# Cervidology with Rhiannons Kirton & Jakopak
# Ologies Podcast
# September 1, 2020

Oh Heey, it's the third automatic soap dispenser you tried, the one that finally recognizes that your hands are real and exist, Alie Ward, back with another episode of *Ologies*. We talk about one ology per episode. This time, though, we're going to talk about one ology for *two* episodes! It was that good of an interview! We're tucking our pants into our boots, we're heading out into the wilderness for a serene, majestic, perplexing, vexing, horned, horny, antlered, and fanged two-part episode of *Ologies*, with not one, but two deer scientists to fawn over.

Before we dash into it, a few "Hey thanks, dudes!" to Patrons at Patreon.com/Ologies, which is a not-secret club you can easily join for a buck a month and submit questions for upcoming episodes. Thanks to everyone who's marching around in *Ologies* merch from OlogiesMerch.com. I hope you find each other, meet some new friends. Thank you for making sure you're subscribed and for rating and reviewing the show, which keeps it up in the charts for other people to find.

And if you've listened to an episode, you know I pick a fresh review, like a review fairy, to read. And this one this week is from TheMalloy9000 who says:

> *Dear Daddy Ward,* (That's me.) *I work on an organic farm, and it's super tough work, but listening to Ologies has gotten me through radish season and into squash season. Keep rockin' on, star girl.*

I sure as heck will! Let's start with Cervidology. It comes from a Proto-Indo-European word, *ker*, meaning 'horns'. So if you were like, "Is Cervidology about my cervix?" Well, yes and no, because cervix means 'neck' too, and it comes from the same root. So yes, antlers. All tangled up in that business, from an etymology standpoint. Moving on…

I had been looking for a good cervidologist for years, and I kept striking out on, like, retired game wardens and professors who did not answer their emails, until one day a few months ago I stumbled on a deer expert with a beautiful name, Rhiannon, and I followed her on Twitter immediately. And then I realized a few days later than I wasn't following her, and then I realized, that that was a *different* Rhiannon who is *also* a cervidologist! And I was like, "Hu…How… Is this a wrinkle in the simulation? Is this a hole in the fabric of spacetime? Is someone catfishing me? Are they even real people? And if so, do they know each other??" And the only way to find out, really, is just getting all of us on a triple chat line.

So, one Rhiannon got her Bachelor's in Zoology from the University of Manchester in England - you will recognize her by her accent - and is now at the University of Western studying what kind of white-tailed deer are where. And you also heard a clip of her on the BlackAFinSTEM episode in June, and she's a co-organizer of the upcoming Black Mammalogists Week. That kicks off September 13th, and we're going to hear more about that in another episode as it approaches, but you can learn more for now at BlackMammalogists.com. Mark your calendars, September 13th.

Now, the other Rhiannon studies mule deer and got her Bachelor's in Wildlife and Fisheries Biology and Management from University of Wyoming where she's now a grad student. She's getting her master's, she's studying zoology, and environment, and natural resources. Has she created a board game about mule deer? She has.

So my *deers*, buckle up for a Part 1 of a truly, truly wild ride. We recorded for two-and-a-half hours. This *had* to be a two-parter. It is just a journey through the woods of knowledge about everything

from Bambi, to elk love songs, and hoof fights, and antler velvet, and the Second Amendment, underestimated backyard critters, peacing out for no reason, what to do if you find a fawn, talking with butt languages, and how not to hit a deer with your car, with the absolutely charming, whip-smart, and delightful human entities who are both real people named Rhiannon and are Cervidologists, Rhiannon Kirton and Rhiannon Jakopak.

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**Alie:** Does anyone have any ACs or fans or anything, like, any Beyoncé fans happening right now, blowing right on you?

**Kirton:** Um… Let me go have a look.

**Aside:** That was Rhiannon Kirton, and you'll recognize her from her delightful, faintly non-American accent.

**Alie:** And where are you, exactly?

**Kirton:** I'm in Ontario, in Canada. It gets very hot here. It was like 40° last week.

**Alie:** And when you say 40, you mean Celsius, correct?

**Kirton:** Yes. I think that's like 100 for you guys.

**Alie:** Yeah, it's a lot. It's a something-lot. Where are you originally from?

**Kirton:** Uh… [*giggles*]

**Alie:** You're like, "Long story."

**Kirton:** I grew up between Australia and the UK before I came here.

**Alie:** And the other Rhiannon?

**Jakopak:** My name is Rhiannon Jakopak, and I am currently in Wyoming. I'm from South Dakota originally, but I've been in Wyoming for many years now.

**Alie:** When did you both learn about the other one?

**Kirton:** A while ago, I feel like.

**Jakopak:** Yeah, just, like in the Twitter sphere, somehow we got connected in some way. I was like, "Oh look, there's another Rhiannon who also studied deer! How cool!"

**Kirton:** Yeah, I think this Rhiannon was the first other Rhiannon that I knew. [*"I have a twin sister, is what I'm trying to say."*] And now I know a couple of other Rhiannons on Twitter as well.

