

Herpetology with Dr. David Steen

Ologies Podcast

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Haaay Ologites. Hi, Alie Ward in your space, hi. It's me. So, herps. Let's talk about it.

Herpetology. What is it? It's the study of amphibians, like newts, and salamanders, and lil' froggies, and toads, and reptiles, like tortoises, and turtles, and crocodiles... Also snakes. Hmm? What? Huh? Don't worry about it! Okay, listen: If you are afraid of the S word we will address that, we will soothe your fears. For real. But herpetology, generally, it's a lot of different animals. And technically it's the study of "poikilothermic, ectothermic tetrapods." WHAT ARE THOSE WORDS? Are they words? Yes, okay? I had to look it up, but I'm gonna break it down:

"Poikilothermic" (no idea how that's pronounced) means an animal whose internal temperature varies considerably. "Exothermic" is when the regulation of your *hot bod* depends on external sources, like sunlight or a heated rock surface. Now, a "tetrapod" means "four-legged", although I think of a toad and tell me, TELL ME those front two aren't arms. Like toads have hands. Right? Am I on drugs?

Okay, so herpetology. What's the etymology here? It's far more brutal than you even imagine. So, you think herpes and herpetology: maybe this was about scales? Like, scaliness? I had no idea, I was like "skin rashes?" It's more poetic. So, the viral skin conditions, which for fun we'll call "geney herps" - cold sores, chicken pox - those come from herpes virus, which comes from a Greek word "herpein" which mean 'to creep.' Like a rash. That's where it comes from.

Now, herpetology, comes from the word "herpein." Same word: 'to creep.' Not really helping this image issue is the fact that when you think of adults who keep lizards in a tank in their garage, like, the word creep may or may not come into play. But once you understand the splendor of green and scaly critters, you'll be like: "ah man, I *too* want a reptile condo in my home."

Now, every time you hear the word "creep" in this episode, a bell will sound [*bell ding*], and you can feel free to take a big sip of whatever beverage you're having, or do you can do a small, inconspicuous dance.

Speaking of, let's take a quick break to step into a segment I like to call Creeping [*ding*] Your Reviews. When you rate and subscribe and leave a review on iTunes, it helps get Ologies up in the science charts and helps other people find the podcast. Also, I record all my asides in a closet, and it really makes my day. So I read every single one of them and I'mma read you a fun one every week. Okay, Bluhtyblah said:

The format is great, Alie's interjections are awesome and it makes the podcast unique, almost like those '90s TV shows where the character is aware of the camera.

Another way to support Ologies is just tell friends, tweet or Instagram about it. You can make some memes. AND on Instagram this week, Ologies is giving back: we're doing a giveaway of a full enamel pin set. We've never done a giveaway before, I don't really know how it works. So, we'll see how it goes. Check out @Ologies on Instagram for the details. You can also become a patron. My heart is cheap, and I set the Patreon to have the lowest threshold - I think - possible, so you can support the show for as little as 25 cents an episode. It is statistically feasible that at least one person on Earth has 25 cents in loose change lingering in their buttcrack right now. Patrons get their questions first to the ologists, there's also other perks like increased self-esteem, you get my undying non-sexual love.

Okay, onto the Ologist. So I was a fan of this doctor on the website Twitter.com for a while, where, as @alongsidewild, he enjoys a healthy 22K followers and follows exactly 666 back. I always respected his very swift, and kind of, somewhat gruff identifications of snakes from these blurry, probably mid-running-away photos that people would send him. People would be like, "Aaggh, snake!", take a picture, and then @ him on Twitter. And I thought, one day I wanna hang out with this person and ask about his love of sneks and herps. As fate would have it, I was in Alabama for less than 24 hours shooting Innovation Nation (that's the science show I'm on, on CBS every Saturday morning, in case you want some Alie Ward science content that does not involve casual use of the term "motherfucker"). Anyway Alabama. So as an associate research professor at Auburn University, he was a local and agreed to meet me, where else folks, but a Hampton Inn at 8pm after I flew in.

Here's the problem: I had been in four states and four times zones so far that day. A very kind Alabama front desk lady set us up in a conference room and as I went to record, I realized I didn't have an SD card in my Zoom recorder. So I left this Ologist alone in the Hampton Inn while I borrowed my producer's rental car, I sped to a Best Buy, I purchased a 64-gig SD card, I should be covered. Then I came back to Hampton Inn only to realize that Zooms, inexplicably, only take up to 32-gig cards! I don't know why. So, at this point, I left this herpetologist AGAIN, now 9pm, in this Hampton Inn conference room and kitchenette to recklessly drive to the Best Buy again. At this point I requested that he set a timer to see if I could make it back in under 15 minutes. I thought, "let's make a game of this." At this point, he can only assume I'm clinically insane or a truly ineffectual murderer.

Hustling, round two, I made it in 13 minutes. So by the time we actually recorded this episode, were had the rapport of two people who had been stranded on an island in a slapstick movie from the 1930s. It's one of my favorite interviews, ever. I love it.

We address turtles, snake IDs, the fear of snakes, tools for herpin', why Bjork is a lot like a cave salamander, nudists, frog storms, a LOT of behind the scenes *Indiana Jones* trivia, the ethics of hunting, and conservation biology. It's great.

Get ready to let herps into your heart with polyologist and herpetologist, Dr. David Steen.

[Intro Music]

Alie Ward: Please record. Okay, dude it looks like this is recording. Hee hee! This is a really big victory. I'm gonna get your levels you are a soft-spoken person.

David Steen: Yeah, I can turn it up if I need to.

Alie: I would get uncomfortably close to the microphone. These are, like, stand-up comedian microphones, so they expect you to be up in their business. Okay, I think my internet's up and running. I mean, I feel like I should just burn sage around myself.

What kind of ologist do you identify with? Like, an ecologist, a wildlife biologist, a herpetologist? What do you call yourself?

Dr. Steen: Well I've certainly been called worse than any of those things. It depends on who I'm talking to. In general I like to think of myself as a wildlife ecologist and conservation biologist. So, I study how wildlife interact with other species and their surroundings, but most of the work that I do relates to amphibians and reptiles, and that's where the herpetology comes in.

Alie: So are you a herpetologist?

Dr. Steen: Yeah we can go with that.

Alie: Okay.

Dr. Steen: Yeah I study amphibians and reptiles so yeah I think it would be accurate to call me a herpetologist.

Alie: I became aware of you on Twitter because you're like *fire* when it comes to snake IDs. Like someone will send you the Sasquatch equivalent of like... It looks like a rope from half of a football field away and you're like, "well, that's a copperheaded..." How do you know? How did you get so good at that?

Dr. Steen: Well I like to think that it's kind of like how you recognize friends and family. You're not necessarily...

Alie: [laughs]

Dr. Steen: It's true though. You're not necessarily looking at the length of someone's mustache or the color of their eyebrows, you just recognize them. And I think that is how I see the snakes, so you don't necessarily have to... I don't necessarily have to look at for those really specific features it's just an overall feel.

Alie: So it's like if someone's like "Who's this?" and you're like "That's Aunt Janet." Like, it's just, boom.

Dr. Steen: That's exactly right. And that's why it makes it hard to answer the questions when people say, well how can you tell it's this and not this? Because it isn't, you know? And I don't want to make people think that that's how I identify snakes because there's always exceptions.

Alie: How many books about snakes have you read, and when did you start reading them?

Dr. Steen: I've read 46 books about snakes, but the night is young.

Alie: You started them this morning [*laughs*].

Dr. Steen: That's right. I don't know. I do have a lot of reference books. Growing up, I liked to learn about the creatures around me. And so between 50 and 100 books, something like that.

Alie: Did you start young? Did you start getting amphibian and reptile books when you were a kid for every occasion?

