate them that it was actually this harmless snake. Because they look at that harmless snake and know that

that's a moccasin, too. So you do bump into the edge of being able to switch them to your mindset. But at some level I, you know, I don't necessarily think that they're thinking, "let's completely get rid of the resource," with the possible exception of the venomous snakes. That one is a mindset where many people are, would be just as soon glad that they were gone.

Gitzen: To what extent is the learning, and I'm making a big generalization, two way? I mean you learn a lot from talking to them and is there, as you talk to people in a particular community more and more, are they eager to learn what you know as an...expert? Or, I know it's....

Guyer: Yeah, that... They're always curious. But it's a double edged sword. So the understanding of the natural history, they're into that. But you do reach a point where again, your information and their information eventually may not mesh. And so you bump into a wall where you frequently can't get over. But they, they're generally willing to sit and listen. And they're, I've never been to a place where they weren't curious about what we were learning. And certainly in the case of repatriating indigo snakes, they love that snake, that's the easiest conservation sell we've ever had. Because they all heard the lore growing up, even though they never saw, you know there's a generation of people that have never seen that snake, but they, they all know that those indigos eat rattlesnakes. And we do have kind of a lot of copperheads and if you're telling me that this snake might take care of that, I'm all for it. The coolest story we've had from that experience was some hunter coming out of his hunting stand and he stepped right next to a big indigo and it scared the crap out of him, but he didn't shoot it. And he went right to the little mom and pop store in the center of Conecuh where everybody sits around and tells their stories and told that story. When we heard it we were pleased as punch, because that, that's a success story if the hunters are saying, "I'm not going to shoot that snake because it's sort of enhancing my experience out here, getting rid of something I'd just as soon not be present." Copperheads probably are more abundant than they ever were just because we've wiped out king snakes and indigo snakes that used to eat them.

Hartman: And so that was after the reintroduction?

Guyer: Yeah. Yeah he bumped into one of our big snakes, but again knew about the project and clearly had bought in, because before that I'm certain a big black snake would have been just certain shot unless they knew it was part of this effort to put in this predator that's going to help do all these things.

Hartman: Have there been some management efforts that have been more controversial or hard to get pushed through?

Guyer: Yeah, we... The first tortoise project in the Conecuh was associated with Nelly Pond, one of the prettiest sinkhole ponds in the Conecuh. And this is an environment that never had the fish in it that were worth fishing because the water levels rise and fall so dramatically that none of the sunfish radiation could maintain populations in there. But it would maintain water so that if you kept putting fish back in, then you could create a resource. And there was a pond that gopher frogs bred in. And so my, the goal from the Fish and Wildlife's perspective was to enhance the tortoise population so that they could keep the gopher frogs because this was one of their two best remaining gopher frog populations. And they put up signs saying to the locals, "Yeah, we're restoring this resource," and we

had a big community meeting to try and communicate with the fishing community. And there, they pretty much told us, “Well we understand what you’re doing but we’re not giving up that pond.” And they were open-minded enough to say, “Hey, but let’s brainstorm. Could we, we’ll help you pay to dig ponds for your gopher frogs.” But they were upfront and said, you know, “We like fishing there, we’ve been doing it forever and we’re just going to keep putting fish back in there.” And sure enough that’s what they did. Eventually they ceded that pond to us, so in the bitter end we got what we wanted. But it was interesting to go through that tension where, again, they were set in their ways, we were clearly set in our ways, and didn’t necessarily come up with the right solution, but time finally found one.

Hartman: So, yeah, gopher frogs do seem like they would be a harder sell...than indigo snakes if you can say, “Oh yeah, they eat other snakes.”

Guyer: “What good are they?”

Hartman: So do you...

Guyer: “If we lost them what big loss would it be?”

Hartman: Do you have sort of a response to why is biodiversity important?

Guyer: Yeah...to that community I generally appeal to their, to their field lore, field ethic. Because I, you know when they go out in nature, they like to hear barred owls. If the barred owl is gone, it wouldn’t change their resource that they’re looking to hunt necessarily, but, you know, they like to go out on a night and hear that. They all learned to give to the “hoot” owl call and call back to it and in the case of frogs I think it’s the same thing. If you talk about a hunting experience where suddenly there’s no frogs calling in the background, I think you can get to them that way. They wouldn’t want to lose that resource completely.

Gitzen: When did you start working or spending time in the Conecuh?