**Jakopak:** We will take over.

**Alie:** [*laughs*] A nation of Rhiannons! I have to say, you're both the first Rhiannons I've ever met, like ever. And I thought, like, that's such a rare name. I've never heard it before. And I googled it, and y'all, I did not realize it was a Fleetwood Mac song *until today*! [*everybody laughs*] I've heard that song for, literally, decades. I never… I just thought they were just going like, "Yeeeeaaahah…" [*clip of Fleetwood Mac's Rhiannon chorus*]

I didn't realize they were saying a word or a name. Were you both named after the Fleetwood Mac song?

**Aside:** This is American-accented cervidologist Rhiannon Jakopak:

**Jakopak:** Yeah, I was. Also, I had that similar experience. I worked in a grocery store when I was in high school and they always had, like, background music on. There was always this one song that was playing and I'd, like, kind of hum along, but I never really paid attention to it. Then one day, for whatever reason, I was like, "Oh my gosh, they're saying Rhiannon!" For *years* I listened to that song. So, yeah.

Anyway, I was named after that song, and I really love that so many people, as soon as I say my name, start to sing that song to me. [*chorus from live performance of Rhiannon, with crowd singing along*]

**Kirton:** I cannot say I've had that experience. I was not named after the song. My mum was kind of a hippie when I was a kid, and we lived probably about two hours away from Wales, and Rhiannon, who the song is about, is a character in Welsh mythology. So my mum actually named me after the mythological Rhiannon. I guess Stevie Nicks also heard about Rhiannon.

**Aside:** Okay quick aside. I went down a long, witchy, trippy rabbit hole researching why Stevie Nicks chose to softly wail this name in one of her biggest hits. And apparently, in 1974, she was at a party and she flipped to a random page in a book, describing it as, "just a stupid little paperback that I found lying on the couch." It was called *Triad*, written by Mary Leader, who probably did not appreciate Stevie Nicks's description of it.

But Stevie Nicks explained that it was all about this girl who becomes possessed by a spirit named Rhiannon, so she was like, "Man, I gotta write a spooky-ass song about a lady from another realm who digs birds and is named Rhiannon and launch my career, I guess." She didn't even know at the time that Rhiannon was a Welsh bird-loving goddess! How's that for a co-winky-dink?? Nor did she know that two deer scientists named Rhiannon would be talking about this decades later. Also, did you know that when you flip to a random page in a book and then you let it determine your future, that's called 'Bibliomancy', fancy! Let's continue:

**Kirton:** But now I do that to people and they're like, "What's your name?" And I'm like, "Rhiannon." And they're like, "What?" And I'm like, "Rhiannon, like the Fleetwood Mac song." And they're like, "Oh, I've never heard that song." And I'm like, "What??"

**Alie:** I think we all have heard it, but we don't realize what song it is. [*laughs*] Like, I never… I honestly had no idea. I feel so much better, Rhiannon, knowing that you didn't know and it was your name.

**Jakopak:** Yep. [*laughs*]

**Alie:** Okay. That makes me feel better. So, you were both *kind of* named after the same Rhiannon, like once removed, right? [*Rhiannons agree*] Oh my god. Amazing. And now, you're both biologists. You're both cervidologists. Is *that* a word that you have heard before?

**Jakopak:** It's not a term that I have used, although I was really hoping that that's what you would say. I have tried to be a broad mammalogist, so I'm interested in mammals generally. Right now I'm working on deer in particular.

**Kirton:** I'm going to go with 'no' as well, but I've always had an interest in large mammals, and I was actually telling the other Rhiannon this the other day that, you know, I like deer because deer are food for other things. I've always had an interest in large carnivores,

but I did actually write my second-year dissertation at university about the role of large ungulates in biogeochemical cycling.

**Alie:** Ah! And you are going to have to tell me what bio [*humorously mumble-slurs*] cycling is. I have no idea.

**Kirton:** [*laughs*] Biogeochemical cycling is just things like the nitrogen cycle, or like the carbon cycle, and it's the way that elements get cycled through the environment. Deer contribute to various biogeochemical cycles through excrement and through decomposition of their bodies when they die.

**Alie:** Okay, so that's just… We all go back into the soup. It's just back in the earth soup. That's a comforting way to think of dying.

**Aside:** Let's ask Wyoming Rhianna J. about her mammalian history.

**Alie:** You've worked with a lot of mammals, right? So how did you end up, kind of, in the deer world?

**Jakopak:** That's a good question. I think a lot of biology is, like, you just kind of know the right people and, thankfully, just make good connections, and then fall into a really great project.

**Aside:** She ended up being introduced to her now-advisor Dr. Kevin Monteith kind of serendipitously, as if by the be-scarfed hand of Stevie Nicks herself.

**Jakopak:** And I met him because he was one of my professors, and I worked for him, and then it just kind of spiraled from there. But I work in an area called the Wyoming Range and the Salt River Range, and I just think that they are the most phenomenal, beautiful places in the entire world, and I just want to be here forever and explore them for forever.