Dr. Steen: Yeah. I have always been interested in creepy [*ding*] crawly things, and liked to spend time in streams, and looking under rocks and things like that. My family was very supportive and I was inundated with all the reptile and amphibian toys and books that I could imagine. I started with dinosaurs but it evolved.

Alie: Where exactly where you raised?

Dr. Steen: I'm from New York and I spent most of my life there.

Alie: What part of New York?

Dr. Steen: Well it's... when I say New York people often imagine the city and I actually lived in Orange County, New York, which is about 45 minutes away from the city. It's surprisingly rural. It's near Bear Mountain State Park and Sterling Forest. We had bears, timber rattlesnakes, you name it. It was a fun place to be.

Alie: When you were growing up did your parents just let you loose? Were you like a free-range child? Like, "go out, don't get caught in some barbed wire, go look at stuff"? Or were you an indoor kid reading books?

Dr. Steen: I think that's a little bit of both. It was definitely a different era. And I remember people talk about watching *Stranger Things*, and how the kids can just wander off and have fun, and catch frogs, and so there was definitely a lot of that.

Aside: A few years ago some research came out that kids are not any less safe than they were a few decades ago. In fact, crime in America peaked in the early 1990s and has been going steadily down since. There was an article in the Washington Post called, *There's Never Been a Safer Time to Be a Kid in America* and it has stats and graphs on the falling crime rates. So why is helicopter parenting on the rise? One 2016 study claims

that Americans' fear of crime is statistically related to the level of violence portrayed on primetime TV. And another study tracked that the less satisfied we are with the government, the more likely we are to misjudge and inflate danger.

So, I don't have kids, but if I had a dog I would probably put it in a papoose and it would never be more than a meter away from me but the website FreeRangeKids.com seems to make a case for chilling out and letting your children romp, off leash. I don't know, up to you. They could also just read a book.

Dr. Steen: But I was also kind of a bookworm. So, a little bit of both.

Alie: Just sittin' by a stream reading a book about snakes, lookin' for snakes.

Dr. Steen: Sounds pretty nice, right?

Alie: Like, "This is my life." Now, how long have you been in Alabama? Because we're in a Hampton Inn conference room in Opeleeka? Opelika?

Dr. Steen: Opelika.

Alie: Pardon me. Alabama. How long has a New York guy been in Alabama?

Dr. Steen: I've been in the south since 2004. But they say it doesn't matter how long I'm down here I'll always be a Yankee. I'm okay with that.

Alie: Are the snakes better in New York or Alabama?

Dr. Steen: See, I don't really want to offend anybody or piss anybody off, and that's really kind of a controversial statement. But New York doesn't have as many snakes. But they've got some cool ones like timber rattlesnakes, and they're rarer up there. We've got timber rattlesnakes down here too but they're, kind of, a dime a dozen. They show up right in town actually, much to everyone's dismay.

Aside: As a born and bred West-Coaster, I know nothing about timber rattlers. Nothing. But I found out they are potentially one of the most dangerous snakes in North America 'cause they're big, they have a lot of venom. They are also relatively chill as hell and they warn you a bunch before they strike. They're like, "c'mon man, c'mon, raaaatttle raaaatttle." So, they give you fair warning.

They're also kind of famous as a symbol of American anger and resolve. In the 1700s all these European doctors came to the US and were like [*old timey snob voice*] "My Heavens, these slinky beasts are no match for my shitty cures!" So, they were so badass we started to envision ourselves as timber snakes. Benjamin Franklin - who is noted in the Ornithology episode for throwing shade at garbage-eating bald eagles - was pro herp. Listen to this: In 1775 he wrote about timber snakes:

“She has no eyelids. She may therefore be esteemed an emblem of vigilance.” (Mmmm, okay, she just doesn’t have eyelids.) “She never wounds till she has generously given notice, even to her enemy... Was I wrong, Sir, in thinking this a strong picture of the temper and conduct of America?”

Your hero, a timber rattlesnake. You know that “Don’t Tread on Me” flag you’ve been seeing the last decade or so? That has a name, a Gadsden flag, and the Tea Party adopted it in 2009 as kind of a GOP symbol, so it has those indignant Republican connotations now. But the poor timber snake... because on these posters and flags there’s usually just horrendously rendered coiling, and this snake always looks like a shit emoji to me. Which is like, don’t tread on me indeed..

More on why you should not be afraid of snakes later in the episode, trust me.

Alie: Do you get more frantic texts and tweets at different times of the year? Like, do you know, like, okay it's rattlesnake season, I'm getting a lot of “what is it!?”

Dr. Steen: Yeah, and it is pretty interesting to look for those kinds of trends. In the spring all the snakes, many of the snakes, are going to be coming out of hibernation so they're going to be basking and looking for food. That's when a lot of people see them. In the fall is when the vipers are looking for mates, so they're going to be moving around more, people are going to see them then. Late summer, that's when the babies hatch or are born, so you get tons of requests to identify babies.

Alie: So dead of winter is kind of like a quiet snake time.

Dr. Steen: Yeah. This is my downtime. That's why I can talk and I'm not identifying lots of snakes right now.

Aside: Again, how I was able to sequester him FOR HOURS in a Hampton Inn.

Alie: Why are people so freaked out by snakes, reptiles, amphibians? I personally, I'm down with them and I'm totally fine with them but I have a certain brother-in-law, I'm not going to mention him by name...

Aside: Okay, I talked to my sister Celeste and I can tell you a little more. My brother-in-law is a professional heavy metal guitarist. Like, he travels all over the world. That is his job. He has hair down to his waist, he wears all black, he plays a flying V guitar, and I have seen him flip off amphitheaters, much to the crowd's glee. You do not mess with dudes like this. You just don't. But when it comes to snakes, the dude just cannot even. He is a wonderful brother in law, he is a great person, and I find this to be his most endearing characteristic. He HATES them. And I asked about this, my sister texted me, “I believe he once walked off a photo shoot solely at the idea a snake could be there.”

Alie: He is a very tough looking person but he can't even see one on TV. Why do why are some people freaked out by them? Like, have you found?

Dr. Steen: Yeah we don't have the answer for that but it's definitely the case. Believe it or not, you're not the first person to tell me that you know somebody that's scared of snakes.

Alie: *[laughing]* Yeah. Shocking, right?

Dr. Steen: It is really common and there are some folks that point to research that say babies have this innate ability to recognize snakes and that suggests that we have this... we're born with this fear. I'm not entirely convinced of those arguments. I think that we may have this innate ability to recognize snakes and react to them, but society helps push that initial reaction into fear. Ask anybody that does educational shows with snakes and you can see the kids running up. They want to touch it. They want to feel it. They want to ask questions about it. And in the back of the room their parents are really scared. And then eventually the kids see the parents and they get scared too. So I think it's largely society that influences something biological in us.

Alie: Maybe it's maybe it's biblical lore. Maybe it's just like "Oh yeah I've heard of these guys, they're troublemakers, man. Before you know it I'm going to have to put on underpants. It's just gonna to be a downward spiral." So if you have children and you're afraid of snakes you should bury your emotions and appear as though you're not bothered.

Dr. Steen: Yeah I think it's... Well, parenting is not my expertise, but I think that it's important to let kids explore their curiosity and not get caught up in what you might be scared of.

Alie: Have you had any reptiles or amphibians or other wildlife type of things as pets?

Dr. Steen: Yeah. Growing up I would catch everything that I could and then hide it in tanks in the basement, and you know, beg my parents to buy me whatever was crawling around at the pet store, too. So I did have a lot of lizards, and snakes, and fish, and salamanders, and things like that. I was allowed to catch things from the wild but I had to let them go in two weeks. That was the compromise.

Alie: You had a fortnight clause?

Dr. Steen: Exactly.

Alie: Like, *[silly old witchy voice]* "After one fortnight the beast shall be returned to the forest."

Dr. Steen: "Or you turn into one."

