

Dan Stahler:

Do I dream of cougars? Yes, I do dream of cougars. And to be honest, most of the dreams happen either the night before I capture one or the night after I capture one and I'm thinking about its wellbeing and hoping everything is fine or some event of the day. So, I do have dreams of cougars from time to time, and they're usually pretty cool.

Kristin Kuhn, Host:

Welcome back to the Voices of Greater Yellowstone podcast, where we share the stories and science of the remarkable, greater Yellowstone Ecosystem. I'm your host, Kristin Kuhn.

Kristin Kuhn, Host:

Panther, painter, mountain screamer, catamount, ghost cat, puma, these are just a few of the regional and colloquial names for an elusive carnivore that stocks the wilds of Greater Yellowstone. It's an animal many folks go their whole lives sharing habitat with without seeing even once in the wild.

Kristin Kuhn, Host:

Here in the Greater Yellowstone Ecosystem, it is more commonly known as the mountain lion or cougar. Today, we are sitting down with Daniel Stahler of Yellowstone National Park. Dan is a wildlife biologist who has been working in the park for 25 years and among many other things, serves as project leader of the Yellowstone Cougar Project.

Kristin Kuhn, Host:

We discuss everything from how to confidently identify mountain lions to how they quietly reintroduced themselves to Yellowstone after being nearly hunted out of existence in the early 20th century to how the Yellowstone Cougar Project keeps tabs on the park's few dozen cats today.

Kristin Kuhn, Host:

And of course, Dan shares some memorable stories from his time in the field working hands on with these magnificent animals and their mega cute offspring. So, grab your house cat and curl up with us for episode nine of the Voices of Greater Yellowstone podcast Yellowstone's resilient cougars.

Dan Stahler:

Well, it's great to be here with you today, Kristin. My name's Daniel Stahler and I am a wildlife biologist for Yellowstone National Park. I wear a number of different hats in that role. I serve as the project leader for the Yellowstone Cougar Project, I'm the project biologist for the Yellowstone Wolf Project and I help manage the Elk Research Program here.

Dan Stahler:

I also serve as the section seven biologist for the park, which works with the fish and wildlife to do consultations for endangered species. So grizzly links, whenever there's a park project that might have impacts, we do mitigation and compliance, and I provide some of that expertise for the park in that coordination with that agency.

Dan Stahler:

I've been out here doing that since 1997 was when I first came here but I officially started working for the park service in 2002.

Kristin Kuhn, Host:

Oh, wonderful. So, busy guy, to say the least. Can you tell us a little bit about your journey getting to Yellowstone? So, how did you find yourself as a wildlife biologist wearing all those many, many hats in Yellowstone?

Dan Stahler:

So, I was born and raised in Vermont in the very Northeast part of the state. We call it affectionately the Northeast kingdom. It's this magical land that's this very rural part of the state just south of the Canadian border, kind of in that transition between the hardwood Maple Forest into the Boreal Forest.

Dan Stahler:

I grew up surrounded by dairy farms and thick forests and just enjoyed my time in that area of trying to connect with nature. I was outdoors all the time with my brothers playing in the woods, hunting and fishing, and I have pretty deep roots going back quite a few generations in that area. Growing up in Vermont, I was always interested in working with animals. Again, I was surrounded by cows, growing up in dairy farm country, but whenever I could, I was trying to be out there looking for white tilt deer, or moose, or bears, or coyotes or whatnot.

Dan Stahler:

I was definitely very deeply connected with nature in my childhood and always dreamed of a day when I could work with animals. As a young child, I always wanted to be able to communicate with animals. That's a pretty common theme for young kids growing up in those sorts of places. I think probably like many others, had a bout of wanting to be a veterinarian. And then I grew out of that area when I realized really connecting with nature and wildlife is my passion.

Dan Stahler:

I did my undergraduate degree at Middlebury College, which is a small liberal arts school. And then when I graduated from Middlebury in '96, I sought out my first wildlife job. I really was fortunate because I was able to get a position as a technician on a wolf study in the boundary waters in Minnesota.

Dan Stahler:

It was quite a dream come true for me, just being able to get onto a program working with wildlife, but particularly wolves. I loved wolves as a kid. I think I have a book for my parents when I was in the eighth grade about, they inscribed, we hope you follow your dream to become a wolf biologist. And ended up following down that route, so I was pretty determined to pursue my interests.

Dan Stahler:

And when I went to Minnesota, basically my job there was to trap and radio collar wolves in the boundary waters. And that was an incredibly valuable experience that set the trajectory of my career in many ways. And that was a long term study on wolves, and moose, and deer, and superior national

forests to working with one of the top wolf biologists, David Mech. And then that linked me up to Yellowstone when I completed that job.

Dan Stahler:

And so, I came out to Yellowstone National Park for the first time to work in 1997, about just a little over 25 years ago. And that was at a time where wolves had just, of course, been reintroduced to the park. When I showed up, we still had a handful of wolves in the pens that we were feeding. And I got right in on the ground when the research was starting up.

Dan Stahler:

So, I showed up in '97, became a technician, a volunteer technician and became one of the first graduate students working on the Wolf Project. I ended up studying for my master's degree, ravens and their relationship with wolves. And that was a big question is, bringing wolves back to a place like Yellowstone, what was going to be their impact on the ecosystem?

Dan Stahler:

And I was particularly interested in that connection to the scavenger guild. And so, I did my master's degree through the University of Vermont actually, because I worked with a gentleman named Baron Heinrich who was doing a lot of great raven research at the time. And he became my advisor. He's a pretty well known natural history writer as well.

Dan Stahler:

I connected with him, did my field work in Yellowstone and was able to get my master's degree doing that. And then right after I finished that in 2000, I got the opportunity to work on the Yellowstone Cougar Project. And that was at the time led by the Hornocker Wildlife Institute, transitioned into the wildlife conservation society that became the folks running that Cougar Project.

Dan Stahler:

I worked for this incredible biologist. Her name was Toni Ruth. She was a great mentor, just an incredible biologist that taught me a lot. And I worked for that program under Toni for about a year and a half. And then the position for the park services, the project biologist for the wolf program opened up in 2002. And so, I was hired for that. And so, that brought me to Yellowstone and I haven't left ever since.

