

# Saurology with Earyn McGee

## Ologies Podcast

### August 6, 2019

Oh heeey, it's the cup of hazelnut-flavored truck stop coffee you're too ashamed to admit you love, Alie Ward, back with another episode of *Ologies*. Woo! Tiny chameleons, drooling dragons, venomous thickbois, legless lizards, and more!

But first, thank yous. Thank you to everyone supporting *Ologies* on Patreon. Thank you to everyone who gets *Ologies* merch from OlogiesMerch.com. Thanks to everyone for keeping Ologies up on the science charts, and for telling your friends, and family, and foes – maybe those overlap. And thank you for leaving such nice reviews that you know that I creep on days when I'm wondering, "Do people like this?" So to prove it, I read a fresh one. For example, Katie Derrick says:

*Prepare to change your life. This podcast is life changing! Did you hear me? LIFE CHANGING! Start with the episode on fear and then listen to every single other one.*

And thank you to everyone who listens as they do fieldwork in Alaska, or do chores, or paint your kid's room, or do the dishes, or go on road trips. I'm honored to be in your pocket.

Okay, lizards. Saurology. Let's talk about it. Guess how frickin' elated I was when, one day, I was very busy lamenting that my wonderful herpetology episode with Dr. David Steen covered too many scaly bases. And then I stumbled upon a Wikipedia page identifying herpetology subfields! My eyes landed on the most beautiful word: Saurology! Some angels sang, some clouds parted, just a single tear raced down my cheek. And I looked out a window and whispered to the sky, "I fuckin' love lizards, man."

*Sauros* in Greek means lizards. I had just the saurologist to make all of our dreams come true. I followed her on Twitter for months and months. On Wednesdays, she posts a game called #FindThatLizard. And these are photos from her fieldwork that you swear, zooming over all the pixels, they gotta be a hoax, there's no lizards in there! But in fact, there is a lizard. So, Find That Lizard made me love lizards and Wednesdays even more. So I had her over to have a real-time Find That Lizard session amongst some local grasses, and cacti, and also my neighbor Donna, who's awesome and wondered why I was in my bushes:

*[clip from real-time Find That Lizard session]*

*Alie: She's a lizard scientist! We're looking for lizards!*

*Donna: Oh wow!*

*Alie: Yeah, this is Earyn.*

*Earyn: Hi! Nice to meet you.*

*Donna: Earyn? There's a lot of them, they're always in my yard.*

*Alie: Really? We were looking for them!*

*Donna: They usually perch on these rocks.*

*Alie: I guess they're warming themselves, right?*

*Earyn: Yeah.*

*Alie: So she's, like, a professional lizard scientist. [laughs]*

*Donna: Oh, well you came to the right place!*

*Earyn: [laughs] Nice.*

*Alie: I see a beer bottle. I don't know what species of beer bottle – it might be a genus Budweiser, species Light. Every once in a while I think I see something out of the corner of my– oh wait! Wait, wait!*

*Earyn: Oh, I think that's a lizard. Yeah!*

*Alie: Yeah! You see it? Oh my god, I thought I was hallucinating. Does it ever happen where you don't know if you saw a lizard or if you hallucinated?*

*Earyn: Yes, all the time. Everything is a lizard.*

*Alie: [laughs] Everything is a lizard!*

*Earyn: That bush is a lizard, that rock is a lizard, that piece of grass is a lizard... I'm just like, "Huh... Movement? It must be a lizard!" [laughs]*

So, we ran with it and we crouched near a cactus to watch for some tiny movements and listen for scuttly rustling and we saw three dang lizards! And then we settled into my couch to chat about everything from gecko's antigravity grip, to Komodo dragon mouths, to Godzilla, to her wildly popular Find That Lizard hashtag game on Twitter, to field season, to Gila monster sightings, close encounters with lions, balls of snoozy lizards getting hygge as hell in a hibernaculum, to some sound advice on social anxiety, and how to succeed in literally any field or ambition. So spread out on a rock and soak in the warmth of this ray of science sunshine, Saurologist Earyn McGee.

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**Alie Ward:** Now, you are... [*a little giddy*] I looked this up. You're a saurologist.

**Earyn McGee:** Yes.

**Alie:** Did you know that before?

**Earyn:** I did not.

**Alie:** Really?

**Earyn:** No! No one really uses that word but, you know, I'm very happy it exists. It works.

**Alie:** Now, when you tell people what you do, like at a dinner party, say, or someone is just introducing you, do you tell them you're a lizard scientist?

**Earyn:** Yeah, pretty much.

**Alie:** Hopefully, people are curious enough to ask you leading questions so that you can dive in. I mean, I would love to leave a dinner party and know more about lizards. Who wouldn't?

**Earyn:** I mean, that's true.

**Alie:** Now, why lizards? Are they your favorite kind of wildlife or did you just like being out in nature and fieldwork and then you found that you started to do a lot of research there?

**Earyn:** So I always knew that I wanted to work with animals from, like, birth to undergrad. I was like, "I'm going to be a veterinarian." And I was one of those teacher's-pet types of kids. But in the second grade, this one time, this lady was like, "Yeah you can't be a veterinarian." And apparently, according to my parents, I told her off [*"What did you say to me?"*] because I got sent to the principal's office and, like, in my family, you don't get sent to the principal's office. You just don't do that.

And so they had to come get me and I was like, “Listen...” But then I got to undergrad and I went and talked to some vet school students and they were like, “Yeah, we have friends in vet school and they’re miserable.” I think that the requirements of going through the process of vet school are just different and a lot more intense because you actually have to save these animal’s lives, and treat them, and give them medicine, and you don’t want to overdose somebody’s pet.

**Alie:** Mmhhh. Pressure’s on. So vets: Thank you, vets. We appreciate you.

**Earyn:** I appreciate you. Because my Puca, my dog, his vet is awesome.

**Alie:** But you were like, “Maybe... maybe not for me at some point.” When did you get to pivot a little bit?

**Earyn:** So, my freshman year of undergrad I did this program called HCOP. That’s the acronym.

**Aside:** Earyn went to Howard University in Washington, DC and participated in HCOP, Health Careers Opportunity Program. And a mentor there introduced her to Dr. George Middendorf, a herpetologist who became her undergrad advisor.

**Earyn:** And then one of my other friends is like, “Hey, you like animals and you also need money to pay for this school. You should apply to the Environmental Biology Scholars program.”

**Aside:** She applied and she got in! And she got to poke around in some different types of fieldwork to see what floated her boat.

**Earyn:** One guy was working with fish and I was not really interested in fish like that. So then I started working with lizards. And then I went out to the Chiricahua Mountains for the first time the summer after my freshman year and I was like, [*heavenly angels singing*] “Wow, this is perfect. I get to be outside; I get to catch lizards...” And this is like, you know... doing this work is hard, but it’s not like *vet school* hard. “This is perfect everything. It meets all my criteria.”

**Aside:** Earyn said she realized doing fieldwork that there are still so many questions about ecology and animals that were never answered, and that really excited her. And she graduated from Howard with a Bachelor’s in Biology and then headed out to the University of Arizona to get her Master’s in Wildlife Conservation and Management through the School of Natural Resources and Environment, and she’s now working towards her PhD in the same field. And speaking of being outstanding in the field:

**Alie:** When you’re catching lizards, walk me through what that is like in the field. Like, how early do you have to get to a field site? What is it like? Where do you start?

**Earyn:** All right. So, for the projects that I’ve been doing, I’ve already scouted the site. And so we would start about eight in the morning or so because, for the most part, the lizards aren’t out super-super early. You want it to be warm by the time they get out, and normally about eight, eight thirty-ish, it’s warm enough.