Alie: Do you have a favorite animal? I'm sorry that's such a dumb question., but I don't care.

Dr. Steen: Well, I get asked it a lot so you'd think I'd have an answer ready. Uh, I kind of like... I like them overall, I like how they're interacting with each other. I like that each species that

we know today has these unique looks, and these unique strategies, and just fit into the biodiversity puzzle in a different way. There's something about eastern diamondback rattlesnakes, which are just really impressive. They're just... they're the largest rattlesnake in the world. They're only found in the southeastern United States, and they just have this quiet power and dignity about them.

Alie: So, dignity. Are there any snakes that are just... clowns? Just like... just idiots?

Dr. Steen: So I guess I would think of the hognose snake and has all these strategies for not getting eaten, basically. It's going to play dead. It's going to puke up its last meal. It's going to... Uh, what's language on this?

Alie: Oh, you can say WHATEVER you want.

Dr. Steen: It shits all over itself, and you if you try to catch it. You know, these are all great strategies for not getting eaten but they do kind of make them seem a little silly.

Alie: So hognose snake: down to clown. Good to know.

Dr. Steen: That's right.

Alie: So you always want to do this? Or, at what point did you decide, 'I'm going to be a scientist who studies wildlife.' Or did it evolve where all of a sudden you were like, "oh whoa, I looked up and here I am, I guess I'm doing this"?

Dr. Steen: I've always been interested in creatures and if you had asked me in second grade what I wanted to be when I grew up I'd say a naturalist. Didn't really know what that meant, but I liked nature so naturalist it sounded good.

Aside: "Naturalist" is not to be confused with "naturist", which is a person who subscribes to the notion that we should be nude more, around each other, and *sometimes in public*. I don't know. For more information, Wikipedia "naturism", where you can read up on the nuances of the philosophy. You can also scroll through a gallery of nude people at festivals, in pools, enjoying a barbecue in nothing but sneakers. So, back to naturalists, who like wildlife, which is also usually nude and sometimes just as hairy.

Dr. Steen: Over time that evolved into zoology and wildlife management, and that's what I went to school for.

Alie: Stupid question, I don't care...

Dr. Steen: I love 'em.

Alie: Okay. Do you have any favorite movies or television shows, or least favorite ones about reptiles and amphibians? Where you're like "they got it wrong" or you're like "you know what, you nailed it."

Dr. Steen: Well there's only so... Okay, so everybody wants to know about *Snakes on a Plane*, right?

Alie: Right.

Dr. Steen: I'm here to tell you I've never seen it.

Alie: You've never seen that movie?? Too close to home?

Dr. Steen: *[laughs]* I think I've gotten the gist of it.

Alie: Right.

Dr. Steen: Snakes on a plane. Scary.

Aside: Snakes on a Plane, by the way, was written by a first-time Hollywood screenwriter (shocking) and was originally titled *Venom*. It was turned down by more than 30 studios before it was finally made. And it now enjoys a fresh rating of... 69% on Rotten Tomatoes, which seems like the *perfect* amount.

Dr. Steen: But it's fun. *Anaconda* is another movie. I have seen that one, and you know, I can just, kind of, turn off the biologist side of my brain if I'm watching something that's clearly entertainment. On the other hand, sometimes people get their information about biology and snakes from movies. I don't think anybody's looking to *Snakes on a Plane* to get their biology facts, so I'm okay with how outlandish it is. But you know, something like *The Jungle Book*, or *Jurassic Park*, and things like that, people take that kind of information and then that becomes what they 'know' about biology. So, I'm a little harder on those kinds of movies and TV shows.

Alie: Did you like the documentary *Jumanji*?

Dr. Steen: *[laughs]* The original or the remake?

Alie: I'm just kidding. I've never seen *Jumanji*. I think there's animals in it. What about the scene where it rains frogs in *Magnolia*? Were you like, "THAT would never happen"?

Dr. Steen: So, it has happened.

Alie: Oh it did happen?!

Dr. Steen: That has happened before.

Alie: What??

Dr. Steen: Yep.

Alie: Tell me everything. Also, I'm so sorry if I just spoil the ending of *Magnolia*.

Dr. Steen: Yeah, I don't know if I've seen it. What happens in that one?

Alie: It rains frogs.

Dr. Steen: Okay.

Alie: It's fine [*laughs*].

Dr. Steen: That's the big reveal at the end?

Alie: There's an emotional journey on the way there that's worth having.

Dr. Steen: So, many frogs are breeding in these shallow temporary wetlands. And if a big storm comes through it could suck up that moisture, and frogs, in the process.

Alie: Whaaat??

Dr. Steen: Sure. I mean, you can imagine a tornado doing it, so maybe it'd be a step down from that.

Alie: So it's like a sharknado, but a rainstorm of frogs.

Dr. Steen: It's exactly like a frognado.

Alie: So, how many frogs are we talking? Like, how long does.... is it like, oh ten frogs fell out of the sky? Are we talking like....? I gotta look into this.

Aside: First off, I'm sorry I gave away that scene from *Magnolia*, but you have had nineteen years to see it, so my apology is really just a formality and quite hollow. Also, frog storms are indeed a thing. As are fish storms, spider storms, toad storms and worm storms. They think maybe a tornado-like waterspouts sucks 'em up, and carries them, and then rains them down. According to the Wikipedia page entry entitled *Rain of Animals*: "Several witnesses of raining frogs describe the animals as startled but healthy, and exhibiting relatively normal behavior shortly after the event. That's the good news. The bad news is there are examples where the product of the rain is not intact animals, but shredded body parts, which is a real bummer.

I found this very stoic account on YouTube by The Second Fleet, from 2007:

[*clip from YouTube Video, man's voice*]: 22th February, 2007, 13:00 hours, Greenwich Mean Time. It's just been raining frogs.

It shows a paved path dotted with sadly smashed frogs. So whatever kind of day you're having, if toad arms -- and THEY ARE arms -- didn't land on your umbrella, it's a good day for all of us.

Dr. Steen: These are, kind of, the things of legend but there are, you know, reliable accounts of them.

Alie: I'm going to ask you some rapid fire questions because we have SO. MANY. QUESTIONS. These are from listeners. I'm going to start with the Patreons because they are paying to support the podcast.

Dr. Steen: Love 'em.

Alie: Love 'em! Essentially, you can get your question bumped to the top.

Dr. Steen: Very worth it.

Alie: Right

Dr. Steen: Now let me clarify: You're going to be yelling these questions very quickly. Am I also supposed to be answering them immediately?

Alie: If you can.

Dr. Steen: Briefly?

Alie: Right.

Dr. Steen: Okay.

Alie: I'll be screaming it at you through a bullhorn. And you have four seconds to answer each one. That's not true. But we do have a lot of questions so, you ready?

Alex Entroni [phonetic] wants to know: Are snakes just getting a bad rap, i.e. the Garden of Eden, or are they really a bunch of sneaky dicks? [*dj airhorn blasts*]

Dr. Steen: So snakes are really hard to find. They're always hiding, but I don't really think of them as sneaky. I think of them as scared. I mean, they do not want to be found. That's how I'd probably put a spin on it.

Alie: Oh, so they're just defensive.

Dr. Steen: Exactly.

Alie: There's just like, [*whiny voice*] "eh, leave me aloooone."

Dr. Steen: Yeah. They don't want to sneak up on you. They do not want to be seen by you.

Dr. Steen: Okay, snakes: not sneaky. Cool.

Dr. Steen: You heard it here first.

Alie: Late Night Pie wants to know: What allows amphibians to live in a hybrid environment of water/land? Do they breathe air or water? And also if you had to kiss a frog what kind would you pick?

Dr. Steen: Yeah... that covers a lot of territory there.

Alie: It really does.