Kristin Kuhn, Host:

What an incredible story. You've, like you've been saying, have worked with an incredible array of animals already and some of the really iconic, heavy hitters of our area. But today, we're going to hone in on the cats because we do want to talk to you about mountain lions. We know that these animals have a lot of names.

Dan Stahler:

Yes.

Kristin Kuhn, Host:

Mountain lions, cougars, catamounts, pumas, ghost cats, the list keeps going. What do you call them and why do you think they have so many different names?

Dan Stahler:

So, I admittedly interchange their common names here as well. The title of our research project, it's called the Yellowstone Cougar Project. And I think many of us working with them in this part of the country in the Rocky Mountain West would refer to them as cougars or other also more commonly mountain lions. They once in a while just say lion or cat, but cougar is a pretty typical name. In fact, they have the Guinness Book of World Record for the most common names for a species.

Kristin Kuhn, Host:

Oh, no way.

Dan Stahler:

Yeah. And of course, there's a lot of names that you just mentioned, but there's a lot of indigenous native cultures names as well and their respective languages that identify these animals. The scientific name is *Puma concolor*. Used to be fearless concolor, but in 1995, they switched the genus to *Puma concolor*.

Kristin Kuhn, Host:

Interesting.

Dan Stahler:

And the word concolor, the species name, the Latin for that is of uniform color. And that describes that, unlike other, the big cats, medium sized cats are not spotted other than the young of the year. And they're that nice uniform tawny brown, reddish brown. And they are that wherever they're distributed.

Dan Stahler:

Historically, they are the most widely distributed terrestrial mammal in the Western hemisphere. They range all the way historically from the Yukon of Canada, all the way to the tip of South America. We all think of wolves as being very widely distributed around the world, which they are circumpolar distribution, and of course, southern areas as well. But the cougar really, in the Western hemisphere, is the king of that distribution.

Dan Stahler:

So, because of that, if you think of human cultures connecting with this animal, and many cultures are exposed to them, so they have their own names for them. And that kind of explains that large variety of common names that we attribute to them. But the Puma, people are like, "Is it a different species? Why do you call it this?" It's a regional naming system.

Kristin Kuhn, Host:

Gotcha. And do you see any variances in the cats as they are distributed across the hemisphere? Are there subspecies or do you see any regional adaptations or is it pretty much the same critter up and down?

Dan Stahler:

You do see different subspecies and different distributions and features that relate to them. I mean, they all are pretty uniform. I think if you get down into South America and look at some of those cats down there, they tend to have some slightly different morphological distinction that you'll see.

Dan Stahler:

And then, you'll look at a cat from, a Florida Panther and you look at its overall body shape and they sometimes seem lankier and they're thinner and slightly different proportion compared to a cougar in Yellowstone. I think cats more into the Northern part of their distribution that deal with more winter climate, their fur can take on a slightly different characteristic to deal with the colder elements. But in general, they're pretty similar looking everywhere you see them.

Kristin Kuhn, Host:

And actually, this is a perfect segue because I know that a good number of other alleged mountain lion sightings turn out to be other cats, other felines, bobcats commonly. So, how can someone tell if the animal they're looking at is truly a cougar as opposed to a bobcat or just a really healthy house cat?

Dan Stahler:

Yeah. Great question. I mean, compared to those other felines that you just mentioned, they are larger. I think one of the very obvious characteristics of seeing a cougar is the long tail. It's about two thirds the length of the body and they have an overall long body. I think in general, cougars are a lot smaller than people think. We often like to exaggerate the carnivores in our world, the huge cougar that roams out there or the giant wolf.

Dan Stahler:

People have always told me they saw, no one ever sees a small cougar, they all see a large cougar, right? Whether it's a hunter or someone, it's always like 300 pounds. And compared to those other felines, they are larger. I'd say about 30 inches. An adult male will be about 30 inches at the shoulder.

Dan Stahler:

So, maybe not as tall as people think they are. And so, they're not as large in mass, they're not as tall, but certainly compared to a bobcat which has the shorter tail or links has the shorter tail, your house cats are just significantly smaller. But just the other day, we had someone report some mountain lions out in a part of the Northern Range of Yellowstone and ended up being a sighting of some marmots.

Dan Stahler:

So, it's easy to get... That was through a scope way in the cliff band in the distance. People get excited and can create the image of what they want to see. But another really common characteristic of these animals is just, they're incredibly muscular. They look like body builders. And you compare that to, let's say, another top predator here in Yellowstone like the wolf. Wolves are muscular too, but like the dog, they tend to be more lanky.

Dan Stahler:

I mean, cougars are just, you look at a cougar and it doesn't matter if it's a female or a male and it just looks like they got back from lifting weights at the gym. And they're just bulging muscles on their

forearms, a really muscular tail that's corded and powerful. They use that as part of their movement and their balancing, counterbalancing.

Dan Stahler:

And that muscular nature to them is really key to them as an ambush stocking predator. So, very powerful. They do have that, again, like their scientific name suggests, that uniform brownish color. So yeah, the long tail, the uniform tawny brown reddish body color, very muscular forearms and hind quarters and tail, muscular head. And of course, that varies between male and female, but that's the overall basic description of them. Yeah.

Kristin Kuhn, Host:

Great. Well, thank you for that. That's really very helpful. Pretty hard to differentiate from a marmot, I'd say.

Dan Stahler:

Yes.

Kristin Kuhn, Host:

Based on that description. So, what can you tell us about just the cougar's life cycle? Just tell us a bit about what it means to be that animal.

Dan Stahler:

Yeah. Yeah. So, we think of the cougar. We describe them as being a solitary carnivore. I think that depiction needs a little bit of nuanced framing because, yes, unlike wolves, they don't live in packs or large family groups. Females and males have a slightly different life history. And that is the mating system of a cougar is that the males will come together only to join up with the females to breed.

Dan Stahler:

They spend a couple of days together, they copulate, if it's successful, the female then has kittens. The male leaves and plays no role in raising those offspring. And so, the female cougar is the ultimate single mom that basically does all the work to raising these young kittens. And these kittens are, after about a 92 day gestation period, are born.

Dan Stahler:

One thing that's interesting about cougar's, again, comparing a lot with wolves just because I find the contrast interesting because they're both here together. Female wolves have an extra cycle once a year. It's typically in this area of the country is usually in February. A female Cougar will actually cycle about once every 28 days.