**Alie:** I love that these lizards are like, [*groans*] “It’s too early to wake up. Like, eight-thirty, nine o’clock.”

**Earyn:** And that’s also perfect for me because I am not an early bird at all! So, birds are out. [*laughs*] I was just like, [*groans*] “I can’t do it.” [*“I haaaate it!”*]

**Alie:** I guess there’s no “the early lizard gets the fly.” You don’t hear that. [*laughs*]

**Earyn:** Yeah so we'll get up, have breakfast, we'll go grab all our stuff. We make sure that we all have our lizard poles and everybody has to make sure that their line is good and it's not too short, it's not too long.

**Aside:** Earyn, by the way, has a very cool piece of equipment called a lasso. And it's essentially a little knot of silk thread and it's on a fishing pole she can extend out and she can loop it around a lizard and *zoom*, she's got the lizard.

**Earyn:** We have a whole fanny pack system, and the fanny pack has the notebook we take our notes in, pencils, pens, rulers, scissors, all that kinda stuff we need. And then we just pass off the fanny pack to whoever needs it at whatever time. And so then you walk through however far you need to get into the site, and then once you're in the site, pole is in hand, so that way when you see a lizard you're ready to go for it.

And so then at that point, we are just walking up and down the site however many times that we've decided that we're going to walk up and down the site. Normally, it's just walk up once, walk down once, and then leave. If there are no lizards – and occasionally at some sites there have been no lizards – it's pretty quick. And then in some sites where there are a lot of lizards, we might spend two or three hours in the site catching lizards.

**Alie:** This is such a stupid question, but what is a lizard? I mean, we're talking a reptile, we're talking not a snake. It has legs, although there are legless lizards. But what differentiates a lizard from, say, a snake, other than legs? I feel like somewhere in between a toad and a snake lies a lizard. *[laughs]* Like in a Venn diagram of limbs and such.

**Earyn:** I'm pretty sure it has something to do with the bones, with their head shapes and skulls. It's something to do with how their backbones and stuff are put together.

**Aside:** Turns out that defining a lizard isn't the easiest because there's so much variety in them. Y'all, there are lizards that have venom, that have third eye organs at the top of their heads, they have scary Shakespearian collars. There are ones that dive and eat algae in the sea. Others that walk on water? What?? Like a Jesus??

They can take down a water buffalo. They can clone themselves. There are wall crawlers, night singers, blood shooters... also, it's early in the episode, but I'll go there. The males have two dicks. Why not travel with a spare? But don't worry, female lizards are known to have two clitorises, and researchers don't know what they're for. Maybe they should just ask. But the book definition for lizards is:

*Any suborder of reptiles distinguished from snakes by a fused inseparable lower jaw, a single temporal opening (that's a skull hole, kiddos), external ears, eyes with moveable lids, and two pairs total, four, well-differentiated functional limbs, which could be lacking though in burrowing forms.*

So there's your definition of a lizard. And also yes, there are wormy-looking legless lizards. Also, I just google searched 'lizard ears' because I just needed a little dose of cute, and somehow, up popped a photo of a person who had gauged ears with a live anole resting in the rubbery hammock of this person's lobe flesh. So, that's enough of that.

Also, some lizards, like green anoles, and monitor lizards, and Komodo dragons, which are monitor lizards, are super smart. Researchers say maybe on par with some bird species. So does Earyn find that when she's out catch-and-releasing them for her data?

**Earyn:** It depends on the lizard. Some lizards are smarter than other lizards. *[laughs]* And it also depends on if they've been caught before.

**Alie:** [*gasps*] Really??

**Earyn:** Then they've learned, they now know what it is. And so sometimes, a lizard will see you and is just like, "Hmm, you're not gonna bother me." Or "Hmm, they're not gonna see me, my camouflage is good enough." And then you can just walk right up to them. Or sometimes they'll see you, and they'll run, and then you have to run with them, and you're chasing a lizard. [*cartoon running sound*] And sometimes it takes like three or four people to catch one lizard.

**Aside:** Earyn told me that to track them, her research team, like herpetologists all over the world, sometimes has to snip off a few toes in a certain order as a marker. So, toe clipping has its critics of course, but catching and releasing lizards to monitor them, especially with climates a-changing and water sources drying up, is important to the work that herpers are doing. And she says that she takes just the minimum she needs for identification, and I did not ask what she does with the toes.

I started researching to see if you can buy small bags of lizard toes, like maybe she could put them to use and sell them to a site for witches. And then that landed me on a Wiccan page to see if they actually do use lizard toes for anything. Honestly, they didn't have anything about lizard toes, just some helpful info on candles and herbs and crystals. Before I knew it, I was on 'Wicca Living' reading a really great article about gratitude that really made my day. I was like, "Thanks, witches. Most of you are probably vegan anyway." So yeah, if wild lizards don't respond by name, how else can you recognize them?

**Earyn:** I also paint mark them on their back. So, I'll just give them a little number.

**Alie:** How long do lizards live? Are you seeing the same ones later on in the field season, maybe next year?

**Earyn:** They can live, generally, a little while. It also depends on the species. But the lizards that I'm looking at don't normally get too much older than five or so in the wild. Like, my undergrad advisor was seeing this one big male lizard year after year, just displaying for everyone like [*"Hello, ladies."*]. One day, it got swooped up by a bird.

**Alie:** OH! Did he see it?

**Earyn:** Yeah.

**Alie:** He was there for it??

**Earyn:** Mm-hmm.

**Alie:** That's pretty opportune, I'd have to say. Like, in terms of getting some closure on where that lizard went, you know? Oh my god, was he just, so screaming? I would probably be like, "Noooooooooo!"

**Earyn:** He didn't go into all that detail. You do see them year after year, though.

**Alie:** You're like, "Hey what's up? It's you again."

**Earyn:** And they like to hang out in the same areas for the most part.

**Alie:** So it's not like they're finding a different rock. They're like, "This is my rock. You've come to my rock. Shocker! I'm here on this rock." It's not like they're going to move to New Jersey out of nowhere.

**Earyn:** Pretty much. And so for the most part, most of the lizards didn't move more than five meters, so we would see lizards year after year after year in the same places. I looked back,

like, five years because my undergrad advisor, George, has been going back to the same site for, like, 40 years, so he had all this historical data that I could look at and grab onto.

**Alie:** And what do lizards usually eat? Are they out there eating mostly bugs?

**Earyn:** So, again, it depends on the species, but the lizards I work with, they eat small insects.

**Alie:** Do they do the thing where they throw their tongue out or no? Is that just chameleons?

**Earyn:** No, I'm not sure if it's just chameleons.

**Alie:** Is a chameleon a lizard?

**Earyn:** Yeah.

**Alie:** Oh, okay. It's just one of those like, "I don't know. It's got these foldable toes," its toes are like a pita pocket. I was like, "I don't know man, maybe it's not even a lizard."

**Earyn:** Yeah, no, it's totally a lizard.

**Alie:** It seems like a souped-up lizard because it's like, "Curly tail, yes. Weird toes, yes. I change colors *and* I have a telescopic tongue." It's got cone eyes! Why did a chameleon get all these features??

**Earyn:** It got lucky.

**Alie:** I guess, man.

**Aside:** Okay, side note. I tried to research this and 'types of lizard tongues' was turning up relatively little. Then I tried to get fancier, searching for 'lingual morphology in lizard species,' and I found this paper: "Evolution and Function of Lingual Shape in Lizards, with Emphasis on Elongation, Extensibility, and Chemical Sampling." But that was more about sniffing. More on that later. So then I went on a chameleon deep dive, and I had to hold onto my butt for the info that came next!

