

Smologies #38: CARNIVORES with Dr. Rae Wynn-Grant

Ologies Podcast

February 17, 2024

Oh hey, it's that little burp that just congratulated you on taking fish oil, hey, well done. Alie Ward. Welcome to *Smologies*. If this is your first *Smologies* or if you don't know what they're all about, these are shorter and G-rated, kid-safe, classroom-friendly episodes of our classics. So, if you're looking for the full episode, we've linked it in the show notes, but if you're looking for a condensed and all-ages, safe one, you've come to the right place. So, please enjoy lions and tigers and bears and all the other carnivores out there.

What's their deal? What's this ologist's deal? Well, I begged her to be on, she said yes. I freaked out. Then I talked to this California-born genius and media queen, she is an active, working carnivore ecologist, 'carnivore' coming from the Latin for 'flesh devouring.' Her job involves tromping around grasslands, and forests, and prairies, and jungles tracking charismatic beasts like she's in a children's book or a fever dream. You can find her on camera, hosting things like, "Crash Course Zoology," on YouTube. She also has her own PBS podcast now called *Going Wild*. You may have also seen her in the PBS special, *American Spring Live*, where she was cradling tiny baby bears while snowflakes fell softly past her radiant smile and onto, once again, tiny baby bears she was cradling in her arms. So, the first question I wanted to ask her was, are you even a real person? Because you're perfect. So, let's just meet her.

So, get ready for flimflam, hibernation, cuddling, career juggling, plus lions, tigers, and of course, bears with explorer, media icon, and my longtime ologist crush who texted back, large carnivore ecologist, Dr. Rae Wynn-Grant.

Alie: Hello?

Rae: Oh hi!

Alie: Hi, Dr. Grant!

Rae: Oh, my goodness, it's finally you, or I should say it's finally me, honestly. [*laughs*]

Alie: It's us! Okay, so I have known you as a carnivore ecologist. Can you explain exactly what is that? And even what is a carnivore? Because there are carnivores that are omnivorous, correct?

Rae: Oh, absolutely correct, absolutely. So, I am a carnivore ecologist and just break it down, an ecologist is a type of scientist that does ecology. [*"Okay... What's that?"*] Ecology is the study of organisms and how they interact with their environment. And then I'm a carnivore ecologist which means I study carnivores, and essentially, those are meat-eating animals. But Alie, to your point, not all carnivores eat meat.

Alie: [*high-pitched*] What?!

Rae: Yeah!

Alie: What?

Rae: Yeah.

Alie: How does that work?

Rae: Yeah, so essentially the reason that we call carnivores carnivores is because of taxonomy. As scientists, we fall back a lot on taxonomic trees and just where we have placed species in our understanding of them compared to each other. So, in taxonomy, we have a taxonomic order, called *Carnivora* and there's over 280 different species of mammals in *Carnivora*.

Aside: Okay, so you can just call a vegetarian animal, or an omnivore a carnivore? How? Why?

Rae: So, *Carnivora* is an order of mammals and it's defined by these animals that have super sharp teeth and, typically, very long claws, and a ferocity; they're these ferocious animals that are able to hunt and kill. And they all have digestive enzymes, or basically, a gut microbiome that is able to process meat. And therein, I think, lies the clincher because it doesn't mean that a carnivore has to eat meat. They don't *have* to. But they could if they did.

Alie: Okay, so they have the microbiome but also the enzymes to support the microbiome that can break down meat.

Rae: Yeah, yeah. [*Alie exclaims*] And so, this can be surprising if you take something like – and I'm probably going to talk about bears a lot here – but if you take something like a panda, which is one of the eight bear species, it eats bamboo all day, but it's in the order *Carnivora* and it has the teeth, the claws, and the microbiome to process meat. So, it looks like the ancestors of the pandas we have today probably at the least ate insects. At the very least, they probably grabbed a whole bunch of grubs, or larvae, or something and chowed down on them. But at most, maybe they did more than that; maybe they hunted prey and really ate meat. They still could, technically, if they wanted to.