Kristin Kuhn, Host:

Oh my goodness.

Dan Stahler:

So they can theoretically get bred at any time of the year. And again, after that 90 some odd day gestation period can produce a litter of kittens of anywhere between one and four, up to five or six in rare cases. And so, what we do see are birthing pulses though, where females tend to give birth to kittens in the summer months. May, June and July is very common here in Yellowstone. We've had litters of kittens born in the middle of the winter, but they are typically born in the summer months.

Dan Stahler:

And that probably overlaps at the time when food resources are more readily available to a mother. She has a lot of energy expenditure to lactate, to feed those kittens milk and then eventually meat. And so, having kittens in May, timing it when you get elk calf neonates or deer fawn neonates, which are those firstborn fawns and calves of the year is really key for her to be successful, feeding those growing offspring. The male goes off and does his own thing.

Dan Stahler:

Another distinction between them is how they use space and home ranges. We describe female cougars as not necessarily having territories that they actively defend from other females, but home ranges that they use for space, to raise offspring, to hunt. And that often overlaps with other female cougars, often their relatives, daughters, sisters. Often, not always.

Dan Stahler:

And those home ranges, at least in Yellowstone, are approximately 250 square kilometers and males have up to twice the size. We tend to describe mountain lion or cougar males as having territories, because they do actively defend those from other males. They're larger and tend to overlap multiple females' home ranges because males are really concerned about having space that holds multiple females that they can control breeding opportunities for and they will keep other males out.

Dan Stahler:

New males will come in and challenge them. They fight to the death at times. You do have infanticide where a new male coming in might kill kittens. We know of this, we're familiar with this with other species, whether it's bears or African lions is commonly thought of with infanticide.

Dan Stahler:

And that is thought to, again, because of the cycle of females, kick them into an extra cycle again and breed and produce kittens of their own with those females. So, those are some basic differences there in terms of just the general patterns of a year round life cycle. Young kittens will stay with their mothers up to two years of life. Average-

Kristin Kuhn, Host:

Oh, wow.

Dan Stahler:

... dispersal is around 18 months. It can happen anywhere between 12 months and 24 months typically. But it's usually somewhere in between. The first and the second year, those kittens then become sub adults and then they leave off on their own.

Dan Stahler:

You tend to have females stay closer to home, shorter dispersal. Males that leave their mothers tend to have longer range dispersal, and that's to avoid inbreeding with their mothers and sisters. And that's a very common behavior of male-biased dispersal or female-biased dispersal, depending on the species we're talking about. But that's how it usually works with cougars.

Dan Stahler:

That said, we've had some of our female cougars move quite far and disperse out of Yellowstone. We had one of our collared females who was born and raised right here outside of Gardiner on Mount Everest disperse and head over to Hebgen lake and then make a trip all the way back to the Northern range and then decide, "You know, I like it out there."

Dan Stahler:

And then she headed back out and settled in the Madison Valley, just south of [inaudible 00:18:57]. So, that's a longer range movement. We've had some males go really far. And of course, you hear of stories of these really long range dispersals. The famous one, I think it was back in 2011, of a male that went from the Dakota's all the way to Connecticut was hit by a vehicle-

Kristin Kuhn, Host:

Oh my gosh.

Dan Stahler:

... on the road in Connecticut. And I think that's among one of the longest dispersal distances of a terrestrial mammal. So, it's pretty varied there, but yeah, that describes the basic family structure. So, back to what I was saying about being solitary or not.

Dan Stahler:

So, you think of a female cougar, she's rarely solitary. She's pretty much with offspring most of her life. Because once they produce a litter of kittens and they leave mom, she usually then cranks out another litter of kittens if she's a good mom and has good resources. So, they are often living in little groups of cats. Little packs of cats.

Dan Stahler:

And then we also document cougars coming together and sharing kills, males and females associating with one another, spending time together, of course, for breeding, other. And we see this with our GPS collard data, we see this with our remote camera data of multiple cats coming together.

Dan Stahler:

I think they're a little more social than people realize, always searching their environment for new information from who's out there. Are they a friend? Are they a foe, are they a relative or not? Are they a potential mate? Are they a potential competitor? Their social relationships, I think, are richer than we maybe have previously appreciated.

Kristin Kuhn, Host:



Yeah. I think we're going to talk a little bit later about the Yellowstone Cougar Project in more depth, but how many collared cats do you guys have?

Dan Stahler:

Right now we just have four collared individuals, four GPS collared individuals. We lost several last year to a range. One was killed by a pack of wolves, one drowned in the river actually and then the other one left the park and was harvested, it was killed during a hunt. And so, natural causes of death. We actually had an accidental death, I just remembered, of another one that actually got stuck in a rock pile. We think she was trying to reach down and get a marmot or something and her leg got caught and it broke. And a boulder fell out and it pinned her there.

Dan Stahler:

I mean, they really face a lot of challenges out there in their daily lives. It's a hard living. So, right now we only have four, but we can talk a little bit about this later if you'd like, but just the history of the Yellowstone Cougar Project through time has shifted from intensive radio collaring and it has to do with technology and methods for counting cougars, which is a big part of our objective, to newer technologies and techniques such as non-invasive genetic surveys, remote cameras.

Dan Stahler:

And we've decided purposefully to back off the more heavy-handed radio collaring that earlier cougar studies have really needed to do in order to get the information they were seeking. And now we can really take advantage of different technologies. We'd still rely on GPS collars to answer certain questions that are invaluable to that, but we try to balance it with collaring animals, which is a ton of work. There's always safety issues for people and animals.

Dan Stahler:

And plus, we work in a national park, so we try to limit our direct handling of animals and coloring. That said, research objectives sometimes really call for that sort of technology application.

Kristin Kuhn, Host:

For sure. But it must be nice to have even more tools in your toolbox now.

Dan Stahler:

It really does. It really does. Yep, for sure.

Kristin Kuhn, Host:

Awesome. So, tell us a little bit about the role that cougars play in the greater Yellowstone Ecosystem and perhaps even what this place would look like without them.

Dan Stahler:

Yeah. Yeah. So, there's been so much attention over the last couple of decades to wolves, and rightly so. It was a big deal to bring them back to these landscapes. But we forget that there was this other top predator there on the landscape as well. Cougars and wolves share a very similar history in Yellowstone. They were both eradicated in terms of a viable population by the 1930s.