And this project popped up where I got to work with deer who are the… It's the species that so many people care about, and they have a really crucial role in the ecosystem and with other animals. And I was like, "Yes, please! Sign me up. I want to do all of this."

**Alie:** Now, were you both outdoors kids? Are you both drawn toward biological sciences because of the setting, or because of the problem solving, or because of behavior? What drew you to get involved in science?

**Aside:** Rhiannon K. answers. Remember, you can tell because she has the accent.

**Kirton:** Yeah, I grew up pretty rurally. I lived in Somerset when I lived in England, which is in the Southwest. It's farming country. It's full of cows and orchards. Cheddar Gorge, where cheddar cheese comes from, was really close to my house. And I lived right by Glastonbury Festival; it was great.

And then I lived in Australia. I lived in Northern Rivers, New South Wales, which is on the eastern coast, near Byron Bay, and it's fairly biodiverse there. Of course Steve Irwin was, like, huge when I was a kid. [*Steve Irwin: "Aw, crikey!"*] So I guess it was a combination of things.

My mum tells me that my first word was tiger, so I guess I was destined to be a biologist of some sort. But it really was wolves that drew me to this line of work. I originally wanted to be a vet, but then I decided that I could see more animals if I was zoologist.

**Aside:** Rhiannon K was particularly fond of wolves, and just how you know what your crush's favorite burrito is, she was like, "Ah man, wolves love a bloody deer carcass, so I'm kinda into deer."

**Alie:** So you like to study deer because they are so crucial as food to carnivores, which is totally understandable.

**Kirton:** I mean, it's actually kind of funny. Both of us are studying deer movement and deer spatial ecology. I was really interested in studying deer movement mostly to gain skills in spatial ecology because animal movement, and migration, and corridors, and stuff is also vital to the way that we manage large mammals. And it popped up on my Twitter feed and I applied at the last minute.

**Alie:** You did? You got a job from Twitter?! That's amazing.

**Kirton:** I did. And I've also been lucky enough to go out and do field work with people from Twitter. I went and helped my friend Rebecca in Montana, she's a wildlife biologist. And my friend David, I went to catch Tasmanian devils with him. So Twitter's actually been pretty lucky for me.

**Aside:** Oh what's that? You'd like to know more about Tasmanian devils? May I suggest last week's episode with Em Dale, who has a laugh as infection but way less tragic than Tasmanian devil facial tumors? Also, speaking of the beauty of the outdoors, is that what drew Rhiannon J. to science?

**Jakopak:** I don't think I really started being interested in the outdoors. When I was a kid we lived out in the country and I remember climbing trees and eating leaves. [*giggles*] I don't know why I was doing that. And I also, in third grade, gave a show and tell presentation where I just read facts about wolves. So I guess I really liked wildlife and outside, but then in high school... I don't know, I just fell out of science. I felt like I was not really good at science. And nobody in my family really is active outdoors, like camping, hiking, that sort of thing. I went to college and I originally had tried to be in science and then I didn't do super well. It turns out that you need to go to class and I definitely didn't. [*laughs*] Strange!

So I switched my major, and a few years into college a few friends took me on a hike, and I was 20 or 21 and I was going on my first hike ever. It was just like, "Oh my god, this is so cool! There's grass, and birds…" and we saw a moose. It was super cool. And then I quickly realized that you could get paid you to work outside and said, "Okay, I want to do that. And then I realized that I could do science and there was a lot of back and forth with myself there. There were a few times where I almost dropped out of undergrad because I didn't think I was smart enough to be in science.

I think part of it is that I'm from a first generation, low-income background and I was working full time while going to school to support myself through school. So I was getting off work at like six in the morning and then had class at eight so I was really tired. So there's a lot of factors there, but I eventually convinced myself that I was good enough to make it through.

Then I had one class, it was mammalogy, and I went from, like, thinking of school as this thing that I felt maybe I had to do to like, "No, I don't want to hang out with anyone. All I want to do is read papers about mammalogy. No I don't want to go party on a Saturday night, I'm going to memorize a rodent species!" [*laughs*]

**Alie:** Aww! [*laughs*] That's amazing!

**Jakopak:** So I don't feel like I had a huge exposure to science, and actually I had tried to convince myself pretty frequently throughout my life that I wasn't good enough for science. But then I just loved it so much once I finally found that little specific field. And then I had some really great professors and mentors who just were like, "Yes, you *can* do this." And then they pushed me along, and now here I am and I still love wildlife, and the outdoors, and all of that.

**Alie:** Ah, that's amazing. Those kinds of stories are so important to hear because I think so many people, when they struggle with anything, whether it's something academic or whatever their dream is, to not hear people's struggles can be really isolating and that's so helpful. And I'm so glad that you stuck it out, because now you're a cervidologist. If you are studying the thing, that makes you an ologist of it. So you're both cervidologists.

**Jakopak:** Yes!

**Kirton:** Hooray!

**Alie:** So says I. Such a stupid question, but I have to cervidologists so I can ask, what exactly is a deer? What is a deer versus an elk versus an antelope? What's the deal with horns versus antlers? If I were an alien that landed on Earth and was like, "What is this big dog? Can you explain it to me?"