Alie: Well, which carnivores are true carnivores that eat 100% proteins and other living animals? And then which ones are more generalist or omnivore? Or does it really depend on their proximity to urbanization?

Rae: Sometimes it depends. We do have what we call obligate carnivores, and those are a lot of our favorites; those are the lions, the wolves, the tigers. [*“Oh my!”*] Those animals hunt fresh prey and eat raw meat. They're not going to stroll through a berry patch [*both laugh*] and, you know, chow down very much. So, we do have those obligate carnivores. Even take polar bears for example, they hunt, they eat meat, and that is what they need to survive all the time. For those animals, their ecologies are slightly different than other carnivores because they are so driven by having to hunt. That's really how their whole lives are structured are around, finding prey, finding prey, finding prey, and maybe stashing food. You know, take a mountain lion, for example, if it does kill maybe a deer and it eats as much as it can, it'll also find a place to cache that prey for later so it can come back to it, often enough.

Alie: Like up in a tree?

Rae: Like up in a tree or some kind of hidden place because they have to expend so much energy just to get their prey, just to get their food, they don't have this dietary breadth that the omnivorous carnivores do. So then, the omnivores are a lot of different bear species, we find coyote, and raccoon, possum, some of these mesopredators are able to definitely eat meat, but they can also scarf down a good root vegetable, a tuber, they love fruit, sometimes even grasses, honey. All those kinds of things also fuel them. And they're more concerned with getting fat so, they're like, “Whatever will get me fat. It might be protein but it might also be carbs. [*laughs*] Whatever will make me fat,” is what they can eat. And then they have a wider dietary breadth, and that means that they can survive in many different types of landscapes.

Alie: When it comes to studying this, what was it about carnivore ecology that really got you?

Rae: Oh gosh. You know, when I was a kid, I got hooked on nature shows. In particular, what stood out to me was scientists in the jungles of Asia studying tigers. And to this day Alie, I still have never seen a tiger, I've never been to tropical Asia, I've never done it, but it was something about tigers. It was just something about seeing tigers on the TV, learning that they were endangered, learning that they were also powerful and capable, and just these supreme beings, the largest cats, and just incredibly impressive. It's not just because they're cool and impressive and as a society, we're really interested in them. But also, many large carnivores are ecosystem engineers.

Them being at the top of what we call food chains, really makes a difference, and the conservation of these animals makes a huge difference for healthy, vibrant, balanced ecosystems. I'm like, 16 years into studying the environment... I do it today both because I think it's awesome, [*laughs*] I think these animals are awesome and cool, and make for great stories and all that, but also because I know that starting from the top is very, very purposeful and keeping these animals around in these ecosystems is worth it and it's needed.

Alie: You've been on PBS, we've gotten to see you crawling around in the snow in a bear den and holding, cradling a baby bear with permits for science. [*"Hi. So, this is one animal, one cub." Little groans from the bear. Rae continues, "This is number two. And again, we just have to see exactly how many cubs are here with the mother, it's at least two, it could be three."*]

Rae: I know. It is just so special. Well, I don't want to burst everyone's bubble here, but they are so not cuddly. [*Alie squeals then laughs*] Oh my goodness. Let me tell you, it makes for a great little picture, but I have these permanent scars on my chest because their claws are just like, razor-sharp. It's one of those things like, you see a picture of a little bear cub in my coat- Again, let me be clear, the snuggling part is because these cubs are so little that they cannot thermoregulate yet, they can't create their own body heat. And so, ethically, if we are going to do checkups on their little bodies, we have to give them body heat. So, for the few minutes that they're away from their mother, it's our job to hold them tight and keep them warm. So, that's why they're in our coats. It is adorable but again, it's purposeful, it's part of the science.

Alie: No one needs to go out trying to cuddle wild bear cubs.

Rae: Please do not. Please do not.

Aside: So, Dr. Wynn-Grant splits her time as a media host and personality and a straight-up field biologist. What is a carnivore ecologist's job like?