Guyer: That was...

Gitzen: After you got here, or...?

Guyer: That was the second project.

Gitzen: Yeah.

Guyer: Yeah. I started working in Mississippi and then the Conecuh had a challenge cost-share program, that may still be going, I don’t know, that essentially for small sums of money if I could match what they had then they’d throw in. That’s how the gopher frog, or gopher tortoise, project got started around Nelly Pond. We converted that into, we tried to set up an experiment where we had three sites where they were going to thin and burn and try and manage for tortoises. And we had three sites where they were going to just do regular management, which was very long rotation burnings, they weren’t going to thin. So we had six sites where we for about a three year period compared to what happened with those management practices. But just too short a time frame. I was young and naïve at that time and thought

we'd see something immediately and learned that you have to keep that going for ten, twenty years to really see the benefit that I'm certain would have eventually show up for tortoises and gopher frogs. But that's a long time frame to see the vertebrate response that you want to see.

Gitzen: Was there, what was the condition of the Conecuh in general then? Was there much open pine well burned? Or was it covered with...

Guyer: No. It was, it was forested. And they were trying to burn, but the burn cycle was all winter burn. And so it was...generally on a three to five year, but that generally means five to seven year burn rotation, which is just too long to keep the shrub layer out. So it was shrubby, dense, dark. All the tortoises were moved to the edge, generally road edge is where they got the most open habitat you could get, except for the deep sandy soils. In those the pine growth was so slow that things looked kind of okay there. They all had pocket gophers still present when we first started working there and we had those six tortoise sites. And I, my recollection is that every one of them had pocked gophers on them, and not a one of them has it today.

Gitzen: So were those, would you say those were the hot spots for pocket gophers in the Conecuh? Or were they beyond?

Guyer: Yeah, we... Tortoises and pocket gophers to my mind were intimately tied just because that soil was so deep that nothing could grow on it. And so it remained sort of open, less shrubby, more understory vegetation. And so the tortoises were distributed in a more natural way than right along the road edges. And again, they all had pocket gophers on them.

Gitzen: Sometime could we have you, show you a map and have you map where those, or a publication that we can...?

Guyer: Yeah.

Gitzen: Were they, do you think, would you have considered the pocket gopher populations in those sites to be viable populations if you had to guess?

Guyer: I did at the time, but it...

Gitzen: Was there pretty high density of them and far as you could tell?

Guyer: Yeah. Some of it, again in my mind I'm looking, remembering what I saw there, and there were mounds everywhere. And they were fresh and seemed to be changing. And I remember saying, "Man, I'm too hamstrung trying to keep track of tortoise burrows, but I should be trying to follow these things."

Gitzen: Yeah.

Guyer: And harvester ants in the other one I wish I'd marked. When I first started there, wasn't particularly concerned about, but I, since then people in Mississippi are saying, "Wow, we're, we've lost essentially all of our harvester ant mounds." And I can still find them on the Conecuh, but I think they're

right. I don't think they're as abundant. I don't have any data to back that up, but I think the time is now to start marking those just to see what is happening.

Gitzen: Yeah.

Guyer: But when I first got there I said, "Nah, pocket gophers, they look like they're going to be fine," and then watched them all disappear.

Hartman: So was it just one of those things where over time one day you kind of said, "I think they're declining"?

Guyer: Yeah. This is where Bob Mount, I'd sit and talk with him because he did that survey in the eighties and his, was taking classes starting in the early seventies. So he could tell you whether my mindset was naïve or whether, yeah, he... His mind has a longer time frame over which they've declined, but...

Gitzen: When do you last remember them being common approximately? What's like a general time?

Guyer: Nineties.

Gitzen: Yeah. Did the habitat change much?

Guyer: To my eye, no. And I... Yeah. And so again, my working hypothesis is that it's, it was such a small patch that it blinked out and there's just no way for them to get back. That if you put them back in there, my gut level intuition says yeah, they'd probably do well. But given that they blinked out, the question is how big does that patch need to be to make sure that you don't have them flourish for a decade and then...? Or it might be the case that that is the management strategy, you get a bunch of patches going and every once in a while you throw in some new individuals to make sure that it doesn't just blink out. But I'd like to see the Conecuh think more broadly and just get a big chunk where they're saying, "We're going to have a viable tortoise population, and it's going to be a viable pocket gopher population." And maybe two or three of those, and whatever you need to do on the rest of the forest, go ahead and manage that in whatever way you need to, but at least you can say there's a patch and its going to have indigo snakes and gophers and pocket gophers and RCWs [red-cockaded woodpeckers] and these other things we have on our list.