**Kirton:** Deer are cervids and hooved animals are ungulates. So cervids are a smaller group within the big group that is ungulates. So, antelope are ungulates, but they're not cervids.

**Alie:** Ooh, okay.

**Aside:** So remember: all cacti are succulents but not all succulents are cacti. Other ungulates include zebras, and horses, and rhinos, and donkeys, and giraffes, and warthogs, and okapis, and also bovids like cows and bison. So hooves – you've got yourself an ungulate. But which of those ungulates are cervids aka deers and such? Rhiannon J. is chomping at her bit to tell us, and the answer is so odd, I can't even. That'll make sense in a sec.

**Jakopak:** When you asked that question, I was pumping my arms, I was so excited. It's like, "Rhiannon no, stop moving, it's going to pick up the sound." [*laughs*] So like Rhiannon just said, there's this broad umbrella of ungulates, and so that would be split into two orders, the Perissodactyla and the Artiodactyla. Perissodactyla is your odd-toed ungulates, so things like horses, tapirs, that sort of thing. And then Artiodactyla is your eve-toed ungulates, things like deer (all the different species of deer), sheep, cows, that sort of thing.

And so then within Artiodactyla, there's the family Cervidae. That includes things like mule deer, which I study, white-tailed deer, which other Rhiannon studies, elk, moose, caribou, that sort of thing. Cervids have antlers and antlers fall off and they will be regrown. Bovids which are things like sheep, cows, goats; those have horns and those horns don't fall off each year, they just grow throughout their life. A horn is like a record of an animal's life, whereas an antler falls off and grows again each year.

**Aside:** Okay so odd-toed ungulates are the horses and the donkeys and the rhinos, and even-toed ungulates include bovids with keratin horns, and cervids with antlers. PS: Those antlers are generated from something called velvet, which is a veiny, stretchy,

slightly hairy skin that supplies blood and oxygen to the bone it's building underneath! And then when it's good and grown, the velvet is like "buh-bye" and it kind of dries, and the cervids slough it off kind of like a crusty chicken skin. Also, as some bucks grow, they produce more pointed tips per year, kinda like tree rings you can count. Why do they waste all that good calcium just to toss 'em every year? Well, one theory is that it makes does horny as hell to see a dude deer flexing his extra nutrients in such a wasteful way. Kind of like getting bottle service.

**Kirton:** Correct me if I'm wrong, other Rhiannon, but antlers are used for sexual selection, I think. I don't know if horns are used for sexual selection in the same way.

**Jakopak:** They both are, yeah. Big-horned sheep males will just, like, ram their heads together and use their big old horns to fight with each other for access to females. So yeah, both of them will use their horns or their antlers for sexual selection. And then one other weird fun thing; in North America we have pronghorn. Colloquially, they are called antelope, however, they are not antelope.

**Alie:** They aren't??

**Jakopak:** [*laughs*] They aren't. They're in a different family. It's *Antilocapra* – I don't think I'm saying that right. Sorry, I read a lot of these things and don't say a lot of these words out loud.

**Alie:** Oh that happens to me all the time. Try having a podcast about it. Do you know how often I go on YouTube and be like, [*goofy Muppet-like voice*] "How is this pronounced?" Constantly.

**Aside:** Sidenote, I had all faith in the world that she was pronouncing the genus of the pronghorn antelope just fine but I double checked online and found, this:

[*YouTube pronunciation clip: "ANT-ee-lo-CAP-ruh a-MER-i-CAN-na"*]

Wait. There's also this:

[*YouTube pronunciation clip: "ANT-ee-LOCK-ah-PRAH"*]

And this:

[*YouTube pronunciation clip: "ANT-ee-lo-CAP-rah"*]

So say it however you want, or just call it a pronghorn not-antelope. Those aren't horns, by the by, they're bony blades that are permanently jutting from its skull, and then every year they grow a hair-like sheath over them. If you live in North America, pronghorn antelope used to be so abundant here, and they served as fuel for Indigenous Plains tribes before the Europeans came. Heavy sigh. Now you know that they are not antelopes or cervids. But you don't know how to pronounce *Antilocapra*. Neither do I.

**Jakopak:** But if you ever just want to pull that fun fact out at a party, which maybe I've done once or twice, to be like, [*nerd voice*] "Actually, pronghorn aren't antelope." Their closest living relatives are giraffes and okapis, which is neat.

**Alie:** Woah! Well, that actually brings up the question, how did deer get to North America? Where do deer live? Are they in Europe? Do they tend to be Northern hemisphere animals?

**Jakopak:** They are found in North America, Europe, Asia, South America. And there's not a huge cervid diversity in Africa, instead it's bovid diversity there. So all the antelopes are bovids, one of those other big groups in the ungulate group.

**Kirton:** When I was growing up in England, we had roe deer. Fun fact: what they call red deer in the UK is called an elk in North America. And in Europe, what they call an elk is what we would call a moose in Canada.