Dan Stahler:

Cougars crept back in on their own. And that happened probably sometimes during the '70s, and there's a couple of reasons we can talk about what drove that change. But their importance in these landscapes are, they are a top predator.

Dan Stahler:

And we know that predation is an incredibly important ecological force. It's shaped life on earth for millions of years. And the role of top predators on ecosystems like Yellowstone can't be underappreciated. Through their process of killing prey, they really play a key role in how ecosystems function primarily through food web dynamics, the transition of energy from a predator when it kills that large, when it killed like an elk, for example. That energy that then ripples through that food web has very many links.

Dan Stahler:

And we know from studying food web history and ecology, the more links you have in a food web, and there are many in Yellowstone, the more stable those ecosystems can be. I mean, we use the word balanced and healthy. Balance is, I think, it's a term of the past and we talk about ecology that there really isn't that balance of so-called balance of nature. As much as these ecosystems are dynamic, they change, but food web dynamics underlie them. And the more links you have, the more stable and sure, healthy, we can use that term, they are.

Dan Stahler:

So, cougars are that direct predation link that really influence that food web dynamic by transitioning energy throughout it. So, the energy goes through not only themselves and their offspring, but to all the scavenger guild, the ravens, the eagles, the magpies, the grizzly bears or the black bears that might get the food from a cougar kill. And then through their nutrient cycling all the way down into the soil microbes and the invertebrate communities. And that all trickles back into the landscape through plant growth and nutrients.

Dan Stahler:

So, it really shapes and influences a lot of things through that top down influence. We talk about top down predation influences on food webs and bottom up through primary productivity of plants, feeding herbivores, so predators are very much at that. And so, the cougar does play that significant role here in Yellowstone.

Kristin Kuhn, Host:

Okay, wonderful. So, you mentioned that they were extricated from Yellowstone but managed to reintroduce themselves to the park. Can you tell us a little bit about that?

Dan Stahler:

Yeah. So, there's this really fun history of the cougar in Yellowstone that links to someone that we all are familiar with and his link to conservation, and that's Teddy Roosevelt. He actually came to Yellowstone in the early 1900s with the goal of hunting a cougar in the park.

Dan Stahler:

This is at a time, this was around the early 1900s. And he recognized that that would probably be controversial. He came to Yellowstone and actually saw that was at a time when the predators had largely been eliminated, particularly wolves. And so, he was seeing large amounts, abundance of elk that were, he came during some particularly tough winters, that were starving. And then he recalibrated his view on cougars.

Dan Stahler:

He initially thought of the cougar as being this lacking courage and blood thirsty. And then once he got to learn about these animals a little bit more through hunting them outside of the park in other places and appreciating them more, he changed his tone. And he actually asked for the banning of cougar eradication in Yellowstone in 1908.

Dan Stahler:

Now, that didn't quite get followed because predator eradication continued after he established that. But it is an interesting story about his connection to Yellowstone and cougar specifically. But yes, like wolves, they were more or less eradicated by the '30s. There was bounties on them. There was actually a park directive to remove predators from public lands in Yellowstone and the surrounding areas. And they were quite successful.

Dan Stahler:

With cougars in particular, hounds to this day are a very effective way to kill cougars. Poisons were applied, for sure. And that affected many species, wolves, coyotes, bears, the scavengers, cougars to a certain degree as well, but certainly the bounties and the directed hunting using hounds was a key part of that removal for cougars.

Dan Stahler:

Remember cougars have evolved with wolves and the response when you're chased by a canid, if you're a cat, is to go up a tree. And that's become an effective way to hunt cougars. We use that same technique to radio collar them actually. But that was quite successful.

Dan Stahler:

Now, through the late '20s, '30s, '40s, '50s, there was probably some cougars roaming around a little bit. I mean, really throughout the west, cougars took a big toll because of the bounties. But they live in very remote wild places and they probably all were not killed. We believe that Yellowstone just simply did not have a functional cougar population. When I say functional, ecologically functional. There weren't enough of them to play a role as a predator that we see today for that period between the '30s and through the '60s.

Dan Stahler:

Sometimes in their early '70s is when we think they started coming back. And the reason for that is, that was around the time that the states in the west in other parts of the country got rid of the bounties on cougars.

Dan Stahler:

They recognized there was actually a group of constituents, and these are houndsmen, that wanted to see cougars out there. They wanted to chase them. They didn't have them out there anymore. And so, they advocated to have them become a trophic game managed animal.

Dan Stahler:

And simultaneous to that, we were seeing deer and elk populations coming back because of management as well. And so, it became this sort of combination of actually controlling the take of cougars through hunting and regulation that helped bring them back. To this day, the houndsman communities are probably some of the biggest advocates for cougar conservation. That's, I think, important for people to understand as they play a pretty key role in the conservation of cougars to this day.

Dan Stahler:

But they crept back into the Yellowstone probably in the '70s. And we believe, established a population by the 1980s in terms of a resident year round population.

Kristin Kuhn, Host:

Okay. So, let's revisit the Yellowstone Cougar Project. So, you've mentioned a few times throughout, but can you give us a little bit more of a backstory, and then just describe really what that entails? I know you're a project leader, so I assume you have all the information.

Dan Stahler:

Sure. Sure. So, the Yellowstone Cougar Project, I would say officially started back in the '80s. There was an initial survey here 1982, somewhere in that era, that was the first attempt to document an established population. It was largely through snow tracking surveys. There was no radio collaring anything. It was just, do we have cougars here?

Dan Stahler:

And then in 1987, at the time, a young biologist named Carrie Murphy, he went on to have a really long career here, both starting in Yellowstone and moving down to the forest service down into Wyoming. And he, for his doctoral degree, was the first real focus study on cougars and that started the Yellowstone Cougar Project.

Dan Stahler:

And between 1987 and 1994 is what we would think of as phase one of Yellowstone Cougar Project. And that was prior to wolf reintroduction. The goals there were very similar to what we do today in this, how many cougars are in the park, what's their distribution and what are their predation patterns and their food habits?

Dan Stahler:

And with that came very involved radio collaring that at the time, the technology available to study cougars was really being driven by radio telemetry. They did not have GPS callers at the time. It was simply a collar that emitted a beacon that one had to go out. First, you had to catch a cougar and then you put the collar on and then you follow it.