So, number one, chameleons' tongues can be up to twice the length of their bodies! And they're made of bone, and tendon, and elastic tissue folded like an accordion. And then they stretch it back like a bow, and then they flick that thing out, accelerating – you ready for this, car buff people? – from zero to sixty in 1/100th of a second! There are over 200 species of chameleons, and there are some that are so teeny, teeny tiny that they can sit on the tip of a match, which I hope they only do for *Nat Geo* photo ops, because imagine sitting on a giant ball of highly flammable explosives just so people could get an idea of how much you weigh. Nightmares on nightmares.

But to summarize, these little buddies are native to Africa, Madagascar, Sri Lanka, and southern Europe. They have prehensile curly tails that can grab stuff. They have swively eyes with cone-shaped lids that can move independently from each other, and they can switch from monocular to binocular vision when they need it. They can change their skin color by moving the spaces between pigment crystals under their skin. Certain chameleons have bones that glow under UV light. And yes, their toes face each other, and this is called zygodactyl, in case you're ever playing Scrabble and you have a Z and two Ys.

I thought, "Damn. These lizards must be the newest models on the market," but they've identified species around 60 million years old, and they may be up to 100 million years old. So they have some special features. But how do other lizards eat? Do they just order pizzas and give up on life?

**Earyn:** Some lizards are sit-and-wait predators. So they're just like, "Hmm, I see you," run up, [*as if snatching:*] "*Shhhpp!*" And then go back to where they were perched.

**Alie:** So they'll just use locomotion to go in and catch a fly or whatever?

**Earyn:** Yeah.

**Alie:** Ooh. So now, do you have to see if their diets are changing year to year? Like if there's different insects or if they're hungrier one year than another? [*"Nom nom nom nom!"*]

**Earyn:** I was looking at if they were eating emerging aquatic insects out of streams because no one has actually looked at whether their food sources are purely terrestrial or if there are any aquatic ones. And so because of climate change, and stream drying, and drought, and all that, I was like, "Well, if they're eating these aquatic insects and then they're important, then they could be negatively impacted when these streams go away."

**Aside:** So how does she figure out what wild lizards are eating? Well, she sequences their poop. What? They're not using it anymore! She might as well. She figures this is the same technique they use with lions, and tigers, and bears, oh my. So we were in the middle of talking about poop and I got distracted by something on my porch.

**Alie:** [*quietly*] I'm so sorry, there's a lizard on the pole. Okay, see that pole? I swear, I didn't hallucinate, but there was a big western fence lizard on that pole. It went on the other side.

**Earyn:** I believe you 100%.

**Alie:** I got so excited then it ducked out of view. It was there, though. It was taunting us. So you figure, if you can do it with big cats, why not?

**Earyn:** People have the DNA sequences of aquatic insects. So if they have it, and then I have the poop, and then the DNA is gonna be in the poop... it only makes sense!

**Alie:** Do you think you're the first person to analyze lizard poop?

**Earyn:** Hmmm. Probably not.

**Alie:** What is the most beautiful lizard?

**Earyn:** The most beautiful lizard? For me, it's going to be... *Sceloporus jarrovii*, Yarrow's spiny lizard has a very special place in my heart. It will always be my favorite, the most beautiful to me. Because that was the main species that I worked with during my undergrad and so, for me, it's just a symbol of the world opening. [*Jasmine from Aladdin: "A whole new world..."*] Like I did it and it was my whole new world. I was like, "I didn't know this was a thing I could do and now I do, and you're now my special lizard."

**Aside:** Quick aside. So the Yarrow's spiny lizard goes by *Sceloporus jarrovii* on formal occasions, and it is quite a stunner. Their backs can have an orange glow, kind of like an Edison bulb in a good first date bar. And its tail has this grey ombre that fades into this brilliant turquoise color. It's sooo gorgeous! It's the kind of blue you would see in pictures of shallow tropical waters in Instagram vacation photos of a person you hate-follow. Earyn explains:

**Alie:** [*laughs*] So what do they look like?

**Earyn:** So, they are a medium-ish-sized lizard. The males get these nice blue patches on the sides of their stomachs and on their throat. They can get really brilliant orangish colors on their back... and blue... They're a little variable but they're really pretty, especially in the sunlight.

**Alie:** Why do you think they have those blue patches? What does that serve? What purpose?

**Earyn:** So, mating, and to show, you know, who's boss. "Don't come over in my territory. I am the big bad male. You see how dark this blue is? You see it?? You see it?? Go away!! [pause] Unless you're a female." [laughs]

**Alie:** [laughs] Right? "In which case, come closer." Is there any truth to the flimflam that if you rub a lizard on its stomach it will get, like, so entranced you can just hang out with it for a minute?

**Earyn:** I mean, once you catch it... Sometimes they're going to try to bite you and some of them are like, "Welp, this is the end. [laughs] I'm just gonna sit here now."

**Alie:** They're like, "You got me. Game over."

**Earyn:** Pretty much.

**Alie:** But really, you just mark them and let them go again, right? So it's kind of a happy ending, right?

**Earyn:** Yeah, they're alive still. They might be missing a couple of toes but...

**Alie:** And now, you have a poodle. You don't have any pet lizards?

**Earyn:** No.

**Alie:** Okay, what do you think about pet lizards?

**Earyn:** As long as you know how to care for them, and you do so properly, and you aren't getting any illegal pets or things that are bringing diseases in because you went through a person or a company that is just like, "Well, we're just gonna grab up these lizards and send them around!" So as long as you do it responsibly, then I don't see any issue with it.

**Alie:** So as long as you don't get a baby iguana and then let it loose in the backyard when it gets ugly?

**Earyn:** Exactly. Shelters do take lizards. If you have an unconventional pet and you don't want it anymore and you're worried about getting rid of it, you can take it to the shelter. They'll take it.

**Alie:** They'll take your middle-aged scaly iguana?

**Earyn:** Yeah.

**Alie:** I do feel like everyone gets a baby iguana and then they're like, "Oh, this thing's gonna live forever. It's kinda gonna outlive me!"

**Aside:** PS: Florida, you are overrun with iguanas right now. The green iguana in particular has just flourished after folks who got them as pets in the '80s bailed and let them loose in the bushes. And then more hurricanes that we're having recently blew them over from some distant lands. And then also global warming, just keeping Florida nice and toasty.

So, what is the problem with having 80 feral iguanas in your yard? I'm glad you asked. South Florida residents do not enjoy swimming pools fouled with iguana turds, which can also carry salmonella. Also, iguanas can grow to be five feet long, they love to eat gardens, and they also like to eat power lines, meaning sometimes there are power outages because iguanas have *eaten the power lines*. Sometimes they turn up in people's toilets. It sounds like an iguana party but the state's not into it.



So what is a Florida to do? The Fish and Wildlife Conservation Commission released the directive a few months ago that people can and should kill them “whenever possible.” Did this lead to a Florida man iguana hunting but shooting his neighbor’s pool guy on accident? Yes, yes it did. Non-fatally, but still. So the Fish Commish had to release another statement just a few weeks ago saying, “Kill them humanely, i.e. quickly, preferably with a bow and arrow, or traps, or a rock, and try not to shoot each other,” essentially.

Another option? Eat ‘em. Locals apparently refer to them as *pollos de arboles*, or ‘chicken of the trees’. And historically, they’re a menu item in western Mexico. People eat iguanas all the time! So, sunshine staters are like, “Why the hell not?” Florida *Sun-Sentinel* published a helpful video on how to cook and fashion these local pests into burritos. The meat is lean, the protein content’s high, and reports are it has a body like a rabbit with a bony, fishy kinda tail... but tastes like chicken. [*“Is this chicken, what I have? Or is this fish?”*]

**Alie:** What are some flimflammeries about lizards that you feel like are myths you would like to bust?

**Earyn:** Hmm... They’re not slimy, for one. And for the most part, they’re not going to hurt you. They want to be left alone. Like, if you see a lizard, there’s no need to be afraid, they’re not scary.