**Alie:** [*shouting and laughing*] THAT'S FUCKED UP!

**Kirton:** It's crazy. I was writing my dissertation on biogeochemical cycling and I'm like, "This says elk, and this one says red deer, but they have the same scientific name. What is going on here?" But, they're the same.

**Alie:** Oh my… Okay. And is the elk a deer? The deer is an elk?

**Kirton:** Yes.

**Alie:** Okay.

**Kirton:** Yeah, moose are just giant deer.

**Alie:** Fuuuck. Moose are giant deer?

**Jakopak:** They are the biggest living deer species, the biggest living cervid.

**Alie:** Oh my god. This is blowing my mind. I figured that they didn't even talk to each other, you know? I just figured they didn't even know each other.

**Aside:** Yes. Red deer in in the UK are American elk. Their elk is our moose! And a moose is just a giant deer with a face shaped like a bread loaf! Also, I'm sorry I said the F word so much, but that was just some very shocking information for me, and I got emotional.

Now, I have so many questions left, but before we get to them, a few words from sponsors of the show who help get the bills paid and let us donate to a cause of the ologists' choosing. This week it was unanimous among Rhiannons: It's going to the Sponsored Membership Fund through the American Society of Mammalogists. And Rhiannon J. says that membership with ASM has been absolutely fundamental to her career development as a cervidologist. They say it's a great scientific organization, it's really student-focused and friendly; lots of outstanding mammalogists can trace their roots back to ASM somehow.

The Sponsored Membership Fund in particular supports ASM membership for mammalogists in developing countries, and they both say that they hope this donation will help to make mammalogy a little more accessible to mammalogists in other countries.

So that was made possible by Ward-approved sponsors of the show who offer listeners discounts on their stuff, which I may tell you about now.

[*Ad Break*]

Okay, back to questions.

**Alie:** Okay, I have so many questions. How do you both feel about internet videos of people feeding bananas to deer, and carrots? Are you like, "Dooonnn't do it!!?

**Jakopak:** Don't do it.

**Alie:** Yep.

**Kirton:** There have been heated discussions about these videos.

**Alie:** Yes. [*laughs*]

**Kirton:** Especially in the BlackAFinSTEM chat. Don't do it, Brother Nature. Stop. Please.

[*clip from YouTube video: "What's your name? Lola. C'mon, Lola. Eat that."*]

**Alie:** Like maybe well intentioned, but it's not good for the deer. Correct?

**Kirton:** Yes.

**Jakopak:** Correct.

**Alie:** Right.

**Kirton:** And feeding any wild animal is not advisable ever. Don't do it.

**Alie:** Don't do it.

**Aside:** So if you have a deer squad in your backyard, don't give them carrots, or bananas, or Pringles, or anything, as fun as it would be. Now wait, with the exception of Audrey Hepburn's pet fawn, Pippin (which she raised to strengthen a bond for a film, and then later adopted, but then I think mysteriously gave away later because her dog was like, "Why is there a deer in the house?") why haven't humans ever tried to domesticate deer families? Like having a small herd of Great Danes in the backyard.

**Jakopak:** Sámi culture in the Scandinavian countries has domesticated reindeer. And they've done that for, I think, multiple centuries. And so reindeer are a really integral part of their culture. And I don't know… I have exhausted what I know with those two sentences. [*Alie & Kirton giggle*] I think that's a really cool historical examples of people domesticating deer. And there's also some pretty dire consequences given climate change, and how reindeer might be responding to climate change, and how that would affect the Sámi people.

**Kirton:** If you ever make it to Scotland and go to Aviemore, that's where I learned to snowboard, they actually have a reindeer center, and they have a herd of reindeer, and you can visit them.

**Alie:** [*gasps*] Ah! What is your passport like? Do you have to add pages to it?

**Kirton:** [*laughs*] I have two passports, so that helps, I guess. But yeah, I guess I kind of travel a lot. It's funny because I also come from a first generation, low-income background, and my mom is the single parent of twins. So we definitely didn't do tons of traveling when we were little. I mainly lived in Australia for a bit. But definitely since I've grown up I never stop moving. My nieces and nephew apparently think that I'm in Africa right now, which I'm not.

I was really lucky in that university opened the door for me to travel. And working throughout my degree meant that I could save money to go traveling. So I was really lucky in that respect.

**Alie:** I love how much both of you have such a connection to landscape, and to nature, and to being outdoors, and how much that's fueled the passion for your work. I think one thing about deer that so many people, especially in North America, think about, is it's one of these charismatic megafauna that we see, you know, when we're driving down the

freeway, or maybe in our headlights, ["*Oh dear*."] or you see on a hillside. I mean, it's never boring, I feel like, when you see a deer out in the wild. And how are the populations doing in North America, especially with their relationship with carnivores. How are they doing these days? Too well?

**Kirton:** White-tailed deer, which are what I study, are actually the most widespread game species in North America. And across most of their range they are actually overabundant. In some places, because they're over their carrying capacity, they are damaging to the landscape. But the management of deer is a long and convoluted political history.