Rae: A day in the life for me is really different each day. So, I have an active research project, I'm super proud of it, it's *really* cool. I am studying a population of black bears and mountain lions at a nature preserve on the central coast of California. And I have a lot of reason to believe that this population of bears and lions has very unique feeding behavior. [*"Tell me more."*] What I'm hinting at is that I think these bears and mountain lions access the coast. So, they live in this beautiful oak woodland forest, quite inland, but it looks like, fairly frequently, they make their way onto the beach [*Alie squeals*] and eat food from the beach. We are finding the skeletons of seals and different pinnipeds far into the oak woodland forest that mountain lions have hauled in there, and we are finding black bear tracks on the beaches every morning.

So, there's a lot of questions trying to figure out, are these mountain lions, are these bears relying on marine animals for their food? And if so, is that a new behavior? Are they doing that because there's a lack of food resources elsewhere because human pressures have forced them to this point? Or is this actually what bears and mountain lions have always been doing in this region and it's not documented?

Aside: PS, I looked this up, I had to. Just to set the scene, this is a 25,000-acre parcel of land, north of Santa Barbara; that's more than twice the acreage of Manhattan, people... It's very large. That is eight miles of California coast, it's home to about a dozen endangered species. So, imagine tide pools in the shadow of rocky cliffs, which give way to rolling golden grassland. There's chaparral and scrub brush, century-old oaks, and pines, all mostly unaltered from evolution. So, that's the work she does; tracking lions and bears, maybe not tigers, yet, but oh, boy howdy! What a job. So, them's the whats, but let's talk whys.

Rae: If we have a forest, a lot of times we think, "Forests are important for bears." And that is true, but a bear isn't going to use every square inch of a forest. There's going to be some areas that it uses all the time, maybe because it has the food it needs or the shelter it needs; and then some areas that it's going to avoid completely. It's really important to understand those differences and those patterns so that we can figure out where to put our efforts in protecting certain landscapes.

Alie: Well, people obviously adore you. They're very excited you're on.

Rae: You're too kind.

Alie: Can I lob some questions from listeners at you?

Rae: Oh my gosh! Yes, please!

Aside: Okay, your hot burning questions but first, we like to take money and stuff it in peoples' pockets and Dr. Rae Wynn-Grant chose this week's donation to go to the Texas-based nonprofit BlackOutside.org. That donation was made possible by Ward-approved sponsors.

[Ad Break]

Well, this guest is just a *ray* of sunshine, and we all *win* when she *grants* us answers to your questions. Rae Wynn-Grant. Patreon questions. Let's go.

Alie: Great question, a lot of people asked, I'm looking at Yasmine Shelley, Batman Flight, Aly V, Lauren Cooper. They want to know, in Lauren Cooper's words: Why does their poop smell like rotten death? [*Rae laughs*] Why so stinky? Is it stinky to all animals? Wow.

Rae: Oh my goodness, and this is carnivores in general? Yeah?

Alie: Carnivores in general. As a carnivore ecologist, I'm sure you've been around your share of wild dookie. Why is carnivore... Is it just because of rotten meat...? Because rabbit poop isn't something that you're like, "Oh my god, I stepped in rabbit poop, I'm burning my shoes." You know?

Rae: Right, right, right. This is so funny because honestly, poop is a big part of my life as a carnivore ecologist, a big part of my carnivore ecology life, I interact with poop a lot of the time. In fact, if you were to open my freezer right now, [*Alie laughs*] I have bear poop in my freezer from a friend's yard where a bear came to visit and I, you know... Anyway, so it's a great question. I would almost push back and say like, have you ever smelled horse poop or bison poop? Herbivores can have some stinky poop too. But I am not disagreeing. Carnivore poop smells yucky and yeah, it's flesh; it's the waste that comes out of digested flesh, so it's gross. And also, because some carnivores are, like we've been saying, omnivores, sometimes this variety of foods creates more of a stinkier poo.