Dr. Steen: So amphibians are a really diverse group, but the classic example is the frog that lives on land, it goes in water, lays its eggs, then it's a tadpole, and it turns into a frog. And that's the classic amphibian life cycle, but there's a lot of exceptions. There's a lot of salamanders that never leave the water. Some frogs lay their eggs on leaves and they drop in the water. So, lots of different strategies. Many have gills and that helps them breathe in the water. They also have semi-permeable skin which helps them do some respiration through that and others have lungs, and some have both over the course of their life.

Alie: So it varies.

Dr. Steen: Yes.

Alie: Axolotls have cool-ass gills though. They just hang onto them? They look like Vegas showgirl fans, a little bit.

Dr. Steen: Yeah. Now that you mention that, it's true.

Aside: An axolotl is a kind of salamander. It lives exclusively in a few lakes in Mexico and it retains these baby characteristics like these external gills, which look so much like one of Cher's fantastic feather-fan headdresses from the '80s. I would also like to apologize to Slovenian cave olms, which are different than axolotls but still have baby gills and they look like they're long-lost siblings.

Dr. Steen: So they're one of the unique examples that they never really grow up. The technical term is paedomorph, and they retain their juvenile characteristics. In this case an aquatic lifestyle and gills for their whole life.

Alie: Is also called neoteny, or is that something else? Is that only in breeding?

Dr. Steen: Yeah let's see, the paedomorph is retaining the juvenile characteristics. Neoteny... I don't remember what the difference is.

Alie: Maybe that's only with breeding.

ASIDE: So neoteny, that retaining of those juvenile traits, happens both in nature and in, like, the selective breeding that domesticated wolves into dogs, which are a lot like puppy wolves. Also, humans are an example of neoteny, I did not know that. And the retention of juvenile traits in us may have helped us develop better communication with each other. They're not sure. Also it makes us look cute, [*baby voice*] like a baby.

Alie: I always feel like one human being who has retained juvenile characteristics is Bjork. I always feel like she's just like, "aaahh ahh." What about if you had to kiss a frog? What kind would you pick? Is this going to be some poisonous frog that's going to get you liiiit?

Dr. Steen: [*laughs*] I don't know how to get consent from a frog so I'm just going to let it go on its way.

Alie: [*laughs*] Good answer.

Alie: Nicholas Smith [ph.] wants to know: What was the last snake to have legs?

Dr. Steen: Yeah, that's a pretty cool question because the general idea is that they all used to be lizards and then a group of animals, kind of, branched off, lost their legs, and became snakes. So when does one of these animals stop being lizard and start being a snake? That's hard to say. But we do have fossils to look at. Some snakes today still have these little remnants of legs, like the boas and the pythons.

Alie: [*gasps*]

Dr. Steen: Yeah, they have these little vestigial limbs on the back.

Alie: They got nubbins?

Dr. Steen: They got nubbin legs, yup.

Alie: WHAT?!

Dr. Steen: Mmm-hmm.

Alie: [*baby talking*] Can you tickle their li'l nubbins?

Dr. Steen: You could, as a matter of fact. There's lizards that don't have legs and there's the snakes that have the little nubbins, so you know, nature is really messy.

Alie: I did not know that. That's pretty exciting.

Dr. Steen: I'm excited.

Alie: Right? That's pretty dope. I had no idea. Russel Kelly wants to know: What's the biggest thing an anaconda can eat?

Dr. Steen: Lots of people are scared of being eaten by an anaconda. There's no real reliable records of that happening. However, they can take large things like deer, and pigs, and maybe a small tapir, or caiman, which is the alligator relative that lives down South America.

Alie: And hoomans.

Dr. Steen: You know, I wouldn't say it's impossible but it's not something that I spend too much time worrying about.

Alie: Right. I feel like there's always disgusting photos on the Internet you can find if you were to look for them.

Dr. Steen: Yeah that's mostly pythons from Southeast Asia when we're talking about people being eaten by snakes. It doesn't happen often but when it does happen it tends to be in Southeast Asia.

Alie: Why is that?

Dr. Steen: The snakes are big and the people are small.

Alie: Okay. So it's a.... all right, so it's a ratio. All right.

Priscilla Ramon [ph.] wants know: Living in Australia, we have many deadly snakes. I know when you see one you need to stand still. However, I hear that the tiger snake is aggressive. Should I stand still? Or poo my pants and run? If I come across one of these bad boys, what should I do?

Dr. Steen: You know, if someone asks you "should I poo my pants," who's going to say no?

Alie: The answer is always yes.

Dr. Steen: Yes, do that. You know, a little respect goes a long way when it comes to dealing with snakes, even the potentially dangerous ones. Give them their space, and don't try and catch them, and that'll cut down your risk significantly. People think of snakes as aggressive. I think of them more as defensive. They're responding to a threat, so if you don't threaten them, you're probably going to be okay.

Alie: Right. They're not out there hunting for humans.

Dr. Steen: No, what does a little snake have to gain by going after and starting a fight with somebody that's 100 times larger?

Alie: Right. So they're just like "stay out of my space."

Dr. Steen: Yeah. You know, if you threatened some species in some scenarios it's going to, you know, bluff or come towards you a little bit and that can be perceived as aggressive. But again, it's because it was scared.

Alie: Not a listener question, but have you ever been bitten by a snake, like, with fangs?

Dr. Steen: Oh, a fanged snake? Uh, what is a fang anyway?

Alie: I mean a viper... [*creepy witch voice*] a pit viper.

Aside: Pit vipers are called that because they have these heat-sensing pit organs on either side of their head near the nostrils. So, they have a sixth sense! They use infrared detectors to seek heat. How baller is that?

And now, here's some quick stats to banish your snake fear for good. You ready? Just hear some 'get real' facts. These are taken from Dr. David Steen's website:

In the United States, 7,000-8,000 recorded venomous snakebites a year happen. On average only about five result in death.

He says, "this includes all the drunk knuckleheads that are showing off with a snake they caught; it includes all the people at rattlesnake roundups holding rattlesnakes and letting them strike at their boots; it includes all the religious snake handlers proving their faith; it includes the people who keep venomous snakes as pets; it includes all the wildlife researchers who handle live rattlesnakes as part of their job; it includes the pest control workers that remove venomous snake from their hiding places; it includes all the Steve Irwin wannabes that harass venomous snakes for no particular reason; it includes the people who work with rattlesnakes to extract their venom every day; and it includes all the people who use shovels or other hand tools to kill snakes in their yard. All of that. Five people a year die." He says you can dramatically decrease your chances of being bitten by a venomous snake by promising not to be any of those people.

So, I know sometimes we feel afraid of snakes. Some studies have shown that children and babies aren't innately that afraid of snakes, it's really watching their parents' reactions to snakes that ingrains that fear in us. So, don't waste your energy on being afraid of snakes. It's more likely that a falling TV will kill you, as it does to about 100 Americans a year. Snakes are terrified of you, they just want to eat rats in peace! So you have better things to worry about and better ways to stay alive, honestly, by putting your phone down and not having a TV topple on you.

Now, has David, who is a professional herper and snake identifier- Has he ever been bitten by a pit viper?

Dr. Steen: No I haven't. I've been bitten by many non-venomous snakes. Many, many, many. But I'm really careful around venomous snakes, to the point when people come and see me

work, they're pretty bored because they really grew up watching the TV, and you're dancing around, you're flicking the snakes around. That's not how I do it. And I've got all my fingers still, fortunately, because of that.

Alie: What is that hook called? It looks like the thing that you turn the sprinklers on but you're handling deadly snakes with it, what is that called?

Dr. Steen: Sure, you can have a snake hook which has a little bit more of a curve at the end of it. And there's also what's called a stump ripper, which is a little---

Alie: *[laughs]*

Dr. Steen: We got to come up with these fancy names for these things, right?

Alie: *[heavy country accent]* A stump ripper.