Yeah, but there's lots of deer. There's too many deer in most places. And that's kind of a function of the North American model for wildlife conservation, which is a whole other podcast to talk about. But there's lots of them. They're not going to disappear any time soon. And lots of people are actually trying to find ways to reduce the deer numbers.

The North American model was set up as a way to allow those populations to rebound and to manage hunting sustainably. But of course, that then also led to people wanting to manage predators so that the deer were not threatened. Or people were not competing with predators. So yeah, there's a very long and convoluted relationship between predator management and deer.

**Alie:** I don't know why Bravo hasn't done a show on this. [*clip from Bravo channel ad: "So much drama."*]

And with the deer populations maybe being slightly swollen, what does that mean for game hunting now? Is that a good idea or does that just perpetuate the problem if they're reduced too much and then more carnivores are killed off? I was surprised to learn how many conservationists also hunt. I didn't realize that that was a thing. Any thoughts on that? What is the general cervidologists' thought on deer hunting in North America?

**Jakopak:** Yeah. So, white-tailed deer are very overabundant in a lot of their range. And mule deer are below what people would want them to be at in a lot of their range. So there's these two, kind of, competing narratives there. But that doesn't necessarily mean that just because these animals are below the population objectives, these populations are still doing very well. And so the state wildlife agencies that manage hunting, and licenses, and that sort of thing are very, very careful to figure out, "What are the population levels at now?" and then they allocate licenses accordingly. Then when you purchase a license, then all of that money gets funneled back into the state wildlife agencies so that they can continue to manage deer, but also manage non-game species of all types.

So the deer populations are lower than what they will have historically been, but also our landscape looks drastically different than what it would've been a hundred or 200 years ago. There is less space for deer to be on. It makes sense that there is going to be a decline in their population size. That doesn't mean that we shouldn't work to make sure that we're not just, like, decimating their populations, but their populations are sustainable and hunting as it's practiced right now is also sustainable.

**Alie:** And I was reading a study for a Lyme disease episode about deer and abundance. Rates of deaths of deer were stable when they opened up hunting in parts of Connecticut, because those deer would just get killed by, like, Volvos and Mercedes instead. Like, WHAT?

**Jakopak:** Yeah! That's this idea of compensatory mortality versus additive mortality. So there are just some animals that are going to die regardless, so if you hunt them you're not contributing to the population declining. But yeah, if you hunt over that limit of that compensatory mortality, then you start to potentially be contributing to a decline of the population. But mule deer are not hunted to the point where you want to cause declines of them, whereas white-tailed deer in many cases are. They're like, "We *need* to get these populations down."

**Kirton:** So part of the challenge now with managing white-tailed deer is, how do you reduce the numbers? People like to hunt white-tailed deer, but also white-tailed deer have impacts on native vegetation and plant nurseries. And they cause vehicle collisions, which are costly. With white-tails specifically, people are looking at how they can reduce those numbers more, but also there's some amount of 'hunters don't want to take more than they can use', and people don't want to waste deer meat if they get extra deer. So then, can you get people to hunt more deer, but take the meat somewhere that it's needed? And I know there are some programs out there where they have people hunt extra deer and then they donate the meat to people who are in need.

**Alie:** That's great.

**Kirton:** So yeah, it's definitely a conversation that goes on within [*enunciating slowly*] cervidologists. [*everyone giggles*] But I don't think there's a clear solution yet. Hunting is one big part of management. But yeah, there are tons of deer everywhere, white-tails at least.

**Alie:** Why *do* they have white butts? It seems like you're just advertising your delicious rump if you have a big white circle on your butt. What is the evolutionary advantage of that?

**Jakopak:** I think it's a predator deterrent. Right, Rhiannon? It's like, when they're running away, and they wag their tails, they're like, "Look at me, I'm so fit. You can't catch me." And then I think it's also a warning sign to other deer to be like, "Aahh! I'm going! Let's go!" ["*I'm outie!*"]

**Alie:** *Bambi*. When was the last time you saw it? Did you cry? Are you scarred by it? Did it make you like wildlife? Is there a lot of flimflam in *Bambi*?

**Jakopak:** I've never seen *Bambi*.

**Alie:** What?!

**Jakopak:** I really wanted to watch it in preparation for this and I just didn't get to. [*laughs*] I'm so embarrassed.

**Kirton:** Yeah, I also don't think I've seen *Bambi*. [*laughs*]

**Alie:** Oh my goodddd!

**Kirton:** Sorry, we're like the worst cervidologists ever. [*everyone laughs*]

**Alie:** 100% of cervidologists named Rhiannon have not seen *Bambi*. [*more laughter*]

[*clip of Thumper saying "Bambi!"*]

**Kirton:** I might have seen *Bambi* and just forgotten.

**Jakopak:** Yeah, I'm sure we've all seen it, but it's like, "I have no memory of this." But there is a thing called the Bambi effect, which is where, like, your experience with something like *Bambi* as a movie that really shows how cool these animals are, and how adorable they

are, and that sort of thing, that kind of lead over into how you perceive animals in the real world. And so you'd be like, "Oh, those animals are so cute. We can't harm them." And what makes you want to protect them. So I know about the Bambi effect, but I don't know about *Bambi*.