**Alie:** Are there people who are afraid of lizards?

**Earyn:** There are people. I encounter lots of people who are afraid of lizards and like, I get it, but then it’s just like, “It’s just a lizard! It doesn’t want to bother you. It just wants to eat the bugs.” [*“Do you mind? I’m trying to eat here!”*]

**Alie:** That seems like a great thing to have in your house. If you find a lizard in your house, should you just let it hang out? Or should you escort it outside?

**Earyn:** You should probably escort it outside because there might not be enough bugs in your house for it to live off of. It needs some water sources, and it probably got in there by accident. It probably was hanging out on the door, and you opened the door, and it got scared, and so it just went inside by accident. It probably wants to go back outside.

**Alie:** Okay. So, don’t keep it as your personal extermination service. [*laughs*] Good to know! I can see having, like, a house gecko that you’re just like, “Get it! Go get it! There’s a mosquito, you get it!”

**Aside:** Let’s talk about Earyn’s viral Twitter game that runs on Wednesdays called: [*gameshow style shouting*] #FindThatLizard! Part of the reason we went lizard hunting is that I’m obsessed with Find That Lizard and I wanted to experience it with its creator and boy howdy, was it a damn thrill:

[*clip from real-time Find That Lizard session*]

*Alie: I see him. He’s just... chilling out. I can’t believe I didn’t bring my phone to take a picture. This would be a good Find That Lizard. He’s playing with us.*

*Earyn: I figured it would want to be something like this because it’s easy to have somewhere to hide, and it’s also pretty decent to get some sun.*

*Alie: Yeah. You’ve made finding a lizard like seeing a celebrity in a grocery store, you know what I mean?*

**Alie:** So you have taken over my Wednesdays with #FindThatLizard. It’s my favorite thing to do on the internet. You and Kaeli Swift’s #CrowOrNo. Wednesdays are *the best*. Oh, and then

Whose Poop Is This is also another fun game. But Find That Lizard: I wait until it's five o'clock central time. "It's gonna go up, I know I've got a couple hours to find the lizard." How did you start this and why has it taken over my brain?

**Earyn:** So... I just posted a picture one day because I was upset... Well, I wasn't upset, I was just, you know, energized, really hot in the moment because I was trying to catch this lizard and she was giving me a really good chase, and she almost got away. And I was about to give up, and then I looked back and was like, "Am I really going to give up on catching this lizard today?" And then I saw her, and she was in this tree, and I was like, "I almost missed her!"

Her camouflage was so good, but she was a recapture, so she had this bright orange "5" on her back because I had already marked her, and so I was like, "If it wasn't for this 5 on her back I would've missed her. Look, guys." And then people were like, [*crickets chirping*] "I know you said she has a mark, but I don't see her." [*laughs*] And so I was like, "Really?" And people were just like, "Yeah, this is fun!"

I think it gets their competitive nature going because they're just like, "There's not a lizard in this photo!" [*laughs*] And I'm like, "There is!" And they're like, "Don't touch that phone, don't you take it! I'm still looking. I'm still looking for the lizard!"

**Alie:** Do you have your phone on you so when you're in the field, you see a lizard, and before you advance on the lizard you're like, "I gotta get a picture of this, no one's gonna be able to see this lizard."?

**Earyn:** [*laughs*] Yeah, I totally do that.

**Alie:** How many do you have in a backlog? Because I want to know that we're covered for a long time with this. 52 at least, please? [*laughs*] Do we go week to week?!

**Earyn:** Ummm... [*laughs*] Sometimes, sometimes I do, yeah.

**Alie:** That's how I make this podcast, so... [*laughs*]

**Earyn:** Well, if I'm in the space and I can get a bunch of pictures, I will. There has to be some because I recently had to upgrade my storage with iCloud because they're like, "Yeah, you have too many pictures," and I'm not deleting anything right now because I don't know if I have any good ones in there. But I also probably have thousands of pictures with no lizards in them. [*laughs*]

**Alie:** Oh gosh. Is that because you thought you saw a lizard?

**Earyn:** Or like, I pressed the button, but as soon as I pressed the button it moves. [*laughs*] Or it ran away, you know? So I spend a lot of time going through pictures looking for lizards that aren't there.

**Alie:** But that's what I love about the game is that at first glance you're like, "There's absolutely no way that there's a lizard in this." And then when you find the lizard it's such a triumph, [*trumpet fanfare*] and then it makes you appreciate the lizard and how much evolution went into that kind of camouflage. Do you feel like #FindThatLizard has gotten people more stoked about lizards?

**Earyn:** Yeah, people have told me that it's made them more interested in lizards and made them think that it's cool. And I'm just like, "Yesss, lizards are cool!"

**Alie:** What is it about the kind of predator-prey relationship where they are so hard to spot but you have to listen for the rustle or you have to see this little flicker of movement? Are they prey for a lot of animals?

**Earyn:** Yeah, they're prey for pretty much everything bigger than them. Even other lizards. [Alie, *slowed and sad: "Oh nooooo..."*] Lizards will eat lizards, snakes will eat lizards, small mammals will eat lizards, large mammals will eat lizards. Birds are eating lizards. Everything eats lizards! So, they have to play for the long game.

**Alie:** They're like the sandwich of the natural world. Everyone's like, "I'll take a lizard."

**Earyn:** Pretty much. Yeah, my undergrad calls baby lizards 'ecological popcorn' because everybody just snaps them up. A handful at a time.

**Alie:** Now, where are lizards having their babies? Because I'm picturing the desert or rocky ground. And are they having clutches? Nests?

**Earyn:** It depends on the species. Some lizards are livebearers, so they'll just, you know, pick a spot and pop them out. The vast majority of lizards lay eggs, but some of them give live birth. So *Sceloporus virgatus*, the striped plateau lizards, will wait until it rains and when the ground is nice and soft they'll go out, and dig, and bury their eggs, and cover them up. And then sometimes when you're walking along the trail and you see all these scratch marks it's because something came by and ate the eggs; they dug them up.

**Alie:** Oh no, that's like ecological jellybeans. [laughs] I know it's going to depend on the species, but do some lizards have two eggs, and some are just like, "Ohhh, I got like 50 babies in here."?

**Earyn:** I can really only speak for the ones I study, and a lot of times they are popping out a lot of them.

**Alie:** Because they have to survive the numbers game?

**Earyn:** Yeah.

**Aside:** Let's talk about big lizards who can regulate temperature more slowly because of their mass-to-surface-area ratio. And for more on that, get all into body heat fun facts with anole researcher and Thermophysiology Dr. Shane Campbell-Staton in the previous Thermophysiology episode. He's amazing.

**Alie:** Stupidest question. Alligators: they're lizards?

**Earyn:** No...

**Alie:** No?! Thank you for telling me that. I was like, "How big does a lizard get?" Why isn't an alligator a lizard? [laughs] I'm sorry!

**Earyn:** It's just not... [laughs]

**Alie:** Is a Komodo dragon maybe the biggest? Is a Komodo dragon a lizard?

**Earyn:** Yeah, they are the biggest. Yeah, they're lizards.

**Alie:** And when you see those videos of them slow-motion eating a deer. You're like, "What is life?!"

**Aside:** Komodo dragons, by the by, hail from the Indonesian islands and can get up to 10 feet long and weigh 150 pounds, and we'll touch on them a little later, but I don't mean that literally because there were none in my backyard and... no thank you. I don't want to lay any hands on any one of those; no way, no how.