Dan Stahler:

And I can talk about catching cougars and the challenges there, but they caught a lot of cougars during that era. They worked with some local houndsmen dedicated dogs that are well trained to find Cougar tracks. Of course, the human helps find the track and then the dogs, of course, using their amazing sense of smell will track that cat.

Dan Stahler:

And the goal of treeing the cat in which the biologist can then dart the cat with immobilization drugs and climb up and lower them to the ground and fit them with a radio collar and let them go. And that was the primary goal. And they tried to collar as many cougars as they could find to really figure out how many were out there.

Dan Stahler:

I mean, think about how many times you've seen a cougar, Kristin, in the wild. And so, then think about how difficult it would be to actually count cougars on the landscape and estimate their population size. So, that really was the best tool at the time to do it. And to this day, it really is an effective tool as well. We have new tools that I'll talk about.

Dan Stahler:

And so, Carrie Murphy's work, he collared a lot of cougars between 1987 and 1994. And he basically came in and was able to document that increasing recolonization of Yellowstone National Park by that species. And then from his studies on their predation patterns, what they would do is you follow a cougar, you locate them every day, you take a bearing, you mark a location and you hang a little flag and you leave and you come back the next day. And if the Cougar left, you go and find that cougar the next day and do the same thing. If the cougar didn't leave and it's in the same spot for a couple of days in a row, you triangulate that based on your bearings of the signal. And then once that animal leaves, you go in and hopefully find food prey remains.

Dan Stahler:

And that was the main way that they could document what they were feeding on. And they used all that radio collaring data to estimate the population size. And that was at a time when they were talking about in the teens to low twenties during that era of cougars, because they were just establishing themselves.

Dan Stahler:

And I first should explain what Yellowstone's Cougar habitat is like. The year round resident population of Yellowstone cougars is in the Northern part of the park. What we call the Northern range. Northern range of course is characterized by that winter range of the migratory ungulates, the elk, the bison, the deer, pronghorn, bighorn, sheep, all come here to the Northern part from other parts of the park in the summer. It's the best year round habitat.

Dan Stahler:

The Northern range has been the focus. It's characterized, of course, by open grasslands and sagebrush communities mixed with forest. Cougars in particular are known to be in those really steep, rugged habitats.

Dan Stahler:

The Yellowstone river, that course comes up to the Northern range, leaves canyon village in the interior and shoots north and makes that hard bend where it meets with Lamar Valley and then cuts here into the town of Gardiner and then moves on north. That is the heart and soul of Cougar country in Yellowstone. We call it the black canyon of the Yellowstone. If you've ever hiked anywhere between Hellroaring and Gardiner, you are hiking through some of the best cougar habitat in maybe the lower 48 or anywhere. And so, that is our main area. That's where our research is focused.

Dan Stahler:

So, Carrie did his work that ended in 1994. Then in 1998 through 2006, Toni Ruth led the study, again, Hornocker Wildlife Institute/Wildlife Conservation Society. And she led that effort. We refer to that as phase two. And that was a wonderful, elegant study because it was able to compare and contrast pre-wolf and post-wolf. What are the effects of when you restore the other top predator to the landscape though? How did they compete? Did they coexist, did wolf recovery cause cougars to decline? Did it change their food habits.

Dan Stahler:

And then Toni, again, because the technology is available to her, continued with that heavy radio collaring effort. They try to collar up to 80% at any time of the population, snow tracking surveys, collaring that really allowed them to come up with good population estimates between those two phases. And that study ended in 2006.

Dan Stahler:

Towards the tail end of her study, new technologies like GPS collars were starting to become available. When I first worked on that study in 2001, we were still doing that old school predation sequences where you'd go out every day and locate the cougar.

Dan Stahler:

You wouldn't try to see them. I mean, the whole goal was not to disturb them and bump them from the kills. But you're trying to get really accurate locations and triangulate and come back the next day and search. And that was the way we studied their food habits. Now we just use GPS collars, which are just fantastic.

Dan Stahler:

And so, that work ended. Her work was great because it essentially showed us that the cougar population was continuing to increase. And that's because it was just abundant food. I mean, we still had the northern Elk ridge at this time was abundant and rich.

Dan Stahler:

And yes, sure, it was on the decline. It's important to talk about what caused that decline and where we're at today. But basically, there's still enough food and enough space for wolves and cougars to coexist. And actually, she continued to see an increase in cougar population size from her work. So, her study ended in 2006, and then there was about an eight year gap in anything having to do with cougars.

Dan Stahler:

We, the Wolf Project, would continue to track and opportunistically get info, but rarely did we see cougars. We weren't looking for them. We'd cut their tracks. We'd occasionally have a sighting, but there was no focused research anymore. In 2014 is when I started back up, what, I guess you could think of as phase three of the Yellowstone Cougar Project.

Dan Stahler:

And we just decided it was time to really understand the community ecology of carnivores, our multi carnivore system. Toni had done a great job carrying off what Carrie Murphy did, but since no one else was doing it, we have to keep this work going.

Dan Stahler:

And it's important because at the time there was so much focus on wolves, and wolves are doing this, wolves are trophic cascades, and they're causing the Elk Ridge to decline. We really needed to reach out to the public and educate and say, "No, this is a multi carnivorous system. There's a lot of factors that are influencing ungulate population dynamics, competition, and coexistence. And we can't just not ignore cougars." And I think too often they were being ignored in terms of their role in this system.

Dan Stahler:

So, we started the study back up in 2014. This was at a time now when molecular techniques, this is being able to genotype a hair sample or a scat were becoming more commonly used for these secretive sorts of carnivores. There's these efforts with wolverines and other secretive animals where these non-invasive snow tracking surveys, finding hair or scat or blood left behind and being able to send those to a lab and genotyping them to come up with unique genotypes, which is a signature of an individual from their genetic code, their DNA were becoming more readily available, readily to use.

Dan Stahler:

So, we really embraced that. We came up with an estimate in that 2014 and 2017 of approximately 34 to 42 cougars, depending on the year. And that's all age and sex classes. And that doesn't sound like many, but given their home range size, it's a robust, healthy population that comes up to a density. It's very common for cougar studies to use a similar density. And that's about two cougars per hundred square kilometer.