With that said, I have to say the poop that I interact the most with is bear poop and it dries pretty fast. I will say, when I come across carnivore poop, it's usually not fresh from the animal [*Alie laughs*] and so it's usually dry, and when it's dry it doesn't smell that bad. But the bears that, you know, when it's feeding time for salmon, that's particularly fragrant and it is particularly unpleasant because these bears just go through salmon so fast, it's almost like diarrhea. It's loose,

gross, just kind of blergh, black, tarry, poop. [Alie laughs] [“Very important information to share!”] I don’t want to get too graphic on your show Alie.

Alie: No, this is important. This is important information. I mean, who knew? But also, don’t they have a hibernation plug?

Rae: Oh my gosh, hibernation is just so fascinating and totally wild! Because yes, speaking of poop, bears don’t poop while they hibernate. Some bears hibernate for a couple months, but some bears hibernate for like, six months. And they don’t poop, they recycle their own waste within their bodies and their metabolism really just shuts *alllllll* the way down. So, they’re not eating, but also, any waste just recycles itself in their bodies. And that is just this superpower that bears have that we all need to bow down to because it’s amazing.

Alie: We have so many great questions. Chloe, first-time question-asker, wants to know about carnivores: What exactly do their levels of cognition reach? What kind of thoughts/emotions/situations are they fully capable of processing?

Rae: Most of them are what we as humans consider smart and bears in particular have one of the largest brain-to-body size ratios of any land mammal. So, they are particularly considered some of the smartest carnivores because they have these huge brains compared to their body size. And then take others, take wolves. We have these ideas that we got domesticated dogs from wolves because there was a learning process, right? When wolves would interact with humans over time, some wolves that took certain types of risks with their interactions with humans got certain types of rewards. And if they repeated that over and over, they became closely tied to humans and eventually were able to evolve into domesticated dogs.

So, we have this idea that carnivores, large carnivores – and again, this is very general – are making decisions. A lot of the decisions they’re making are fueled by instinct, and their instincts are usually pointed towards food. So, they’re driven by hunger, for sure. [“What could be more important than a little something to eat?”]

But what I think has been super interesting, especially when I used to study lions, African lions in parts of East Africa, is that if you have a carnivore like a lion that is *not* hungry, studying its behavior when it’s not hungry is really interesting. Because they all of a sudden become way less dangerous, way less protective of territory, very, very lazy almost, kind of giving this easy life. So, they’re able to make choices, especially when their needs are met, they’re able to think and make choices and really kind of impress us.

Aside: A few patrons including Ali Vessels and...

Alie: Paul Cirillo and Charlotte Fjelkegård both asked, essentially: Do carnivores have taste buds? Can a lion think, “Oh, this gazelle today tasted really bad!” Do they have cravings for certain types of animals or foods?

Rae: Oh my gosh, you know, I was really hoping that someone would not a question that I do not know the answer to. [Alie laughs] But here I am... I don’t know if they have tastebuds. I kind of want to say yes, honestly. Because I can imagine... Now I’m thinking about all the times I’ve watched carnivores eat things. I can imagine that a carnivore might take a bite of something and be like, “Eugh, oh my god. That’s bad.” That might happen if something is rotten.

But I think more than... this is going to be my cop-out to the question. I think more than tastebuds, most of the large carnivores of the world have an *incredible* sense of smell, I mean, a really amazing sense of smell. And as people, we know that smell is very, very closely associated with taste. Scientists have been trying to study how far away a bear can smell something and we haven’t been

able to nail down how far because they can just always smell stuff. Some scientists estimate up to five miles away, a bear could smell like, someone making a barbecue.

Alie: [*voice trembles*] Oh my god.

Rae: It's amazing, it's amazing. I can't smell it if I'm a block away but imagine many miles. So, I would say it's probably more smell. If I'm right, that does really influence what they do eat because they won't eat everything. They won't eat something that's rotten, that will make them sick; it probably smells and maybe tastes a little bit wrong.