**Aside:** PS: this Bambi effect also apparently extends to humans not caring as much about the harm done to less cute animals. And somewhere there's a rat and a cockroach being like, "Hello?? Yeah." Anyway, let's get back to myths.

**Alie:** Is there any flimflam about deer that you would love to debunk?

**Jakopak:** Don't touch a fawn if you see it. [*"Don't touch that!"*]

**Alie:** Ooh. Okay.

**Kirton:** Yeah, that's a good one.

**Jakopak:** So a fawn being a baby deer, like white-tailed deer or mule deer in particular. Their strategy for surviving early on in life is to just hide. They are what are called hiders. Whereas, like, followers would follow their mom and they're protected that way. Deer, like mule deer and white-tailed deer, just hide very well. They have spots… If you're looking through a forest - and my job this summer and for the past handful of summers has been to look for these fauns - they are *so* hard to find. [*laughs*]

They are sometimes impossible to find. Sometimes we can't find them. So their job is to hide and to stay tucked up under a bush. And then they go into this thing called alarm bradycardia, and that basically means, like, when you're stressed out, you really stop breathing and have a lower heart rate so that they can avoid detection by predators. Also they have, like, *no* smells for their first, I don't know, handful of days of life, and then over time they accumulate smells. They can't poop on their own for a while. Their mom has to clean their butt. So they are really, really good at hiding.

**Aside:** Oh man, I love a good field story. And here is one.

**Jakopak:** So much so that one time I was going in with some people to find a fawn and collar it. As part of our work we have the necessary approval and protocols in place. We weren't just going out to try to harass wildlife. [*laughs*]

**Alie:** Yeah. [*laughs*]

**Jakopak:** But anyway, we were going out to find this fawn, and we knew it was there because we knew that mom was there, and some technological reasons we knew that it was going to be there. There were four of us in a line and three people literally walked over the fawn.

**Alie:** Oh my god!

**Jakopak:** They thought it was a rock. And the fourth person was like, "This fawn? This one right here? The one that we're looking for?" They are *so* good at hiding. That a really long explanation to say that they are so good at hiding, and their survival during their first few weeks of life depends on them being able to hide very, very well.

So they will hide, mom will go away and eat, do her mom stuff, and then she'll come back and check on them, nurse, whatever. And then she'll go away again. So if you find a fawn out in the forest, it is almost certainly not abandoned. It's just hiding and doing its job super, super well. So you should just be like, "Oh, that's really cute." And then just keep going.

**Alie:** Okay. Do they tend to have twins also?

**Jakopak:** Yes!

**Alie:** They do?

**Jakopak:** [*laughs*] Yeah, which again is a good evolutionary strategy because they have really low survival early on in life. And so if you have two of them it's like, "Oh, well hopefully one of them makes it." And both white-tailed and mule deer do this. But then other deer like elk… Elk only have one, but also elk are huge and their calves, which are their babies, are also massive. Having two calves would be… [*laughs*] too much. [*"Yeah, no thanks."*]

If you're a mule deer, you won't get pregnant during your first year of life. But white-tailed deer can actually get pregnant really early on in life. They're super good at reproduction. Mule deer will normally wait until they're two, and then maybe that first time they'll have one fawn, but then after that it's, like, two for the rest of their life. And sometimes they have three but that happens super, super rarely. It's like 3% of births are triplets.

**Alie:** Wow.

**Aside:** So Rhiannon Kirton has a bone to pick, a myth to bust, and a good story to tell.

**Kirton:** I would say… It's not really flimflam, but I think people have this perception of like, "Oh, well they're not that fast". Cervids are fast. Don't get close to them. They will chase you. Just don't do it.

I went to Glacier Park when I was working in Montana with my friend, and they recommend you don't get within a hundred meters of a moose because – why would you do that? They can be six-foot tall at your shoulder; they're humongous. These two or three moose were in the lake, and all these people were right on the edge of the water, and I was like, "I'm just going to stand way back over here, where I should be, because I don't want to get up in that moose's face for it to come and get me."

Moose are fast. And I think people just think like, "Oh, well they're like in the water, so they're not going to get me." But just give animals their space, not just cervids. Just because they don't have sharp teeth and claws… Hooves hurt. I've ridden horses for a long time. You don't want to get bashed with a hoof, you just don't. So stay far, far away.

**Aside:** Can we just hear Rhiannon Kirton say hoof again? [*Kirton: "Hoof"*] Okay once more, it's so good. [*Kirton: "Hoof"*]

**Alie:** Or an antler?!

**Kirton:** And elk in Yellowstone, every freaking year someone gets chased, or butted, or something. Same with bison. Just give them their space, man! They don't want you up in their face. Leave them alone.