Dan Stahler:

And so, that's about two cougars per, just under 40 square kilometers. And that's a pretty consistent density from where Toni Ruth was at. It's very similar to densities we see in other cougar studies that are being done in the Rocky Mountain West. So, it indicates a healthy, stable cougar population. And so, that's how we've done that.

Dan Stahler:

And now we're using remote cameras, and that's like with genetic samples left behind, we can put a handful of collars out in individuals, the GPS collars, and we put little markings on their collars so they show up either at night, infrared on the infrared cameras, they have a little glow. The animal doesn't see it but we see it on the camera.

Dan Stahler:

And so, we can identify individuals that hit our cameras. And so, that then becomes like a genetic sample. You collect a hair from a specific location on the landscape. You could say individual A was here and we found and detected individual A X number of times, and you can extrapolate out their home range size. And that gives you this estimate of how many cougars are distributed over a certain unit of area.

Dan Stahler:

The cameras do the same thing. We can recognize individuals from their callers and that feeds into these same modeling techniques. We call them spatially explicit mark recapture methods, or there's different variations of that. And those become pretty robust ways to estimate population abundance.

Dan Stahler:

So, now we're taking advantage of remote cameras along with our GPS collars. And our GPS colors are used for predation studies. We use the GPS movements to look at their interactions with wolves and bears and how they overlap together. We look at how elk are responding to predation risk by cougars by comparing our GPS collared elk with our GPS collared cougars and wolves. So, we're doing all this really wonderful stuff using these cutting edge technologies.

Dan Stahler:

The remote cameras are wonderful because we get high definition video clips that really can show us the world of cougars that are just so difficult for people to see in the wild. I can sit here and talk about the science of cougars forever. And yeah, I could show you a 20 second clip of a Cougar and you'll just be inspired and mesmerized by them on camera. So, that's our combination of techniques we're using today.

Kristin Kuhn, Host:

Amazing. Amazing. Okay. So, I have a couple of follow up questions for you on that. First, do you think that cougars being a particularly elusive animal played a role in them being overlooked for a while or do you think there's another reason for that?

Dan Stahler:

Oh, you're completely right. Spot on. Out of sight, out of mind.

Kristin Kuhn, Host:

Out of sight out of mind. Yeah.

Dan Stahler:

Exactly. I mean, they don't howl, they don't roam around in the big parks. They're just not as obvious. And so, we tend to, are just how humans are more prone to value things or have views or opinions about things are shaped by how often you're exposed to them. Right?

Dan Stahler:

And I think with cougars, there's not the same mythology with them. Even just through human culture, I think, like there is with wolves or bears even, there's not the same animosity or hatred. And I think a lot of that is influenced in part by the fact that people just never see them or rarely see them.



Dan Stahler:

And so, that certainly is the case for Yellowstone. So, we're trying to really promote them as an important animal here in the park, through both our research and the data and the information we learn about them. But just, again, I love giving talks to the public and sharing just video footage of them because it's like, you just never see cougars out there. You're lucky if you get one glimpse in your lifetime.

Kristin Kuhn, Host:

Yeah, absolutely. Well, I'm so struck by the tremendous amount of work and effort it takes to do this work and collect all this incredible data. I mean, if I had managed to successfully capture and collar any cougar that I'd seen in the park, that number would still be zero. So, it's really remarkable to me. What, if anything, has surprised you the most in your time studying and living with cougars?

Dan Stahler:

Yeah. I think one thing is really important for people to understand about these carnivores, cougars, wolves is just how challenging their lives are, how difficult it is for them to do the basic things that they need to survive, hunting primarily.

Dan Stahler:

We've really tried to share what we've learned about hunting behavior in these animals and their success and their impacts on prey in a way that we hope is useful for appreciating them more, learning to coexist with them, understanding whether or not they're having impacts on prey populations.

Dan Stahler:

And just for a cougar they're so tough and their challenges of raising offspring and feeding themselves are quite impressive to see. And just cougar as a hunter is a stocking ambush hunter. They have, again, as I described at the beginning of our conversation, very powerful muscular body design, and that's key to hunting success.

Dan Stahler:

Their method of hunting is to stalk and come up behind prey or up alongside prey and reach around and grab onto them. And they're usually trying to deliver a bite with their mouth on the neck, either the throat or the top of the head. They're doing it by themselves. They don't have help of other cougars unlike wolves.

Dan Stahler:

They do have what we call supinating, like supinating wrists. They can rotate. They have retractable claws that come out that is a real advantage over the wolf that literally just has its mouth. But the cougars can come up and grab. And so, they're very powerful and strong. We actually think they are probably more successful per encounter than a wolf.

Kristin Kuhn, Host:

Interesting.

Dan Stahler:

Our research on wolves here, and we've watched wolves hunt elk thousands of times over the last 26 years is they're only successful taking down a cow elk maybe 15%, 20% of the time they attempt it. Very inefficient at what they do. It's been grossly misrepresented, the hunting skill of a wolf. They're very much limited by their biology. They need vulnerable prey to be successful and they can't kill anything they want. It's not easy. They don't kill for fun.

Dan Stahler:

Same thing with cougars, although I think cougars are slightly better than wolves at doing it because of their hunting style and their muscular strength and their ability to rotate and grab on. That said, it's still very dangerous and difficult. We've had cougars that we've been studying and following die from hunts.

Dan Stahler:

I remember this really prominent example back when I was working for Toni in the early two thousands of a male cougar we were following and doing predation work on out by Lamar Valley on Mount Norris. He came up and had attacked a big horn ram, this full curl at the top of the cliff. They both tumbled off the cliff, fell over 100 feet. The sheep hit the ground and literally popped. And we came up on the scene. Its heart was laying on the snow, blood everywhere. We're like, "What the heck's going on here?"

Dan Stahler:

Then we found the cougar with a broken back and compound fractures on his hind legs. And he died from that hunting event. Again, just trying to get a meal. I collared a cougar a couple of years ago, M211. We called them snaggletooth because he had a broken and healed lower jaw, a missing upper canine. Their canines are their most important tool for hunting and it was totally missing. We think he had gotten kicked in the face during an elk hunt. He went on to live another four or five years.

Dan Stahler:

We had a female cougar that broke her hind, her hip. And we have her on camera multiple times with this broken hip. And yet she still had her two kittens. She was hauling along with her. She was hunting and feeding them. She's gone on to heal from that broken hip. She's alive out there today.