Side note: I just looked it up and there is a place in Jakarta where, according to TripAdvisor user Goldie6 from Ohio:

*The Komodo dragon building was gorgeous and for a little extra you can touch a live but well-fed Komodo dragon for the thrill of a lifetime.*

Goldie6, you're from America, isn't life here thrillingly scary enough?

Anyway, we're going to get to your Patreon questions, but before that, a few words about sponsors I like who make it possible each week to donate to a cause of the Ologist's choosing. And this week Earyn picked the Doris Duke Conservation Scholars Program, or DDCSP, which is a highly selective, two-year undergraduate research program focused on preparing the next generation of diverse environmental conservation professionals. It offers immersive, experiential learning opportunities and access to mentorship opportunities. So for more information, you can visit [DorisDukeConservationScholars.org](http://DorisDukeConservationScholars.org).

Now some words about the sponsors who are making that donation possible.

[Ad Break]

Okay, back to your questions.

**Alie:** I have some patron questions. May I ask you?

**Earyn:** Yeah, let's get into it.

**Alie:** Some people submitted several questions themselves. Like, some people were like, "I have five questions about lizards and I'm going to submit them all." Bethany Szczepanski – a lot of Zs in that, just saying... wow, took me a minute to figure out how to say that – says: I read that western fence lizard blood reduces the prevalence of Lyme disease. Is any research being done to create a vaccine based on this? Have you heard about this?

**Earyn:** So, I have actually recently heard about western fence lizards being able to help fight Lyme disease. I know absolutely nothing about it besides that it is a real and actual thing.

**Aside:** Okay sidenote: when Lyme-infected nymph ticks feed on western fence lizards, a certain percentage become Lyme-free as adult ticks. And this was first discovered in 1998 by UC Berkeley entomologist Robert Lane. A certain protein in these blessed, beautiful, blue-bellied babies' blood kills the Lyme spirochete bacteria. And for more on this you can see the Acarology and Disease Ecology episodes that were out a few months ago, and by see I mean hear, and in no time you'll be lovingly screaming at your loved ones to check their crevices. And you should check yours also.

**Alie:** So, don't eat a western fence lizard. Let them go on and do their work. Jude Kenny wants to know: If a lizard loses its tail, does it grow back? If so, can this be made to happen in other animals by some kind of genetic engineering? And Crystal Mendoza says: This question, please ask this one. [laughs]

**Aside:** So, who else wanted to know about lizard tails? Like, all of you! Because it's a good question. But by all of you I mean specifically Andrias Ari, Richard Jensch, lizard lover and first-time question-asker Jennifer Alvarez, James Irvine, Bee Wilson, Shannon Snyman, Carolina, and Peter DuPuis Jr.

**Alie:** So what is it about the tail that's like, "Okay, I'll make another one."?

**Earyn:** I do not know the exact mechanisms that tell the lizard's body to start regenerating a tail, but they totally can. The idea is that they have vertebrae along the tail and at certain sections it will just break, and so that way it just pops off. [boing] And so the tail will still be moving and hopefully it will distract whatever predator has grabbed the lizard and the lizard itself can run away. And I have no idea if people are looking into using it for other

things, like for people or whatnot, but I would assume someone at some point has actually looked into this.

**Alie:** I wonder if you can just CRISPR yourself a tail? Like, “You know what I’d like? I’d like to just grow a tail today.” Like, “Bloop!” [*laughs*]

Danielle Rivera wants to know: Why are parthenogenetic lizards so cool? (They are so cool.) So they want to know, can they just make more lizards without a mate?

**Earyn:** Yes.

**Alie:** [*gasps*] All the single ladies!

**Earyn:** You know, sometimes you don’t need men! [*laughs*] It’s just a cool thing, you know? Sometimes, you want things done and you want it done your way, [*laughs*] and that means nobody else is involved but you.

**Alie:** [*laughs*] Maybe they’re career lizards. Like, “I’m not gonna wait around!” Are they clones? Or are they a mashup?

**Earyn:** They’re clones.

**Alie:** They are?? My gosh. I wonder if they are all named Sharon, Shana, Shara... I knew someone whose family was all named like, Cheryl, Shannon, Shana. Like, just name them all after you! You’re like, “See ya!”

Does that happen when maybe there aren’t resources or there aren’t males? Or does that just happen because, like, “Time’s right, now’s good”?

**Earyn:** So, I was looking this up for some whiptail species, especially the ones you can find in southern Arizona, and it happens when one closely related species mates with another closely related species, and then the babies they produce end up being parthenogenetic.

**Aside:** I started reading some research papers on this but I want to give hardcore props to the Wikipedia page titled “Parthenogenesis in squamata,” which sounds like actual gibberish verbal coleslaw. But parthenogenesis means, literally, ‘virgin birth’ (aka *all the single ladies*), and ‘squamata’ means ‘snakes and lizards’ (‘*squama*’ means ‘scale’ in Latin). So one species of snake, but 50 species of lizard, roughly, undergo ‘obligate parthenogenesis’, and that means that is the only way they do it. That’s how they reproduce. And then there’s an unknown number that mostly do it when there just aren’t dudes around, and that’s called ‘facultative parthenogenesis.’ I think that’s how you say it.

Also, apparently, busting out children solo can benefit reptiles if they, say, wash ashore on an island and they find themselves dudeless. And while the whiptail lizards are all clones of their mothers and no males even exist, other virgin lizard births can happen as full clones of the mother, or half clones if she mixes up her own DNA into different alleles. But what if they are of the clone variety?

**Earyn:** Once they have the cloning ability, it’s a parthenogenetic party.

**Alie:** [*laughs*] A parthe-party? All the guests look identical.

**Earyn:** Right!

**Aside:** I would like to attend that lizardly clone party and just be a gawking wallflower. Speaking of clinging to walls, this next one about magic lizard feet was also asked by Sara Klips.

**Alie:** Patrick McNeely wants to know: How do lizards stick and climb on vertical surfaces so easily when they are relatively large? So I think these are some Van der Waals forces, right? How are they climbing things?

**Earyn:** Some lizards have their claws; they can just get up there with their claws. But then with things like geckos, they have these little itty-bitty things that allow them to grip on the little bitty molecules. Like, we feel the solid wall, but they're like, "Oh, there's little indents on this wall and I can grip them because I have all these little..." I don't know exactly what they are but, "I have all these little things on my pads."

**Alie:** So that's how the intermolecular forces are working! That's Van der Waals?

**Earyn:** Yeah.

**Alie:** That's cool. I never understood that before.

**Aside:** So I did a little digging and apparently geckos' feet are covered in fine hairs called 'setae' and that each of those is frayed at the end like an old rope, giving their feets billions of little bristles called 'spatulae.' So geckos' feet are just a fuzz factory.

The Van der Waals forces – a kind of physical bond via electrostatic attraction between those hairs and the little contours in the wall – keeps them looking glued to it. When the surface is super slick or those hairs get covered is when their wall walking starts to wane. I read that a single gecko crawling on a ceiling could support 90 pounds of weight. And one biologist who studied how the precise angles of those hairs helped the gecko switch the forces on or off, named Keller Autumn, is quoted saying: "Geckos are vastly over-engineered." They're overqualified for their wall walking! They're too good at it! And somewhere there's a chameleon raising its eye-cones like a bitch and muttering, "Yeah, well... hmm... I guess an invisibility cloak isn't enough anymore."

Also, I fear a dystopia where robots can climb walls, and disappear into their surroundings, and flick a wet sticky muscle 30 feet to catch things. So for now, just make like a happy witch and appreciate that you weren't born a cricket. Can you imagine? That would suck.