**Alie:** Don't do it for the 'gram. Don't do it for the TikTok.

**Kirton:** My goodness. Instagram has just been such a disaster for wildlife encounters in that way. Please observe all signs. [*laughs*]

**Alie:** Can I ask y'all Patreon questions? Is that okay?

**Jakopak:** I'm so nervous, but yes.

**Kirton:** Yes. I feel like they're going to be really hard.

**Alie:** No.

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Nothing to be nervous about - these are professional cervidologists and they got this. So we will get to your Patreon questions next week and let me tell you, they are bananas. I learned so much weird, sordid, wacky facts from them as well as how not to hit a deer with your car and a really interesting discussion on: Should you hunt? Should anyone hunt? Do they endorse hunting? So do not miss next week – it's really, really good - when we ask smart Rhiannons all of our not very stupid questions because they are full of answers, life is short, the world is beautiful, nature is complicated. So, get excited for next week – it's so good.

Also get excited for Black Mammalogists week starting September 13th. Look out for an episode on September 14th with a guest that I have been emailing for three years hoping to get on the show and I finally did it. So that's going to be a good one too.

And this week, follow the Rhiannons on Twitter and Instagram. There are links to their pages in the show notes and there's going to be more links will be up at Alieward.com/Ologies/Cervidology.

Also BlackMammalogists.com has a full schedule of the week's events, starting September 13th. There's a link to the Sponsored Membership Fund through the American Society of Mammalogists, where we sent a donation this week and for next.

And you can follow *Ologies* on Twitter @Ologies and Instagram @Ologies. I am @AlieWard on both and definitely follow both accounts.

Also, if you want *Ologies* merch it's at OlogiesMerch.com. Thank you Shannon Feltus and Boni Dutch of the comedy podcast *You Are That* for managing merch. They are hilarious – subscribe to their podcast. Thank you Erin Talbert for being the best admin ever to the Ologies Podcast Facebook group. Thank you to professional transcriber Emily White and the gaggle of very generous ologites who get these free transcripts available for Deaf and hard-of-hearing science lovers. Those transcripts are up at AlieWard.com/Ologies-Extras. There are also bleeped episodes done by Caleb Patton, in case you have kiddos or smologites who want to listen. Also congrats to Caleb and your brand-new wife Heather who got hitched this week! Love to you both!

Happy Birthday to Larry Pete, GrandPod Ward, just rounding home plate into his 76th year. Love you so much, Pops. (I'm so sorry for swearing.) Thank you to Noel Dilworth who helps schedule the ologists, and to Jarrett Sleeper of the mental health podcast *My Good Bad Brain* for helping me get this episode together while our wonderful lead editor Steven Ray Morris was taking a holiday in the woods, I think doing some cervid gazing himself. Thank you Steven for the final touches and the upload. Be sure to catch Steven's new series with paleo experts in a back-to-school season of his podcast *See Jurassic Right*, which launches on September 7th. He also hosts the cat-themed podcast the *Purrrcast*. Nick Thorburn wrote and performed the theme music and he's in a band called Islands.

If you stick around until the end of the episode you know I tell you a secret. I want you to know that up until about 15 minutes ago this was going to be one long, giant, two-hour episode and then I was like, "What am I doing??" There's two guests, we went for like two-and-a-half hours. This is a two-parter, duh! Also, I recorded all the asides, and then I realized that my mic gain was all the way down, so I had to re-record them anyway. But look at us! We're getting it up to you on a Tuesday, because we love you.

Also, another secret is that currently there's, like, a ghost in my sewer system, and the bathtub is emanating some sort of olfactory poltergeist that is vengeful, and smells like cabbage. But I have to

fly to Houston for work early tomorrow morning, so Jarrett, I'm sorry man, this one's on you. Thanks for dealing with it. I will bring you back some barbecue sauce, or whatever Houston is known for. Okay, next week, I'm telling you, your deer questions are nuts, and the answers are even nuttier. Tune in next week. It's worth it. Berbye.

*Transcribed by:*

*Elinor Austin*

*Samantha Blackwood – Toronto, Ontario, Canada.*

*Hana Snook, Auckland, New Zealand* 🥹

**More links which you may enjoy:**

Rhiannon Kirton on PBS. Follow her on Twitter and Instagram.

Rhiannon Jakopak website. Follow her on Twitter and Instagram

Stevie Nicks dishes on Rhiannon

More on Stevie's Rhiannon epiphanies

"Triad" by Mary Leader for sale on eBay

Choir singing "Rhiannon"

Ungulates of the world

Cattle, sheep and red deer -- aka "elk" -- and their assgasses

Helping cows fart -- and burp -- less

How much do people fart? Feed them 200g of baked beans, for science

Socioeconomic Benefits of Large Carnivore Recolonization Through Reduced Wildlife-Vehicle Collisions

Why do the elk bugle?

Elks doin' a bugle

CDC notes on CWD

An epidemiologist weighs in on Chronic Wasting Disease

Map of CWD in the US

Slippery Ann Elk Hotline is 406-535-6904

Deer eats a bird as Linda and Michael watch

"Howdy I'm John Ware" children's book

National Brotherhood of Hunters

Meat and dairy vs. transportation industry

*For comments and inquiries on this or other transcripts, please contact OlogiteEmily@gmail.com*