Dr. Steen: It's better than "just a stick." Yeah, they're basically all just golf clubs but that's not fun to say. And the stump rippers are a little sturdier and you can use them for flipping over logs and things like that, which is where many snakes like to hang out.

Alie: Oh, so that's sort of ... that's, like, an all-access pass to the under-the-log scene.

Dr. Steen: Exactly and there's a lot of variations. You can buy snake hooks of different size, you can buy them that retract, so you can travel with them. There's a company out in Denver, Colorado, they put all kinds of emblems and stuff on them. So, this is gear for herpetologists.

Aside: I looked and found one place, LiveTrap.com that had an absolute glut of raccoon traps, and stump rippers, and snake hooks... man. And they have a registry, which I imagine causes either a lot of friction among newly-engaged couples, or snakey people will find their soul mates, and that warms my heart.

Alie: How many snake hooks do you have?

Dr. Steen: I have one snake hook.

Alie: Okay. Is it your favorite? Or are you like, "this is okay, I could upgrade"?

Dr. Steen: Look, when you're a pro like me you don't need all the accessories and all the gimmicks. Just give me my standard snake hook.

Alie: This was this was your big opportunity to get a shout out or a sponsorship from, like... like with those platinum... those gold crystal-studded snake hooks.

Dr. Steen: Never crack under any situation...

Alie: A fine Italian snake hook.

Mike Melchior wants to know: Have you ever been to Snake Island? I don't know if that is a euphemism.

Dr. Steen: Snake Island - he's referring to a snake... an island that's off of Brazil. There's a ton of these venomous snakes, that... There's these pit vipers there, really high densities. Every once in a while there's a show about some expedition looking for treasure or snakes there. I've never been there.

Aside: Okay, there are a few good documentaries on Snake Island. One's on National Geographic. It features this very God-voiced narrator detailing the tension between a snake and a bird. And then there's another full-length documentary put out by Vice, wherein this affable white guy who looks like your friend's boyfriend who's on an improv team goes to Brazil to say things like

[*Clip from Youtube video*] "I'm going fucking crazy, because we're sleeping on an island full of snakes. Pretty sure I'm going to DIE."

And then he interviews masked biopirates who catch and smuggle the snakes. Tonally, both of the programs have an underlying "whoa, that's a lot of snakes, man" vibe.

Alie: Would you want to go there?

Dr. Steen: That would be pretty cool.

Alie: Okay. So, like if you won a trip to Snake Island you'd be like, "Oh, heck yes!"

Dr. Steen: Wait, did I?

Alie: I don't know. I wish that I could give that as a parting gift. Like, "aaaand, you've won a one-way trip to Snake Island."

Dr. Steen: "You're banished." [*laughs*]

Alie: That would be, like, literal hell on earth for some people and it would be, like, your heaven.

Dr. Steen: Yeah, I mean I could be a little bit more creative if I'm going to describe heaven, but I'd have fun.

Alie: Okay, there's also snow cone machines there and it never gets too hot.

Dr. Steen: Hey, you know what? I had 13 minutes to explore this room, and the storage in there, there's a freezer in there. It's full of ice cream.

Alie: Is it really?!

Dr. Steen: And Hot Pockets.

Alie: [*gasps*] Are you kidding me? Oh dang, I left for 13 minutes... I might take a Hot Pocket on the way out. Charge it to the room, I'm a baller!

John Worster wants know: What is the coldest climate that a snake is able to live in?

Dr. Steen: Snakes are pretty adaptable and you could find them pretty far north. There's adders, it's a kind of viper in Europe. They're in Scandinavia, northern Russia, and over here in North America you can have garter snakes all the way up through Canada. Not *through* Canada but through much of it. And it's all about strategies. You know, the viper in Europe, it's going to be underground for most of the year and then it warms up for a couple months and then it gets really busy - figuratively and literally - in just that brief window. Garter snakes, they also have a relatively small window but they need to find these really unique areas to spend the winter. That's why you're going to see them congregating in some areas like the snake pits in Narcisse. These are limestone caves, basically, that go below the freezing level. In the fall they're all congregating, in the spring they're all emerging. Tens of thousands of snakes. Pretty cool

Alie: Was there a scene in *Indiana Jones* where he falls into a pit of snakes?

Dr. Steen: Yes that was a less natural situation. But yeah, I think you can hear things rattling, and hissing, and they're all harmless snakes.

Alie: When you see a snake pit or a video of a snake pit... Have you ever seen one in real life?

Dr. Steen: I did go to the Narcisse snake pits and that was pretty cool.

Alie: Did it just look like, like Bonnaroo for snakes? Like, it was just like so many snakes you couldn't even see who was who?

Dr. Steen: More like... what's those hedonism resorts? It was kind of like that, for snakes.

Alie: Like a Burning Man. Like, Snake Burning Man.

Dr. Steen: If you say so. I've never been.

Alie: Everyone's just nude, and just... Wow. I didn't know... Again, my family's from Montana and one of them posted some video of a bunch of rattlesnakes all in a den and it was SO fascinating to watch. Do you spend time looking at videos online of weird stuff?

Dr. Steen: Too much time.

Alie: Really? What's your favorite hashtag? What's the one you use the most?

Dr. Steen: #notacopperhead, #notacottonmouth. Yeah, I started doing that because people are finding snakes, and you know, 90% of the snakes people see, they think it's venomous and often it's a copperhead, so I just wanted to highlight how often people make that mistake. So yeah, check that one out.

Alie: Would you say that the best way to check really quick on whether or not a snake is venomous is just to look for that triangle-shaped head?

Dr. Steen: So, it gets back to what we were talking about earlier in that I don't emphasize tips or tricks or specific features because there's always exceptions. Many harmless snakes actually, when they're feeling defensive, they will make their head look like a triangle. So a lot of snakes have made a really critical error in making themselves look venomous. So, it's just an overall feel, and once you start getting comfortable with the snakes you'll be able to identify them quickly.

Alie: So you just got to read more books on snaaaaakes!

Dr. Steen: Yeah, I mean it's not satisfying, like, "Hey how do I learn snakes?" Well, read books.

Alie: Jenna Ericson wants to know: Is there such a thing as a snuggly snake? Have you encountered one?

Dr. Steen: Yes, I was doing an outreach event just on Friday as a matter of fact and I had this huge black pine snake, and it was cold out, and the snake... you know, we used to call them cold-blooded but ectothermic is the technical term. It was cold, it wanted to warm up, so it wrapped itself around my neck. And that's where it hung out. That was kind of a cuddly snake.

Alie: [*baby talking*] It was just gettin' up in there.

Dr. Steen: Exactly.

Alie: It was a little snake scarf.

Dr. Steen: It was a big one, but yeah.

Alie: How many pounds it weigh?

Dr. Steen: Oh, well...

Alie: Or, how many feet? How do you quantify a snake? When you say, "I saw a big snake" do you say it was like "this big", "this long", "weighed this much"?

Dr. Steen: Yeah. They always weigh less than people expect. So I generally go with length because that's more impressive. It was five or six feet.

Alie: That's a big snake!

Dr. Steen: Yeah it was.

Alie: That's quite a scarf. It's quite a statement.

Alie: Boni Dutch, who is amazing, she designs a lot of the merch that we have on the site...

Dr. Steen: I need to get some.

Alie: I know, I'll hook you uuup. Boni wants to know: Can all different snake breeds be friends? She said, "We used to play in a sunny hill covered in snakes as kids..." - What?! - "and there would be all colors and sizes all chilling together in the sun." She said it was like the sun was their God and the hill was church. So she asked, was there no fighting in church, or are they just cool all the time?

Dr. Steen: I would have loved to see this scene. It sounds really cool. Snakes are really diverse group. Some will eat each other. Some will spend the winter together because they're limited by those unique places where they can escape the cold. So yes, some are friends. Some are food. I'm using 'friends' not literally, but they can spend time with each other for sure.