Gitzen: Do you have any reason to think they were a lot more widespread a hundred years ago in the Conecuh? Or were these remnant, almost remnant populations in the best habitat or...talk to Bob Mount too?

Guyer: I'd talk to Mount, but my impression is they were more widespread.

Gitzen: Yeah.

Guyer: They're on... Yeah... I'm certain they're on the Wade Tract, and that's all Orangeburg soils, which is not the Cadillac class of tortoise soils, it's the next one down. And so my recollection of Conecuh was not necessarily that you would drive everywhere and see them everywhere. I think on these less

suitable soils that they... I don't necessarily remember pocket gophers being everywhere there, but certainly on the [unsure] there's anywhere you had that deep [unsure]. And that's a huge of Conecuh. They were there and seemingly doing well.

Gitzen: And I can follow up with you another time to kind of maybe draw spots on a map and ask more about that, so.

Guyer: Yeah, when the Forest Service, when we first started that project they took me to places that they knew there were lots of tortoises. And I think they, in their mind's eye, sort of knew the hotspots and knew that the rest of it was not particularly abundant. And so I, that probably shaped my thinking in that since then we've done the line transect survey throughout all of Conecuh. And it, there's some nice looking habitat, but with very low tortoise densities. And I think same thing's happened to them that happened with the tortoises, or with the pocket gophers. They sort of blinked out and they don't necessarily repopulate easily. But you can quite easily enhance that.

Gitzen: I guess I could follow up by asking more on the topic of pocket gophers. Are there other lands in Alabama you've been on that either you remember there being a lot pocket gophers historically in your time or that looked good and you just don't, you would've expected them to be there but you didn't see any. Are there any places that come to mind like that?

Guyer: The one I remember is the federal lands around Eufaula, they've got some upland there.

Gitzen: Refuge land, or no?

Guyer: Yeah...and I remember them being there. Enough, they would have to have been there enough to have had that sunk into memory. But the other person I'd talk to, if you haven't, is Mark Bailey, because I relied on him almost exclusively when I first got here because I didn't know anything and he was the one I turned to. And I know he's got lots of experience wandering around and can say, "Oh yeah, they used to be here." There, the Wehle Tract, and Conecuh were the spots I remember you'd walk and say, "Oh man, look at all this."

Gitzen: But that, that is a national wildlife refuge, do you know? Or not just wildlife refuge, the Eufaula?

Guyer: Yeah, there's some of it that's wildlife refuge.

Gitzen: Were there tortoises there, do you know?

Guyer: They are, but at very low density. And they kind of don't want anybody to know they're there. There used to be a gopher frog population there that might still be there for all we really know. But I think that spot sort of had enough of, was big enough and had enough old growth remnants that a lot of these rare things were present blinked out.

Gitzen: Have you spent any time on Fort Rucker?

Guyer: No. Yeah, I've heard lots of stories of people that have been on there but I... All the things I've picked up about there is that they've, the military establishment there has been pretty closed minded

about outside influence, didn't really seek much. Some of the Auburn wildlife folks are there on part of their staffs, so there is an in. But they all seem to develop this culture of saying, "Well we'll just manage things internally, we don't want outside eyes telling us what to do."

Gitzen: So one other pocket gopher related question the, I mean certainly they have the reputation, there's information out there about how to kill, well not pocket gophers in general. I mean, have you encountered many croplands, golf courses, anything like that, stories where they were... Have you encountered many people who thought of them as a pest? Or know places where they became a pest?

Guyer: Yeah, the forest industry.

Gitzen: Yeah.

Guyer: Viewed them as a pest to eliminate. And I think that, certainly on private lands, that to quote was probably a much more interconnected set of populations and cut them up into things that could, there's no chance for rescue effect. And they were, they were convinced that the animals were eating the seedlings and the only way you were going to get recruitment was to get rid of the pocket gophers. But I think there's a study at Ichaaway where they showed that seedling establishment on the mounds of the pocket gophers enhanced seedling development.

Gitzen: Yeah.

Guyer: They, yeah they eat some of them. But the ones that were left were actually enhanced, and that there might be this interesting dynamic there, that eliminating the pocket gophers actually increased the effort that you had to put in to the remaining seedlings that weren't necessarily going to grow quite the way you'd want them to had they had the gopher mounds to grow on. The real gopher mounds, not the...