Kristin Kuhn, Host:

Wow.

Dan Stahler:

She's probably in my view shed over here on Mount Everett since I look out the window, doing her thing with her kittens and she's fully healed and that's a couple of years ago this happened. They're just tough. They're persevering through all those challenges. And I shouldn't say that's a surprise as much as just a deeper appreciation for these animals and what they go through.

Kristin Kuhn, Host:

Right?

Dan Stahler:

Yeah.

Kristin Kuhn, Host:

That is remarkable. Some of those stories are a little hard to hear, to be honest.

Dan Stahler:

Yes. Yes.

Kristin Kuhn, Host:

Actually, I do remember when that incident with the cougar and the bighorn sheep happened, because the photos of the aftermath of that were pretty widely circulated on the internet-

Dan Stahler:

That's right.

Kristin Kuhn, Host:

... because it was startling to see.

Dan Stahler:

Yes. Yes.

Kristin Kuhn, Host:

This horrible demise of both animals at the end of what must have been a pretty wild hunt, but pretty crazy. Okay. So, curious about memorable experiences. So, you have been in Yellowstone for many years now, presumably seen lots of things, any really particularly memorable moments with cougars that you can share?

Dan Stahler:

Yeah. I remember when I first started working on the Cougar Project, my first day in the field was probably the most physically challenging day I've ever had. Anyone that's studied cougars, anyone that's gone out with a houndsman, maybe, in an area that not along the road to try to treat a cougar, not even to kill one, but just to see one up a tree, anyone that's hiked in Cougar Country knows just, one, how challenging that country is physically.

Dan Stahler:

I remember my first day on the Cougar Project, it was in May of 2000. I went out with a long term field biologist, Poly Bia. And we went from Gardiner all the way up and over Deckard Flats through Crevice Creek up the other side. And the goal that day was to locate a cougar. And so, we had to go find it. We heard the signals and it took us all day to get there.

Dan Stahler:

And finally, at 3:30 in the afternoon, we got up to where we thought it was and we snuck up and the signal was booming and clicking really loud in. And I look over and I see this male radio collared cougar just basking in the sun under a tree in the late afternoon.

Dan Stahler:

And so, we got the location and then I turned around and hiked all the way back and got back after dark. And it was just too exhausted to eat. But it was that first real exposure to cougar research and I just fell in love. I mean, I had already been studying wolves for a few years at that time. And I love studying wolves and it's fun to do both and see their similarities and differences.

Dan Stahler:

But I just, that first real experience out there as a biologist tracking a cougar was just, oh, I'll never forget it. I went on to just continue to have those sorts of experiences. And whether it be, I remember watching this mother cougar out one afternoon, we got a location on her. We were watching her from maybe, I don't know, 5, 600 yards away. And we're watching through binoculars. We'd hiked a couple hours to get to where she was.

Dan Stahler:

And it's great when you see them on those days, because then you know exactly where she was and what she was doing. But what she was doing is she had two little kittens maybe about 25 pounds. And they were following her along and following off logs and screaming up. And she kept turning around and chirping at them.

Kristin Kuhn, Host:

Oh, yeah.

Dan Stahler:

That's the one thing about cougar calls that people may not appreciate is that we think of cougar vocalizations as the movie the caterwaul or the scream like [inaudible 00:48:05]. And they do do that, and females caterwaul to attract mates. And so, that does happen. But so much of their communication, particularly with their kittens is chirping like birds.

Dan Stahler:

You've probably heard a cougar vocalize out there if you spent a lot of time in Yellowstone Country and didn't realize what it was or maybe-

Kristin Kuhn, Host:

Thought it was a bird.

Dan Stahler:

... you do, thought it was a bird.

Kristin Kuhn, Host:

Hold up the bird [inaudible 00:48:24]. I can't find this one.

Dan Stahler:

Yeah. It's like a chirping sparrow. And she was chirping at her kittens basically saying, "Stay there. I'm hunting." And what she was trying to do is hunt marmots. And so, she had their kittens and she kept

chirping on and they'd follow her and she could go up to them and try to lead them back. And it was almost like she was scolding and I'm like, "You're screwing up my hunt."

Dan Stahler:

And she'd just send them back and they finally did what young cougars do is they tucked themselves under a log and they totally evaporated. And then she continued to hunt. And I watched her two or three times fail to get marmots who, of course, they were chirping too giving their alarm call.

Dan Stahler:

So, that was just a real special situation. It wasn't the dramatic, like a cougar come up and grabbing an elk and taking it down. It was a female trying to feed her young kittens, taking advantage of whatever food resources is there. And marmots are a nice, fat, little package of food to get. And they are successful getting them from time to time.

Dan Stahler:

And so, that was really special. I mean, there's just so many. When we do our captures, those are pretty intense experiences. We're out there, we're really focused on animal safety, whether it's the dogs that we work with, the people, because of just the intensity of trying to get close to cougars and get them up trees and safely dart them and lower them. But I've had a lot of close encounters with cougars in those situations. And I think what resonates with me is just the visual connection you make with an animal in that situation where they're up in a tree.

Dan Stahler:

And what's really amazing about cougars, and this has to be just an evolved response is they act really calm. They go in this zen state when they're up in a tree. People think of it as probably a stressful situation, and there's no doubt there's stress involved and the animal is who knows internally what's going on, but they sit there. Oftentimes they take a nap while you're messing around with your darts and getting ready to do and they just sit there and then they look up at you.

Dan Stahler:

But when you make that eye connection with a cougar at close range like that, they stare right through you. And as a biologist, you look at them and you say, "Thank you." You say, "Sorry." It's sort of the contract you have with them that they don't totally appreciate and you just have to be, "This is something that we hope will help your species in the long term. You're going to teach us a lot. We're going to put a collar on you." The collars we use now, we can blow them off remotely once they've collected enough data.

Kristin Kuhn, Host:

Really?

Dan Stahler:

So, sometimes we recapture them because we do long term study in individuals. But just a month ago, I went out and triggered a blow off on a female that we had collared for a couple of years. The collar collected two years of great data, served its purpose. We went out and triggered the blow off and it fell off the cat on the ground. And she went off into the woods without a collar. And those are really special

moments when you, as a biologist, have learned something from an animal, and again, you hope it feeds into the bigger picture of teaching others about this animal and why they're important. And then you say so long and good luck.