Alie: I didn't know that! I figured that they'd be like, "Uh, *I'm* the snake on the scene. Please remove yourself from my orbit."

Dr. Steen: So that would be something we associate with a territorial animal, and there's really limited evidence that snakes are territorial.

Alie: Oh, so they're nicer than we've given them credit for.

Dr. Steen: That's what I keep trying to tell everybody.

Alie: Let's see... Coralina Ludden wants to know: What is the appeal of having a snake as a pet? What do you do with them? She said, "I'm not into them, but I want to understand."

Dr. Steen: Well, thank you for, you know, wanting to put yourself in other people's shoes. That's admirable, right? I don't have any snakes as pets, but they're beautiful. They're low maintenance. They don't smell. They're not going to be barking. So, kind of, the perfect pet.

Alie: And they eat once every couple of weeks, right?

Dr. Steen: Yeah, really easy.

Alie: Yeaaaaah, it's fine!

Alie: Emily Georgia wants to know: Where does the scary noodle's body end and the tail begin? Or is it just a tail with eyes?

Dr. Steen: *[laughs]* It's actually just a neck with eyes. So, the tail, technically it's going to start at the cloaca. And I know that listeners already know what the cloaca is from your interview a couple weeks ago.

Aside: If you're not familiar with cloacas, take a listen to the ornithology episode where you will learn everything you need to about all-purpose orifices that are reptile and bird buttholes.

Dr. Steen: Yeah, the tail is not a big portion of the body. It's, like, the last eighth.

Alie: So it's sub-cloaca.

Dr. Steen: Exactly.

Alie: Oh that's good to know.

Dr. Steen: Posterior to the cloaca.

Alie: That sounds like a really awesome neighborhood in Brooklyn. *[hipster voice]* "I live in Posterior Cloaca... like, we have really good brunch spots..."

Sam Gottfredson says: What are the mechanisms that cause a snake to bite, even after it's dead?

Dr. Steen: Nerves. If an animal gets hit by a car or is killed suddenly, it still might have some nerves firing and that could cause the mouth to close.

Alie: Joyceline Furniss has a very important question: Can snakes fart?

Dr. Steen: Who asked this question?

Alie: Joyceline Furniss but Jenna Ericson also wanted to know the answer.

Dr. Steen: Okay, do you know about this book called *Does It Fart?*

Alie: *[laughs]* No I don't.

David I feel like this person knows about it, because it was last year or so somebody asked me if snakes fart, and people ask that to me not infrequently. So I said, "sigh... yes they do." And that started the hashtag #doesitfart, and Nick Caruso and Dani Rabaiotti, I'm sorry if I mispronounced your name, compiled all the answers and wrote a book, *Does It Fart?*

Alie: What?!?!

Dr. Steen: Yeah. And they should give me a cut after I just plugged their book.

Alie: So, were you partly one of the things that precipitated this to exist?

Dr. Steen: I really can't take credit for it. I did answer a question on the topic and they ran with it.

Alie: Oh my God. This is history. This is like when you find out, like who was at the signing of the Declaration of Independence in the background. Like, this is so exciting!

Dr. Steen: This is bigger than that.

Alie: This is bigger than that! *[laughs]* Kate Gilmore, who was our primatologist on Episode 2, wants to know: Why do some lay eggs and some give birth to live young?

Dr. Steen: It's such an interesting phenomenon and it's kind of a quirk of evolution. And so, because this is a rapid-fire segment I can't really get into the details of it, but the general idea is that egg laying was probably the ancestral condition. That's what the animal in the beginning had, and then live birth evolved from that, but it hasn't been directly. They've been going back and forth, there's different kinds of egg laying and live births. So: evolution.

Alie: What are the advantages of live birth?

Dr. Steen: Let's see. The eggs are really good because you've got this really climate controlled little spot, but the live birth, you know, they're ready to go. They're not as vulnerable to predation, so that would probably be a big benefit.

Alie: They can outrun whatever.

Dr. Steen: Yeah, they can start biting stuff. They're ready to go.

Alie: They hit the ground bitin'. Good for them!

Dr. Steen: And in stable climates, it might be an advantage because you don't necessarily need that enclosed space in an egg.

Alie: I always think, again, *Indiana Jones*, that live snake. You know what I mean? All of my reptile knowledge apparently is from Harrison Ford movies.

Dr. Steen: Well, I'm going to blow your mind because many of the animals in that scene were actually legless lizards.

[record scratch]

Alie: Whhaaaaat?!

Aside: Whoa whoa wait whoa wait wait, what? Okay, I took a dive into the snake pit of info and oh man! [*quiet voice*] He was right.

Okay, for the most part. Now, there's a scene in *Raiders of the Lost Ark* where Indy and Marion have to escape the Well of Souls, a snake-filled underground bunker.

[*Clip from Indiana Jones*]:

Indiana Jones: Take this. Wave it at anything that slithers.

Marion: Oh my god, this whole place is slithering!

Turns out, most of the snakes in the Well of Souls weren't actually snakes at all, but

legless lizards. Which have visible ear holes, which snakes don't have. Okay, WHYYYYY? Why did they put legless lizards in there?

Well, 3,000 snakes were ordered months in advance, but the production crew laid out the snakes and they discovered that 3,000 was nowhere near enough to blanket the set in their snake-covered dystopia. Another 7,000 snakes were procured, for a total of 10,000 snakes. But they had to get a bunch of legless lizards in a pinch. Indy and Marion are swinging torches around, and apparently filming was a nightmare because these ectotherms weren't afraid of fire and actually they tried to get closer to the flames to warm themselves. They just could not take direction.

Dr. Steen: I'm sorry.

Alie: Why did they do that?!

Aside: Okay we got this a little mixed up. I thought David was talking about another ophidiophobic (that's fear of sneks) scene at a dinner in *Temple of Doom*, where a snake is slit and a bunch of alive snakes tumble out. Turns out that dish is called Coiled Wrigglies aka Snake Surprise, and according to an Indiana Jones fanpage, it was live baby eels stuffed inside a moist boa constrictor. The eels, were also not snakes and don't worry, this dish does not appear to be real, it is a fictitious menu item. But anyway, Indiana Jones: eels in one movie, legless lizards in another.

Dr. Steen: Maybe they got a good deal? You can tell the difference if you look at 'em.

Alie: Well, YOU could tell the difference.

Dr. Steen: You could tell the difference.

Alie: Could I tell the difference? Shape of the head?

Dr. Steen: Yeah!

Alie: Okay. I'm going to look into this.

Dr. Steen: So here's the way you tell the difference between a snake and a legless lizard: You have a staring contest with it. And, sometimes you'll beat the lizard because they have eyelids and the snakes do not.

Alie: [*gasps*] Oh my god.

Alie: Daniel Llavaneras - I'm sorry Daniel, I'm probably pronouncing it wrong – who is awesome, he asks: From flattened out ribs to glide, to tail scales that look like a spider to lure birds, and worm-like appearances to feed on ant larvae, snakes are awesome. But which is the most awesome adaptation you've seen?

Dr. Steen: The most awesome adaptation is just the fact... Look, imagine you had to survive in the woods with no arms and no legs. How long would you last?

Alie: Oh yeah, no. I'd be toast

Dr. Steen: Yeah. But all these different kinds of snakes have figured out a way to make it work. And so I think that's my answer.

Alie: Just the fact that they are.

Dr. Steen: Yeah, and it worked for them. You know, they lost their limbs probably because it's easier to move underground, but somehow they've figured out all these amazing ways to get by, whether it's constricting their prey, or this modified saliva that's basically venom, or things like indigo snakes which are just grabbing other snakes and chewing their head. You do what you gotta do.

Alie: If a snake gets bitten by another snake is it like, “haha, nice try dude”? Or is it like, “Oh, you got me with my own tactic!”