**Alie:** This is a good question Mark Turner asked: What's the purpose of the forked tongue?

**Earyn:** Again, back to the surface area. It's like, if you have more space to have more of those things to collect scent chemicals on your tongue, and you can bring it back up to the little thing right here in the face where they can put the tongue and then it analyzes the chemicals and lets them know things about the environment. There's a whole name for it, and I learned it in class, and I just don't remember. I'm sorry, Dr. Koprowski. *[laughs]* You definitely explained it to me but I remember what you were talking about. *[laughs]*

**Alie:** This is what asides are for.

**Aside:** So this organ is called a 'vomeronasal organ,' or a 'Jacobson's organ,' which sounds less like vomiting and is easier to pronounce. A Jacobson's organ is there for lizards to jam their air samplings into the roof of their mouth so they can figure out what's in the air. Don't you wish you had a vomeronasal organ? Don't worry, we do! Scientists just think it's hanging out and we don't really use it, but elephants use theirs, and so do a bunch of other animals, but we don't care about those other animals. We care about lizards!

**Alie:** So it's kind of like putting a broom out there? Like, the more bristles you have, the more information you can collect?

**Earyn:** Yeah.

**Alie:** Oh, that's cool. Kristina Weaver wants to know: What makes a Komodo dragon's bite so terrible?

**Earyn:** They have a big head with a whole lot of sharp teeth and then they also have venom glands and they will inject you with venom, and it's nasty stuff.

**Alie:** Really?

**Earyn:** Yeah.

**Alie:** What is that? To paralyze prey? Or to stun it?

**Earyn:** After a while, you will start to get paralyzed but it basically starts breaking down your body from the inside.

**Alie:** Wooohhhh my god.

**Earyn:** Yeah.

**Alie:** That's effective. What are those big ol' drooly things they got? Is that drool? Or do they have sensory organs? You know how sometimes you watch a Komodo dragon in slow motion?

**Earyn:** And it has stuff coming down?

**Alie:** Yeah, like dingle dangles.

**Earyn:** Yeah, that's drool.

**Alie:** Oh, nice. That drool is... so viscous!

**Earyn:** It stinks. *[laughs]* Real ripe.

**Alie:** Is it stinky?

**Earyn:** I would assume so. Hopefully one day I'll get close enough to find out. Like, close enough where it's a cool thing, but not close enough where they're going to eat my face.

**Alie:** Maybe like a sleeping one? A sleeping dragon.

**Earyn:** Yeah.

**Alie:** I mean, compared to a fire-breathing dragon, venom and drool isn't that bad.

**Aside:** Quick aside on Komodo dragon drool. For decades, it was thought that the bacteria in their mouths acted as a venom and that was what was killing their prey before researchers realized, "Oh no, it's just actual venom they have." They even went so far as to swab and culture Komodo dragon mouths and found out that they're relatively clean for an animal that eats a bunch of rotting meat.

So, their teeth rip apart prey, and then their venom toxins lower the prey's blood pressure and prevent clotting so that their victims bleed out, and then they eat their corpses. Now, water buffalos, when injured, will go hide, usually in a pool of stagnant water. So why do water buffalos get such terrible infections from a Komodo dragon bite? Well, an expert in this, Bryan Fry in Queensland, explained thusly,

*It's the same as if you dumped a whole bunch of cow dung in your pool during the peak heat of summer, shaved your legs with a very old razor, and then went and stood in the water for a day.*

You'd end up with some very tasty infections. This just makes me want to hang out with more lizard researchers, and I would also like to hang out with YouTube uploaders, Team Hazard Rides Again, who filmed a bunch of male Komodo dragons mercilessly slapping each other in the face with their huge tails. Each lizard is reeling like it just had a skinny margarita tossed in its face on a yacht, but please enjoy their wonderful delicate moment in dad punnery: *[clip from YouTube video]*

*Man: Woah, it's a knock-down dragon-down fight. Knockdown... dragon...*

*Woman: Knock-down dragon fight? Is that what you were going for?*

**Alie:** Christopher Rougeux wants to know: Deadliest lizard?

**Earyn:** I guess as far as venom and stuff goes, like, Komodo dragons. But then it's also either the Asian monitor or the Nile monitor. Between one of those two is the most aggressive. I think those are one of the two they've seen the most death with, and that's just like people getting too close and harassing them. Leave the lizard alone.

**Alie:** What do they want? They want a selfie with the lizard?

**Earyn:** Maybe.

**Alie:** Can you eat those big lizards?

**Earyn:** I mean, I'm sure you can eat about everything if you really wanted to. *[laughs]*

**Alie:** That's true.

**Earyn:** I wouldn't, personally. Well, if I was stuck and stranded somewhere I might eat a lizard. If it's between me and the lizard... I love you, but... I'm sorry.

**Alie:** If you're naked and afraid enough *[laughs]* it seems like anyone would eat a lizard. Sharla Rodrigue wants to know: Why do lizards insist on having babies in my ivy plants? Are they going to eat my plants?

**Earyn:** Probably not. It's probably just a safe space for them where they're like, "Hmm, I can get around here and I can hide from stuff." And you might have some of those aphids or something that fits in baby lizard mouths and they're like, "This would be the perfect place to have my babies; they can hide and have food."

**Alie:** So Sharla, you should be proud that you're such a good host.

**Earyn:** Pretty much.

**Alie:** "Just make yourself home in my ivy. I left some aphids out in case you and the kids are hungry." *[laughs]*

James Irvine says: SooOOOoo many questions. Is it painful when they drop a tail?

**Earyn:** I don't know if it's painful like the way that we think about pain. I mean, I couldn't even imagine what that would feel like if I had the ability to just let one of my limbs go.

**Alie:** I know!

**Earyn:** It would probably be sore, but I feel like it wouldn't be a whole lot of pain if it's one of those things where "this is what it's supposed to do." You know what I mean?

**Alie:** Yeah, like if you've evolved the ability to drop your tail, chances are you've also evolved not a whole lot of really raw nerve endings there, maybe?



**Earyn:** Exactly. One of the main points of it is to escape predators and survive, so it doesn't make much sense to drop the tail and then have that process cost so much trauma that it impacts your survival later on. Of course, it's going to be negatively impacted by having to heal it, regrow it, and then not have as strong a tail as it did before, but at the same time, it should not be so painful that you can't keep on living as a lizard who's dropped its tail.

**Alie:** Good point.

**Aside:** Side note, I did some digging and yes, all experts seem to agree that it doesn't hurt. But can you imagine if you got in a fight with someone and, as a distraction, you just dropped your butt at their feet and then ran? And it didn't even hurt? Another reason why lizards deserve you stopping and physically saluting them when you see them.

**Alie:** Like me with a migraine, I couldn't fight anyone. *[laughs]* Also, James Irvine wants to know: What's with the whole eye blood shooting? Can we talk about horned lizards?

**Earyn:** My undergrad advisor, George Middendorf, was one of the people who did experiments with them and wrote that up. And so it's basically they're bursting a blood vessel in their eye to shoot the blood and hopefully get away.

**Alie:** And that's just to terrify the shit out of whatever's trying to eat them?

**Earyn:** Yeah.

**Alie:** Oh, my god, that's so metal!

**Earyn:** And it might also be a little nasty.

**Alie:** That's super nasty. *[laughs]* So hardcore death metal though. Instead of just dropping a tail, or just having a fan behind their head that comes out, they just burst their own blood vessels and shoot it at someone! That's so respectable. I love that so much.

**Aside:** Just google 'horned lizard shooting blood from its eyes' if you don't believe me. Again, salute the lizards.

**Alie:** Jennifer Alvarez wants to know: Do anoles raise their young or stay in packs? I saw a dad anole with a much smaller kid anole the other day and wondered.

**Earyn:** As far as I know, they don't raise their young. It might have just been that they were just occupying the same space at the same time, which lizards do sometimes. A lot of lizards do get pretty aggressive and territorial, but at other times, you might see a couple right next to each other, especially if it's early in the morning and everybody is just waking up, and everybody has to warm up, and no one has the energy to fight just yet. That type of thing.