Gitzen: Yeah. There's too many gophers [unsure].

Guyer: Exactly.

Hartman: So you think that was in forestry specifically more than just agriculture in general?

Guyer: Yeah. The lore as I understood in forestry when I got here was still one of you've got to get rid of the pocket gophers if you want a functioning forest.

Hartman: Yeah because I see on a lot of the extension service publications still, especially more out west than here...

Guyer: Yeah,

Hartman: But, "Here's how you need to get rid of your pocket gophers, here's how you..."

Guyer: Yup.

Hartman: So one thing that I just think is interesting, and is kind of now changing topic, but the different names that people and sort of these mismatched names of different species. Like people calling... other names that people might call pocket gophers or... I don't know. What, do you have thoughts on why those different names have come about? Common names or something.

Guyer: Yeah it's just this part of the world sort of developed slowly, and it's basically an area where you've got these little enclaves. And so if you, if you're into folklore certainly, every mountain you go over suddenly you get a different take on a particular tale. And it's just like gene flow between populations in conservation. Sometimes it's enough that that's the exact same story, but sometimes, sort of the transmission rate is slow enough that you get a slightly different variant. And so you get all sorts of really interesting names that emerge because of that. Mount's the guy to talk to, because he grew up when it was still sort of all those enclaves, and made a point of trying to learn all the common names. But for pocket gophers, mostly local ones would call it "sandymounders" is what they're trying to say, but eventually it slurred into "salamander" and so then they were comfortable calling them that.

Hartman: It just seems like "gopher" seems to pop up in a lot of names.

Guyer: Yeah.

Hartman: So...Bob Mount is one person that you keep mentioning, as far as conservation efforts and people who laid the groundwork for habitat restoration in this area?

Guyer: In this area, wow. So since I've been here, the Forever Wild legislation was the most remarkable conservation event. And it's been such a best seller that even when we were worried, it was set up so that it expired after a certain number of years, I forget what it was, ten or fifteen, and so it had to be re-upped. And there was a concern that we were, it wasn't going to be re-upped, but if I remember right it was like smashingly, overwhelmingly supported by the people.

Hartman: So who spearheaded that?

Guyer: That I don't really know the ins and outs of. So it's a political level thing, so I suspect Nature Conservancy was involved. The Sierra Club I'm sure was in it. And it's something that's gone from state to state, and so we joined in but the folks in the state who pushed that were all sort of university conservation-oriented people and groups like the Sierra Club, Nature Conservancy, the Bankhead National Forest has a community of people that have been conservation oriented forever, they're sort of a loose-knit group but they sort of spearheaded people in that part of the world saying, "Yeah, let's vote this through." And so that's the single biggest conservation event that I've seen. And now suddenly you've got a board of people that represent the various regions and there was suddenly a mechanism at the state level of nominating tracts of land and trying to decide, given our limited resources, which ones we should get now, which ones we should keep on a back-burner, that kind of thing. But before that, as again, I'd talk to Mount, but I'd suspect it was all just individuals having the political clout or the persistence to push something through.

Hartman: What about researchers who might have like, you know, prior to you?

Guyer: George Folkerts, huge name. The folks in Birmingham at some of the smaller colleges have had people who've had big influence. So Larry Davenport's a name that keeps coming up. I've never actually met him, but I think he's at Birmingham Southern or Samford, one of the two. But he's had influence in that I know his students if they come here all are very knowledgeable about sort of local lore. And the Birmingham area has a bunch of sort of city parks and the McWane Center now, used to be the Red Mountain Museum, they've sort of just as a group managed to do things that from my perspective are really interesting. Set aside lands, set up conservation ethic, all those kinds of things we'd like to do.

Gitzen: What are you proudest of in terms of your impact on Alabama, Southeast, conservation, science, whatever?

Guyer: Certainly putting out students that sort of stayed home and are doing nuts and bolts kinds of issues. So we just had the Southeast Partners in Amphibian Reptile Conservation [meeting] and we took a group picture of all the people that had traced their roots to Auburn, and it was a monstrously large group. Some of that it was because it was in Alabama so we were all here, but I'm pretty sure that no other state could have batched an assemblage that large. And they, these are all people that are sort of where the rubber meets the road. They're in state-level government things trying to do herp-related, non-game. So that was kind of cool. So the fact that our work here, the research on gopher tortoises, is now being used across all the states to make decisions on what we're going to do. That's something I point to to say, "We might have made an impact there."