Dr. Steen: [*laughs*] Never saw it coming.

Alie: I mean, are they immune to their own venom?

Dr. Steen: No, they're not immune. When snakes are storing their venom, they're in these specialized glands, but if another snake were to bite a snake and it gets into their bloodstream they would see effects from that.

Alie: Wow, they'd be like, “Why you gotta do me like this, pal?”

Dr. Steen: “I thought we were friends, I thought we covered that.”

Alie: Man! Erin Talbert - hi, Erin - Wants to know: Is it true that rattlesnakes are starting to evolve and become much more sneaky because they're using their rattles less?

Dr. Steen: This is one of the things that I hear a lot and it makes sense but there isn't really evidence for it, so I put this in the 'urban legend' category.

Alie: Okay, it might be flimflam?

Dr. Steen: Yeah

Alie: Okay. That's good. That's one step closer to debunking flimflam.

Dr. Steen: Yeah, NPR had a story about this. So that gave it a lot of play. And there's different variations: one is that people are killing the snakes that make a lot of noise. Another one is that pigs are eating the snakes that are making a lot of noise. It makes sense but we don't really have evidence that it's actually happening.

Alie: How can pigs eat snakes?

Dr. Steen: They're tough. They're really tough, and they probably feel it when they're bitten by a venomous snake but it doesn't... It might ruin their day, but it doesn't kill them.

Alie: Wow, they just keep going!

Dr. Steen: They're machines. They are an incredible destructive force throughout this country. Feral pigs.

Alie: I had no idea.

Aside: So, today's invasive, feral, wild pigs are descended from wild boar that was introduced plus escaped domestic pigs, and some hybrids of the two. Wild pigs are super destructive. They cause the U.S., like, \$1.5 billion each year in damages. They look like a barnyard pig who went on a low carb diet and grew its hair out into a lazy shag. They eat crops, they edge out native species, they spread disease. They're considered vermin in some states. They are also considered, really fucking adorable. By me. I'm sorry.

Alie: So they're like, "whatever, dude."

Dr. Steen: Yeah.

Alie: That's tough. I had no I had no idea. Go pigs. Ginger Larsen wants to know: Do you have any tips or advice for herpin'? Also, can you define herpin'?

Dr. Steen: Yeah. Herping is one of the terms for going out and catching herps. It is something that you don't want to necessarily use in mixed company without explaining that herping is the act of going out looking for amphibians and reptiles. Remember those animals make up herpetology which is creepy [*ding*] crawly things and "herps" is shorthand for amphibians and reptiles as well. So, the number one trick is to learn the natural history

of these animals, walk around natural areas, and just look. They're not going to be advertising their presence so just walk slowly, pay attention to your surroundings, and I'm sure you'll come across something.

Alie: Be a little patient?

Dr. Steen: Yeah. Sometimes those nature shows spoil us and they do a lot of editing and cutting and so it seems like you're seeing an animal every 10 seconds. Often it takes a lot of walking around before you find something because they don't want to be found.

Alie: Okay, so just give it a minute.

Dr. Steen: Give it a minute and if you want to talk specifics, in the spring, at dusk, drive around natural areas. Often these snakes and frogs will be crossing the road after rains. You might find amphibians walking to wetlands. So, it depends what kind of species and where you're living.

Alie: What is the best kind of boot for this activity?

Dr. Steen: What do you got?

Alie: Oh these are not... these are, like, mall boots. They're not going to do it.

Dr. Steen: That would probably fend off most reptile attacks. I wear close-toed shoes if I know I'm going to be in an area where there's venomous snakes. That's really all the precaution I take. And I just watch where I put my feet.

Alie: You don't wear like, iron anklets? 'Cuz don't they like to go over the ankles a little bit?

Dr. Steen: I've never worn iron anklets before. There are things like snake boots which are these really rugged-looking heavy duty things, and the only times I've worn those is when I was specifically radio-tracking rattlesnakes. So you know you're going right towards it, you're saying I think the signal is here and you're walking around, pretty much everybody I know that studied rattlesnakes has accidentally stepped on one, but they haven't been bitten.

Alie: Really?

Dr. Steen: Yeah.

Aside: Later I was like, how do you put a radio tracer on a freakin' rattlesnake, dude? How does that happen? And boy howdy, did I find out. I scrubbed through a 22-minute video with banjo music and learned that snakes are captured, put under general anesthetic so they don't feel anything, and a flexible radio antenna is surgically implanted in their skin. Then they're medicated, they recuperate, and they are released into the wild. I know this is gonna sound a little kooky, but I was like: yeah, maybe alien

abductions are real? Like, we do it to snakes and stuff, so... maybe it happens to humans. It's possible. Anyway, back to rattlesnakes.

Alie: Let's say that you were bitten. Because I live in Los Angeles, I hike on occasion. Once I saw a little guy right next to the trail, a narrow trail. Let's say I had gotten bitten on my ankle. Should I try to suck the venom out with my mouth and spit it out?

David Your priority should be getting professional medical care. And I don't tend to give medical advice, because that gets me in a little trouble, but I'd say that most doctors would probably say not to try sucking out the venom. Yeah, no tourniquet, no sucking out the venom, no ice. They say that the most important thing you can do is have a pair of car keys or cell phone to call somebody.

Aside: Okay, I checked and if you suck on a snake bite you'd only get about one-one-thousandth of the venom out.

Alie: Yikes. So there's no DIY. There's no life hack for this.

Dr. Steen: I do not recommend any life hack for a venomous snake bite.

Alie: I will tell you, let's say that you have a phone and you drop it in water, and let's say that you're worried about how much water is in the phone, and let's say you were to put your mouth on some part of the phone and suck some of the water out. Sometimes, that helps.

Dr. Steen: That can't be true.

Alie: I've done that before! *[laughs]*

Dr. Steen: So there's water inside the...? I need to look at a phone.

Alie: I dropped my phone in water and tried to suck the water out of the ports.

Dr. Steen: Look, it's a scary, stressful situation.

Alie: I should have just called an ambulance at that point.

Aside: When we recorded this a month ago, Dr. Steen told me he was leaving Auburn University to work -- ready for this? -- on an island. With sea turtles. He's now a research ecologist at the Georgia Sea Turtle Center on an island that's called Jekyll Island. He tells me "turtle island is the bomb." His words. I looked it up and it's so idyllic and perfect, my stomach started hurting because of the beauty.

Dr. Steen: Yeah, it's where people go to vacation.

Alie: You're going to live on a vacation island full of sea turtles?

Dr. Steen: I'm going to live adjacent to a sea turtle island, which is much better than Snake Island.

Alie: I was going to say, the appeal... *slightly* higher. So, does that mean you get to count baby sea turtles?

Dr. Steen: It's a loggerhead nesting beach and there's a lot of sea turtle action going on there, including babies.

Alie: Oh my God, what a dream.

Dr. Steen: It's kind of exciting.

Alie: Do you dream about herpetology?

Dr. Steen: I can't recall any specific dreams I've had about reptiles and amphibians. But surely, surely it's happened.

Aside: At this point, the nice lady from the Hampton Inn front desk came into the conference room to show some other lady around. She just forgot we were in there. It had been that long.

Alie: Oh, hi!

The Nice Lady From the Hampton Inn Front Desk: Oh, I'm sorry. She just wanted to look at ... I forgot you were in here!

Alie: No worries.

Dr. Steen: Maybe they have questions.

The Nice Lady From the Hampton Inn Front Desk: You talking on there?

Alie: Yeah.

The Nice Lady From the Hampton Inn Front Desk: Oh my god, so sorry.

Dr. Steen: It's fine. It's a stopping and starting thing. Check out what you needed to.

Alie: Thank you! Yeah.

The Nice Lady From the Hampton Inn Front Desk: (To the other lady) It's got a refrigerator in here too.