Aside: So, Dr. Wynn-Grant was totally right, carnivores have tastebuds, just fewer of them as smell is much more important in finding lunch or dinner. Also, Dr. Gary Beauchamp, who is a Pennsylvania scientist found that domesticated and wild cats don't have much of a preference for sweet foods, likely because some carnivores like cats, and sea lions, and fur seals, and harbor seals (can see the Pinnipedology episode for more on them) and spotted hyenas, have mutations on the Tas1r2 gene, which codes for sweet taste receptors. So, they're like "Nnhh, can't really taste it. I don't really care, don't really like sweet." That's what a lot of carnivores are doing. [*I'm good, thanks.*]

Alie: What about... this is going to be so hard but your favorite thing about your job?

Rae: Oh gosh. Yeah, my favorite thing is that I get to physically challenge myself a lot and I guess maybe mentally challenge myself too and those things are tied in together. I have to say, you know, I have to hike a lot for work just to get places in the field, and hiking is hard. Going through that, not for fun but for work, there's always a benefit at the end. I never finish a hike and think to myself, "I wish I hadn't done that." [*Alie laughs*] I almost always finish a hike and say to myself, "Woah, look at me, I just did a hard thing." And it's very personal; a lot of times, I'm by myself, no one saw me do it. But I really love that my actual job offers that to me often enough. So, I get to have these moments with myself where I transform or I push through something that is just challenging enough that I get in touch with myself in a way that I really appreciate. I really love that.

Alie: Augh, that's a beautiful thing and it's such a good reminder too to get out in nature.

Rae: Exactly.

Alie: Well, thank you for being such an inspiration to future bear cuddlers, [*Rae laughs*] to people who have decided to not cuddle bears and just get a rescue poodle instead. Even more cuddly, just saying.

Rae: This has been such an honor, you are amazing. This is just such a highlight for me, I really appreciate it.

Alie: Oh my gosh. I was like, "Ah! Today I'm talking to Dr. Wynn-Grant! Do I put on lipstick? It doesn't even matter, she's not going to see me!" So yeah, this has been a big deal.

So, ask smart people, not smart questions because how else are you going to learn weird stuff? Now, to find out more about this delightful person, you can see RaeWynnGrant.com and follow her @RaeWynnGrant on Twitter and Instagram.

We're @Ologies on Twitter and Instagram, I'm @AlieWard on both. Also linked is AlieWard.com/Smologies which has dozens more kid-safe and shorter episodes you can blaze through and thank you Mercedes Maitland of Maitland Audio for editing those and since we like to keep things small around here, the rest of the credits are in the show notes.

At the end of the episode, I give you a piece of advice, and this week it's that you know when you have an alarm to wake you up because you've got to be somewhere, right? Another good idea is to have a gentle alarm at night that tells you, "Hey, it's time to get ready for bed." Maybe 15 minutes before you want to be lights out, go brush your teeth, get in your jammies, read a little bit, but this way you won't let it get away from you. So, even though a lot of kiddos have bedtimes they don't like, let me tell ya, as an adult it's *still* the best because you've got to make sure you get that eight or so, or maybe ten hours of sleep so that you have a good day tomorrow. So, a little gentle reminder that like, hey, it's time to get ready for bed, gives you an on-ramp into sleepyville, I hope that helps. Adults, that's for you too. Okay, berbye!

Transcribed by Aveline Malek at TheWordary.com

Links to things we discussed:

Dr. Rae Wynn-Grant's [website](#), [Twitter](#), and [Instagram](#)

Listen to Dr. Wynn-Grant's podcast, [Going Wild](#)

A donation went to [Black Outside](#)

[Full-length \(*not* G-rated\) Carnivore Ecology episode + tons of science links](#)

[More kid-friendly Smologies episodes!](#)

[Sponsors of Ologies](#)

[Transcripts and bleeped episodes](#)

[Become a patron of Ologies](#) for as little as a buck a month

[OlogiesMerch.com](#) has hats, shirts, hoodies, totes!

Follow @Ologies on [Twitter](#) and [Instagram](#)

Follow @AlieWard on [Twitter](#) and [Instagram](#)

Sound editing by [Steven Ray Morris](#), [Mercedes Maitland](#) of [Maitland Audio](#), and [Jarrett Sleeper](#) of [MindJam Media](#)

Smologies theme song by Harold Malcolm