Hartman: So am I right in thinking today is, you're retiring now?

Guyer: This is the last official day.

Hartman: Is today your last day?

Guyer: Yeah. Although the University saw the fact that since I'm nine month, my last official payday was in the middle of May. And they used that as a mechanism to say, "Yeah, pull him off the books."

Gitzen: Yikes.

Hartman: Okay.

Guyer: Because I came to get paperwork signed, and according to the University, "No you can't sign for that anymore you'll have to find somebody else."

Hartman: Right. Okay. Do you think you're going to continue to work on this?

Guyer: Oh yeah.

Hartman: If you had unlimited funding, if someone said, "Here's a bunch of money," is there something that you know off the top of your head that you would, that you would want to do?

Guyer: Well, that of course would change day to day depending on what you knew and what was sort of at the top of your mind. But if there were unlimited funds then the place to put those unlimited funds is

for the, is going to be biased by the fact that I did mostly work on tortoises for this part of the world, so I'd be looking at south Alabama. And there is this GCPEP [Greater Coastal Plain Ecosystem Partnership] where the Blackwater River State Forest in Florida and Conecuh National Forest here and Geneva State Forest in Alabama and the Eglin Airforce Base, they're all talking to each other saying, "Man let's, let's have all our management efforts sort of be geared to reach common goals." And I see that as a, for the longleaf pine that's where we're going to be able to keep a place where there might be black bears. We, if you thought probably enough there might be Florida panthers brought back into a landscape. So I'd probably put it there. If I had twelve million, there's a piece of land that goes from Alabama into Florida that's spectacular and available to be purchased today.

Hartman: Wow.

Guyer: We'd buy it right now, tomorrow if there was, if you're saying there's unlimited funds.

Hartman: Right, yeah.

Guyer: But that conceivably could be a private part of all this public holding that would, I think could be managed in a way where all those things, all the animals that I'd like to see maintained could be maintained. And people could still be generating money, you could still be harvesting timber. You wouldn't be maximizing your profits, but you'd be making money. I think those were all achievable goals.

Gitzen: Are you optimistic about the, where you see Alabama wildlife, southern Alabama wildlife open habitat over the next hundred years? Or not?

Guyer: Oh, wow...What's happening in the tortoise world gives me the greatest hope. Because all the states are talking to each other, they're all doing the same things and they are trying to integrate across landscapes. But in general, the problems are pretty grave. Again, I do think conceptually you could potentially get Florida panthers across that GCPEP landscape, but you'd probably have to be bringing in genetic stock every once in a while to maintain that. But that's, that's feasible biologically. But at that level you're, you've got to talk to the local folks and get them to buy in to the fact that their dogs and cats are going to get eaten. At that level that may be too tough. So, marginally optimistic. But we've got to get, we've got to get moving on some of this stuff, you know. I've, I've pretty stunned that, again, on those plots where I saw every one of them had pocket gophers, and they're all gone. And again, I know how at one point I was seriously considering trying to do that as a repatriation project because Mark Bailey and I made that report to the state. And I didn't want that to be a report that just sat on the shelf, I wanted to actually do something. So we did the indigos. The next one would have been pocket gophers, but I know how tough it is to dig those things out. And we had the place where we could have done it at, there just wasn't enough energy to do that and indigos and something else. So it's got to be a bunch of other folks who all say, "Yeah, let's dovetail here in this place and make it all happen."

Hartman: So that's a report that you wrote for the state?

Guyer: Yeah. It's the State Wildlife Grants is another, that's a key resource. And when they wrote they brought sizable chunks of money to my lab, certainly helped keep it running on the gopher tortoises and the indigo snakes. Not sizeable by standards of my colleagues in biological sciences, we've gone heavily genomics oriented. So they're in the hundreds of thousands to million dollar grants. But to run my lab, thirty, forty thousand dollars per year, that goes a long way. So this program, was set up initially where they took the reports and they didn't just put them in a folder somewhere in Montgomery, they make PDFs, put them out on the web, so all that stuff is freely available. I hope they keep that process open because most of those reports are pretty nice and they all pretty much say, "Hey, here's what the state needs to be doing." And so there's something on record to go back to and look to see what progress we might be making. But we, we laid, we thought we laid it out there to say flatwood salamanders, like a chance they could be repatriated to Conecuh. Pocket gophers were on there. Southern hognose snakes, they've disappeared. Nobody really understands why. Might be fire ants, it's a ground nester, puts eggs on the ground. But on the other hand, eastern hognose are still there, they lay their eggs in the same place. Why did that one species disappear and not the other ones? You go down to Eglin they're, southern hognose are still there. They've got fire ants. How do we get that animal back? It seems like we could repatriate it.