Dr. Steen: [*Quietly to Alie*] Ice cream.

Alie: [*Quietly to Dr. Steen*] Hot Pockets.

Dr. Steen: You're going to leave that in right?

Alie: Yeah, whole thing. [*southern accent*] They were so sweeeeet. [*giggles*]

Okay, from Twitter, Glistening Hamsters wants to know: Midwife toads, I love how they go beep. That's not a question.

Dr. Steen: Thanks for your comment, Glistening. I think you're referring to narrow-mouthed toads, which do have kind of a nasal [*imitates nasally toad honk*] sound when they're breeding.

Alie: Oh they go [*nasally toad honk*].

Dr. Steen: I think that's what Glistening Hamsters is referring to.

Aside: Okay so midwife toads are dope: they're named because the male carries around a clutch of fertilized eggs on his back to protect them before letting them hatch and swim away in the water. They chirp and they sound like a heart monitor. They're like: Beep. Beep. Beep. Narrow-mouth toads have a call that sounds like a lamb bleating. They're like: Maah. Maah. Maah. You guys. I love toads.

Alie: KBirdsOne [ph.] wants to know: Do turtles recognize people they know?

Dr. Steen: So, this is probably a really controversial question because people perceive things from their pet turtles that I, as a researcher, can't necessarily appreciate. So I'm not going to take away from them the fact that maybe turtles do recognize people, but I'm not sure if it's been the subject of rigorous study yet. You know, crows do. Jury's still out on turtles, I think.

Alie: Do you think in working with turtles you'll find out if certain ones are like, "Hey bro. wassup?"

Dr. Steen: I do not think you will find that out.

Alie: Okay. You let me know, though.

David So one thing that we do know is that some turtles are what we call 'trap happy'. And if you set trap in a wetland it'll be there every day.

Alie: Aww!

Dr. Steen: Yeah, what's that about?

Alie: Are they are they like martyrs or are they just very dumb?

Dr. Steen: Maybe they're hungry and dumb? Bad memory? Who knows.

Alie: What recidivism though. They're just like, "I'm back man." They need better parole officers?

Last questions. What is the thing about your job or your life as a herper that sucks? What are you like, "I hate this"?

Dr. Steen: You know, reptiles and amphibians are really amazing animals, highly endangered in general. We're losing species. We're paving over their habitats. And so, conservation biology is kind of this crisis discipline where you're struggling to learn as much as you can to stave off these extinctions, and sometimes it's not possible. So that kinda sucks.

Alie: So that's the grand bummer.

Dr. Steen: Yeah, I hope this is not the end of the podcast because we don't want to end on a bummer.

Alie: No, we never end with a Stage Five Bummer. What is the best thing about your job? What just, like, gives you butterflies, keeps you going? You're like, "I'm so lucky. I can't believe they pay me for this."

Dr. Steen: I'm really lucky to work with a great group of people that are really passionate about these animals, passionate about increasing our knowledge of them and making the planet a better place for them and us. That's a great place to be.

Alie: So, your colleagues?

Dr. Steen: My colleagues.

Dr. Steen: Really? So, other people are the best thing about your job? That's surprising. You don't normally hear people say that.

Dr. Steen: Yeah, it's true. It really makes things better when you're surrounded by people that are all working towards a common goal, and are bright, and motivated, and that's why they're there.

Alie: If someone wanted to be a herpetologist or a wildlife ecologist, what would you tell them to do? What do you wish you could be like, "Hey, yo, little me. Do this."?

Dr. Steen: Get experience, anyway you can. Figure out if it's for you. Surround yourself with people that share those kinds of goals and figure out if it's for you, and a path will emerge.

Alie: Is there anything I should eat before I leave Alabama?

Dr. Steen: Barbecue is big here. I'm not big on barbecue, but barbecue is big here. Oh, and boiled peanuts.

Alie: Oh, I'll try boiled peanut! Why do they even do that?

Dr. Steen: They're easier to shell, I guess.

Alie: Okay. Like, when have you ever been shelling a peanut and been like, "Ugh, I got to stop and take a nap"? They're peanuts!

Dr. Steen: Look, if you do a few hundred of them you get cramps.

Alie: Okay, boiled peanuts, on the list. Thank you so much for being on. Thank you for coming to a Hampton Inn conference room in the middle of... Opelika?

Dr. Steen: You got it.

Alie: I got it! Yes.

Dr. Steen: Nice job. I'm honored to be here. I was really excited when I got the invitation.

Alie: Yay! Sorry about the SD cards. I hope this worked. Can you imagine if it didn't?

So, what have we learned? Unless you wrestle the venomous ones with your hands for sport, don't worry about snakes. Don't worry about snakes! Chances are if you're afraid of them, it's because your parents were. So rebel against your parents and love a snake. Also, shake a toad's hand and tell it I love them.

To find out more about Dr. David Steen, go to DavidASteen.com. He has so many links to great science articles he was quoted in, such as the November 2017 issue of *Gone Froggin'* called him Herper of the Week, and here are two more titles of articles he's been quoted in: *This \$10 Sex Toy is Helping Scientists Study Turtles*, *Here are the Worst Smells in the World, According to Scientists*. These are marks of good science communication. They're interesting.

You can also follow him on twitter or Instagram, @alongsidewild. He's LivingAlongsideWildlife on Facebook. He also runs a nonprofit, which you can learn about at AlongsideWildlifeFoundation.org. I'll put all these links in the show notes and at alieward.com/ologies. So, if you don't have a pen, don't worry about it.

Find me at @alieward or @ologies on Twitter and Instagram, and head to Instagram for this week's Ologies enamel pin set giveaway. I'm so excited. You can become a Patron at Patreon.com/ologies. I absolutely love making the podcast, I love it so much, and you may have noticed I don't run any ads. It's entirely funded by listeners through Patreon and merch sales. That helps pay my Merch Ladies, it helps pay Steven Ray Morris to sound edit for me. He totally undercharges me and I would love to pay him what he deserves. Thank you so much, Steven. We will hopefully get to that point.

Join the Ologies Podcast Facebook group, which is full of some of the best, kind, curious, hilarious people ever, so thank you Hannah and Erin for running that. Shannon Feltus (aka Urban Farm Foods) and Boni Dutch (who's on Etsy) run OlogiesMerch.com. Shannon is also a chef in Portland and is having a dinner with Thanatologist from episode 6, Cole Imperi. She's going to come out to Portland. So, I'm going to try to get up there for that too. So go to EatFeastly.com for more info on that.

Also, if you listen to the end of the episode you know that I usually tell some dumb secret at the very, very end as a thank you for sticking it out. I feel like most people don't listen to the very end of a podcast, so I thought I would confess weird stuff. This week I will tell you I got insanely busy with a bunch of writing deadlines and I wore the same shirt from Wednesday night until Friday afternoon. I mean, I work from home, and it was a great shirt and time just got away from me. Another secret (this is a good secret, this is a less embarrassing secret). I start shooting a new Netflix science show this week. I'm so excited! And I will give you more info on that when I know I can legally. Until then: Ask Smart People Dumb Questions!

And: Ask snake people frog questions.

Also, toads have arms.

Okay, berbye.

[Outro Music]

Transcribed by Corin Balkovek

Some other links which may be helpful:

[Stump rippers, etc:](#)

[Indiana Jones: What kinds snecks are those?](#)

[Raiders of the Lost Arc snake facts](#)

[Snake bite stats](#)

[Well of Souls clip](#)

[Naturism vs. naturalism](#) (That one has nude butts, FYI)

[Don't suck venom](#)

[Neoteny](#)

[Crime fears and stats](#)

[Babies don't fear snakes](#)

[Frog storms](#)

[Your TV may kill you](#)

[VICE doc on snakes](#)

[Narcisse caves in Manitoba](#)

[Snake abduction](#)

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