**Alie:** Where are these lizards sleeping? Are there bunk beds full of lizards?

**Earyn:** So... yes and no.

**Alie:** *[laughs]* Okay.

**Earyn:** So you're in the winter, the winter is ending, spring is coming up, and you have a hibernaculum, and in this hibernaculum is, like, hundreds of lizards.

**Alie:** Eeeee!

**Earyn:** And so then it starts to get warm and everybody's like, "We are coming out and we are spreading out." And the big dominant lizards are staying the closest to the hibernacula and everybody else has to go farther and farther away in order to find their own territories, and then they find new crevices or something to have their own little houses. And then for

anoles and stuff that live in trees, then it's like, "Well, we gotta share this tree, [*laughs*] and this is *my* spot on the tree and you better go to *your* spot on the tree."

**Alie:** And are they overwintering? Are they hibernating?

**Earyn:** Anoles? Yeah.

**Alie:** Oohh! Do most lizards hibernate?

**Earyn:** Yes.

**Alie:** Really? So they start to come out in the spring then, maybe? Oh my gosh, I love.

**Earyn:** Yeah. In Tucson, their period is shorter because it's a shorter period of cold weather. So you'll see them all the way until, like, December, and then they'll go away for a while, and then they'll come back out at, like, the end of February or beginning of March.

**Alie:** I love when we are in the middle of holiday nuttiness, and we are having warm cocoa and wearing mittens, just to think of all these little lizards snoozing like [*snoring*] in a big hibernaculum, just big ball o' lizards.

**Earyn:** Right? Pretty much.

**Alie:** "See ya in a couple of months!"

Brandon Altemose wants to know: Does parthenogenesis make a species more susceptible to pathogens and other diseases due to reduced genetic variability compared to sexual reproductions?

**Earyn:** Yes, because if everybody is the same and the same thing is killing everybody then there's nothing to protect you from it.

**Alie:** You're all going down with the ship. Like, "Thanks, *Mom!*" And she's like, "I know right? Bleh!" Aww, poor guys.

Katie Chavez wants to know: Which lizards make the best pets?

**Earyn:** I have zero knowledge about the pet trade when it comes to lizards.

**Alie:** Okay, I'll ask the internet.

**Aside:** I love you all and I did not want to leave you gazing out of the bus window thinking, "But what is the best pet lizard?" So I asked the internet and one site said that the leopard gecko is probably the most popular pet reptile in captivity today. They say these small lizards are available in a variety of pleasing colors and patterns. Their care requirements are very simple, and they're generally very docile. Now, where did I get this information about best pet lizards, you ask? Well, at BestPetLizard.com, so I'm gonna reckon that they must be either an authority on the matter or they are just very crafty, deceitful gecko lobbyists.

But, Katie Chavez, another patron, Sara Klips, did chime in on the question thread and added "Crested geckos forever," with five heart-eyed emojis, and I think that lends a certain impassioned authority to her consult. Which brings us to a semantics.

**Alie:** Amanda Rincon wants to know: What are the differences between lizards and geckos? Not all succulents are cacti, but all cacti are succulents. So in this, the cacti is the gecko. Kinda like toads are frogs?

**Earyn:** Yeah. I guess you have like different families of lizards, so then yeah, that works.

**Alie:** It's all under the lizard umbrella. Renee Coley asked: I had a green iguana for a while and she laid one clutch of eggs while I had her, but she ate them. *[laughs]* Ummm...

**Earyn:** Well, *[laughs]* off the top of my head, I would just assume that she knew they weren't fertilized so she was like, "Well if that's energy I put out, I guess that's energy I'm going to put back in, instead of just letting them sit there and rot."

**Alie:** Ugh. Thank god women don't have to do that once a month.

**Earyn:** Right?

**Alie:** You're like, "I made it, I'm gonna use it!" Last Patreon question. Meghan McLean says: Are there poisonous, venomous lizards besides the Komodo dragon?

**Earyn:** So there are other venomous lizards. You have the Mexican beaded lizard and you have the Gila monster.

**Alie:** *[gasps!]* The Gila monster is venomous? Why does the Gila monster have such beady skin? You know what I mean?

**Earyn:** To let you know it's venomous. Like, "Don't mess with me. I'm a very interesting, brightly colored thing. I'm slow-moving and I *don't* want to be bothered. But if you bother me, you can have the smoke. It's all for you if you want it and I'm telling you: ya don't!" *[laughs]*

**Alie:** What happens with their venom?

**Earyn:** So, it's not like that bad for people, but for small mammals and stuff, when they eat it, it's just like, "Oh, I guess I'm dying now." But for people, it's more their jaws because when they clamp down on you, like, that's it. If it's on your wrist, this is your new watch. *[laughs]* So, don't mess with them because they'll clamp down and they won't let go.

**Alie:** How do you get a Gila monster off of you?

**Earyn:** The hospital. *[laughs]*

**Alie:** Professional help?

**Earyn:** Yes. You do need a professional at that point.

**Alie:** And you love Gila monsters?

**Earyn:** I want to see one in the wild so badly, it just has not happened!

**Alie:** Where do you go to look?

**Earyn:** People have been telling me to go to Bear Canyon and Sabino Canyon, and I have been going, and I haven't seen anything yet, although I might have seen a mountain lion, I'm not sure. I might have gotten almost eaten by it, I'm not 100% sure. So, we were walking from the parking lot to the trails and we didn't even make it to an actual trail yet, and then I was like, "Hmmm, that looks interesting. Hmm... Are those eyes?" And they were kind of high up and forward-facing, and I was just like, "Do you see that?" and she was like, "Nah, let's go."

So, we just turned around and left. At that point, we weren't even looking for Gila monsters anymore we were just like, "Let's just walk around," because she had never done it before and I'm the friend who drags my friends to go do new experiences.

**Alie:** What would you do if you saw a Gila monster in the wild?

**Earyn:** I would probably cry. *[laughs]* I'd be so happy! Just happy tears.

**Alie:** Where do they hang out in the wild? Under rocks, around rocks?

**Earyn:** Underground for the vast majority of the year. People have been telling me too, that everybody who has seen one this year has been seeing them on the roads, just crossing the road. And I never see them when I'm driving along the road!

**Aside:** Earyn says that between the two summers she spent as an undergrad in Arizona, plus the three years in grad school, she has wanted to see a Gila monster for five years. Five years!

**Alie:** I'm going to cross my fingers that there is a Gila out there that you get to spot and you have a moment with it that doesn't involve the hospital. *[laughs]*

**Earyn:** Same, yes. Have a safe distance with wildlife. It's totally cool to go out looking for it and finding it, but stay safe distances, y'all.

**Alie:** Now, that would be a good and a bad thing. But what is the worst thing about your job? What sucks? Something's gotta suck.

**Earyn:** I guess, you know, once you're in the field for, like, four weeks at a time and you still got like another two weeks to go, and you're like, "Okay, I'm tired of this now. I'm ready to be home." *[laughs]*

**Alie:** Do you travel a lot for fieldwork?

**Earyn:** So, the Chiricahuas are about two-and-a-half to three hours away from Tucson, so once I'm out there, I'm out there, and I'm not coming back until the season is over.