Gitzen: Do you think the, these, the high quality areas on the Conecuh that had pocket gophers, did they have southern hognose snakes and were there a lot of fox squirrels?

Guyer: Fox squirrels are there but I don't understand them.

Gitzen: Yeah.

Guyer: And that's one that I've heard people say used to be much more abundant. And southern hognose, since I got here, have, nobody's ever brought one in alive. One showed up, really nice specimen, showed up in my lab freezer with no data so I have no idea where it came from. But it was a big nice adult. But nobody's ever brought one in since I came to Auburn. Mount did a survey in the Conecuh and I think he got one in the eighties. So by then, that's when he started saying, "Man, all these things are disappearing." King snakes were still present there, but he was saying, "I'm not seeing these as abundantly as I used to" and, you know, "here's all these fire ants." That's where he started piecing that together. And so that, hognose were gone by the time I got there. Pocket gophers, again, still there, seemingly abundant to my eye, but not necessarily, certainly weren't abundant across the entire landscape.

Gitzen: Have eastern diamondbacks changed a much? This is my last specific question...

Guyer: In my eye, no. Slow, slow decline, but Bruce Means did that project where he looked at the records of the biggest snake and the number of snakes that came into the rodeo. And it's what, fifteen, maybe twenty years worth of data and it shows a clear statistical decline. But that animal's fecundity is pretty high, so I don't think that was necessarily indicating that we were wiping out the population. We're just changing its demography, is my interpretation. And so rather than having big old adults in the population, it's still, we've farmed them out, we never let them grow that big. But they can continue to maintain a viable population with smaller individuals producing a whole bunch of kids. Because that,

they have live birth and don't have any of the fire ant dilemmas at that level. Big kids, they grow fast. And we put our drift fences, everywhere we put a drift fence we get eastern diamondback. Everywhere we put out drift fence we get pine snakes, even though I can't find them when I just wander around. But they're at some, and we see road kills persistently in Conecuh. So I think that animal has achieved some semblance of some dynamic where they're probably less abundant than they used to be, but they don't strike me as something that's necessarily about to blink out. But it's on the list of, we continually keep it on the state list because everybody says, "Yeah, we don't see as many as we used to."

Hartman: I have one...

Guyer: Okay so your big, killer last question.

Hartman: I have one kind of horrible question, which is: So you've talked about, in working with a specific group of people or community members...

Guyer: Yeah.

Hartman: ... how you can say, "Here's why you should care about this."

Guyer: Yeah.

Hartman: But in a broad sense, to you, why is biodiversity important?

Guyer: Oh, man.

Hartman: I figured this is the kind of question that you might ask someone in their dissertation.

Guyer: So the psychological answer is I never outgrew third grade when you hit that stage and, you know, dinosaurs and lizards and frogs. That's just an innate fascination, and so psychologically that has to be what drives my want to become a biologist. And certainly I can recruit students that all pretty much had the same experience, they're in it because they don't want to go through life without finding out where these things live, what they're doing. We learn beyond that that to tell stories about, you know, webs and you pull one thing out of the web and then the web structure falls apart. And I think there's enough biology to suggest that that's true as well. Part of what we're doing is, climate change is real. And that a sort of one thing at a time and suddenly, gee the dynamic is pretty dramatic to where you know you, we should've... That's where I get very pessimistic, because I think we've crashed that boat. Had warning signs, needed to start turning the boat, and it takes forever to turn the boat. And we still need to do something now, but that's a scary scenario in my opinion.

Hartman: Agreed. Okay well if you don't have any other questions? No?

Gitzen: No.

Hartman: You've been a wonderful first interview.

Guyer: Interesting.

Hartman: Thank you for your...

Guyer: Wide ranging, happy to do it.

Hartman: Yes, wide ranging and, yeah. Thank you very much.

Guyer: Happy to do it.

Gitzen: Yeah, thank you.