**Alie:** And when is that season?

**Earyn:** It varies. For lizard people, it can be anywhere from May through September, but I'm going in July.

**Alie:** Which brings me to another question: Is there such a thing as a shape-shifting lizard person?

**Earyn:** I wouldn't know because it changed its shape so it can conceal itself from me. But I'm not going to say no. You never know. *[laughs]*

**Alie:** You guys don't ever have to do fieldwork with the Illuminati to see if there's shape-shifting lizard aliens? You're like, "I caught one!" *[laughs]*

**Earyn:** Oh, I wish, that would be cool. *[laughs]*

**Alie:** What is the best thing about lizards or your job?

**Earyn:** The best? For me, it's just being able to handle these animals without causing them a whole lot of stress, and then I'm like, "Oh, I can see you, I can learn more about you." I also have the opportunity to take undergrad students out with me through the Doris Duke Conservation Scholars Program, and so I get to teach them about lizards and they get to do their own mini-projects. It's a lot of fun being able to go out with them and learn together and explore together.

**Alie:** That's pretty fun. Any advice for people who want to be saurologists?

**Earyn:** I would say to get out there and find a mentor. I think that's what's really been good for me. I've been lucky enough to have two really great mentors, so George for undergrad and Michael Bogan for grad school, have both been phenomenal. Once you have an interest just find those people who would really support you. I feel like that's key. Once you have those

people who will have your back, then you're set. Of course, you're going to run into hardships, but they'll help you get over those obstacles.

**Alie:** Yeah, that's great. I've heard that before, that a lot of people who are really successful really recommend finding a mentor. And a lot of people are too afraid to ask, but they don't realize that mentors do want to help. Like, I'm sure that you're a mentor to other people already and you probably will continue to be.

**Earyn:** Yeah, and I get being too afraid to ask because I'm definitely one of those people where I have to prepare myself for talking to new people and meeting new people because I have that social anxiety. I'm just like, "What if I'm weird? I'm walking weird right now, my tongue isn't working quite right, *[laughs]* there's spit coming down my face! Oh my goodness! The spit!" *[laughs]*

And so, there's definitely a whole lot of practice there. And then you also have to get over that fear of people telling you "No." Because if you ask enough people, somebody's going to say yes, and hopefully it's one of the people you actually want, and then you'll get opportunities as they come. You don't have to take all opportunities because not all opportunities are good opportunities or the right ones for you, but definitely not being afraid to go after what you want and then just being like, "This is what I want, these are the things I have to do to get there, this person told me no, but this person might tell me yes."

And sometimes when people tell you no it's not because they don't like you or don't believe in you, they might not have time. So then it's like, "Okay this person said no... Hey, I know you said no, but can I have some other resources from you? Do you know somebody you can put me in contact with? Who should I go talk to next? What direction should I go in?" And a lot of times people will be like, "Yeah, I said no, but here are these other things I got you for that." And sometimes people are just mean and you just have to write that off.

**Alie:** But that's good life advice for any job. All of that is such solid life advice you could use if you were a clothing designer, or... Any aspiration you have, that is such solid advice and so good to hear. You just have that kinda resilience, which I think science fosters a lot of resilience because there's a lot of resilience in data and experiments.

Now, what about a parting piece of advice? How do you find that lizard? If you were playing Find That Lizard, any strategies? Or is it just attentiveness?

**Earyn:** Real life or the game?

**Alie:** The game.

**Earyn:** Turn your brightness all the way up *[laughs]* and have a strategy. Like for me, when I'm like, "I need to find a picture for this game today and I don't know where this lizard is in it." And if it's in my phone there's a 50% chance there's a lizard in here. So I turn my brightness all the way up and I start at one corner and I go down, and over a little bit, and back up, and over a little bit. *[laughs]* And I'm just scanning the picture until I find it. And then sometimes I'm just like, "Ope, maybe next time."

**Alie:** I love that sometimes you have to find the lizard before we can find the lizard.

**Earyn:** Yeah, I definitely do. That's how I know there's always a lizard in the photo, because sometimes I spend a long time looking through these photos making sure there's actually one in there. *[laughs]*

**Alie:** You're like, "I'm not only the master of this, I'm also a player." *[laughs]*

**Earyn:** Yeah!

**Alie:** And where can people find you?

**Earyn:** So they can find me on Twitter and Instagram @Afro\_Herper.

**Aside:** Per usual, there will be links in the show notes and also up on my website at [AlieWard.com/Ologies/Saurology](http://AlieWard.com/Ologies/Saurology), and also get the frick ready for Find That Lizard on Wednesdays! And I just found out Earyn has a Patreon set up at [Patreon.com/FindThatLizard](http://Patreon.com/FindThatLizard), in case you'd like to support these efforts.

**Alie:** You're going to have a lot of new players. It's so exciting!

**Earn:** I hope so! I hope you guys like it! Thank you for having me. It's been great, it was so much fun. I was so nervous.

**Alie:** No reason to be nervous! You're the best, you're my favorite saurologist! Literally!

**Earyn:** Thank you!

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So ask smart saurologists stupid questions and salute the lizards. [*patriotic fanfare*] Salute the lizards. Again, more links are up at [AlieWard.com/Ologies/Saurology](http://AlieWard.com/Ologies/Saurology). We are @Ologies on [Instagram](#) and [Twitter](#); come say hi there. I'm @AlieWard on [both](#). Ologies merch is available at [OlogiesMerch.com](http://OlogiesMerch.com). Thank you to Boni Dutch and Shannon Feltus, who host the brand-new comedy podcast *You Are That*, for helping with merch. You can post your photos and tag them #OlogiesMerch so we can repost you on Instagram on Merch Mondays.

Thank you, Erin Talbert and Hannah Lipow, who admin the [Ologies Podcast Facebook](#) group full of nice people, and thanks to whoever started the Ologies Podcast Subreddit to chat about episodes. Thanks to Jarrett Sleeper of the mental health podcast *My Good Bad Brain* for editing assistance, and also big thanks to the mustachioed chameleon of the podcasting world, host of *The Purrrrcast* and *See Jurassic Right*, Steven Ray Morris for editing this all together each week. I could not do it without you. Nick Thorburn wrote and performed the theme music.

And if you listen to the end of the episode each week you know I tell you a secret. I learned the hard way that if you get something shipped to you in a big box, you open that outside because sometimes there's a thirsty warehouse cockroach waiting in the box. And I don't wanna talk about ever ever ever ever ever.

Berbye.

*Transcribed by Emily Staufer, your weird aunt who keeps showing up to family meals with amphibians she caught in the woods out back*

### **Some links which would be of use:**

Support #FindThatLizard via [Patreon.com/findthatlizard](http://Patreon.com/findthatlizard)

A donation went to: the [Doris Duke Conservation Scholarship Program](#)

[What. Is. A. Lizard](#)

[Chameleon tongues](#)

[Lizard dicks](#)

[Witches have great life advice sometimes](#)

[Lizard in a human ear hammock](#)

[This person has a snake in his sinuses and loves it](#)

[VERY TINY CHAMELEON](#)

[The most beautiful chameleon?](#)

[Earyn's favorite lizard](#)

[Iguanas overrunning Florida](#)

[Wait don't kill all the iguana?](#)

[Iguana burritos](#)

[Is this fish that I have or is it chicken?](#)

[Iguana carnitas](#)

[Iguana busters](#)

[FLORIDA MAN shoots neighbor's pool guy](#)

[PARTHENOGENESIS IN SQUAMATA](#)

[Evolution and function of lingual shape in lizards, with emphasis on elongation, extensibility, and chemical sampling](#)

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[Van der Waals forces](#)

[But things that geckos can't stick to](#)

[Gecko's toe stickiness has something to do with angles](#)

[All The Single Lady whiptail lizards](#)

[Water walkers aka Jesus Lizard](#)

[A komoda will eat a buffalo](#)

[KOMODADJOKE DRAGON](#)

[Komodo dragons: not that dirty of a mouth](#)

[Don't look at this lizard link](#)

[Vomeronasal — er — Jacobson's Organ](#)

[BestPetLizard.com](#)