Kristin Kuhn, Host:

Yeah. Thank you for your service.

Dan Stahler:

But those moments are special for me and not many people get them. And I'm very lucky to have had those through time.

Kristin Kuhn, Host:

Yeah. Well, that's beautiful. Thank you for sharing those stories with us. So, possibly the most important question of the day, because we want your official scientific opinion on this. What do you think is the cutest, cougar kittens, grizzly bear cubs or wolf pups?

Dan Stahler:

Hands down cougar kittens.

Kristin Kuhn, Host:

Okay, good. Right answer.

Dan Stahler:

Hands down.

Kristin Kuhn, Host:

That's what I was going to say [inaudible 00:51:45].

Dan Stahler:

Hands down. I mean, they've got those-

Kristin Kuhn, Host:

... think I'm biased, but.

Dan Stahler:

They're just, the spots, the blue eyes, that just little fuzzy face, the whole thing. Earlier work that was done here in Yellowstone did a fair bit, because this was a big part of the question of marking kittens. So, you'd figure out where the female had their den. You'd go in, you'd wait for her to leave. You'd go in and handle these little kittens. And you'd put little expandable radio collars on them and get blood samples for genetics and disease.

Dan Stahler:

And so, that was pretty cool to see little kittens up close. We don't do that with our work now. We leave kittens alone. It's not really a question for our research. In the first couple of years I started the study, we were doing it a little bit, and oh yeah, I'll just never forget their smell, their look, their fuzziness.

Kristin Kuhn, Host:

Fuzziness.

Dan Stahler:

I mean, bear cubs and wolf cubs are cute too, but I think hands down cougars' got it.

Kristin Kuhn, Host:

It'd just be so hard, I imagine, to stay really objective in that moment. You just want to give them just a little cuddle real quick-

Dan Stahler:

Yes.

Kristin Kuhn, Host:

... when nobody is looking.

Dan Stahler:

Yes. Yes, you do it and no one knows. Yeah.

Kristin Kuhn, Host:

Yeah, exactly. That's for science, just smelling him for science. One other question that we do like to ask all of our guests, and you did mention a few specific names throughout our conversation, but do you have any particular science or conservation hero perhaps who inspired you in your younger years or just really anybody that you look up to?

Dan Stahler:

Well, I've been really lucky because, of course when I was a young kid and I was studying wolves, everyone knows Dave Mech is one of the main wolf researchers or Rolf Peterson. And those two people I've gone to know and become friends with and have worked with or for them in different years.

Dan Stahler:

I work closely with Doug Smith. He's a good friend and he ushered me along when I first showed up here. They're all great mentors. They've all been important people with my experience with wolves. Baron Heinrich, I read his books like crazy when I was young. He wrote Ravens in Winter, he wrote Bumblebee Economics. He wrote all these fantastic natural history books. He was this early hero of me carrying on in the realm of the prominent behaviorally colleges back in the day. And I got to work with him.

Dan Stahler:

And I've been lucky in my career that I've had people I read their work and was really intrigued and it got me into the field and then went on to meet them and know them and become friends with them. That's been really special for me.

Dan Stahler:

I mentioned Toni Ruth. She was a great mentor with the cougar work. And I still stay in touch with Toni today and bounce ideas off with her or Carrie Murphy, my predecessors with the Cougar Project. So, those are definitely real people. I mean, I think my current conservation heroes are probably ones that we don't know about yet. And it's the ones that hopefully will be brave enough to step up and might have different views about some of the animals I work with, but are willing to think out of their box and open their minds and stand up for them.

Dan Stahler:

And I think because the solutions for us moving forward with... I mean, if you can see what's happening in the state of Montana right now with wolf management, if you look at just the threats that these animals face, we need people across the aisle that maybe come from a different value or perspective of these animals or what their worth is, I think, to step up now.

Dan Stahler:

I mean, I think we've done a lot of work for conservation and we need to understand where they're coming from, but we also need those folks to come to the table too moving forward. So, I think we've got some heroes out there that just haven't revealed themselves and I'm hoping that that happens, but yeah.

Kristin Kuhn, Host:

Certainly. Certainly, yeah. I mean, we are so fortunate to live and work in a remarkable ecosystem, and I think our very iconic wildlife are no small part of what makes this place so special. So, we certainly need to be lending them our voice as much as we can. We do have some listener questions for you.

Dan Stahler:

Sure.

Kristin Kuhn, Host:

And it may come as no surprise that the majority of these are folks who are curious about the human interactions with mountain lions.

Dan Stahler:

Yes.

Kristin Kuhn, Host:

So, we'll just roll through these and get your thoughts on these.

Dan Stahler:

Absolutely.



Kristin Kuhn, Host:

Okay. So first up, Grace from California wants to know, how vulnerable is a solo hiker in Mountain Lion Country if they hike during daylight hours?

Dan Stahler:

Grace, not vulnerable enough to not be out there hiking. Again, the chance that you would have an encounter with a cougar, first of all, just an encounter with one and second, one that would be negative, or risky, or dangerous is extremely rare. Extremely rare. It's just not likely to happen.

Dan Stahler:

Cougars, just by their natural behavior, avoid interacting with humans at all costs in most situations. So, it's just nothing you'd have to worry about. I mean, I think like anything else, when you're out there hiking, you want to be aware of your surroundings, you don't want to be hiking with listening to music. Obviously if you're by yourself, it's nice to make noise. If you are hiking in a landscape where there are carnivores like wolves or bears or cougars, making yourself known, being aware, having bear spray. Bear spray is a great tool for cougars as well.

Dan Stahler:

One of the things that we learn with bear encounters is, particularly grizzly bears is, under a chance encounter, having bear spray, but should you be attacked, playing dead is really key. Cougars is very different. If a cougar locks onto you and were to see you and come at you know, if you had bear spray, certainly use it. If you didn't have bear spray, make yourself bigger, lift your jacket up, pick up rocks and sticks and yell.

Dan Stahler:

I mean, there's some interesting footage that's come out on the internet in the last couple of years of, I think there was a jogger in Colorado last year that had some footage of this cougar tracking and following it, and it wouldn't leave him. And as it turned out, she had kittens nearby. So she was being protective.

Dan Stahler:

Eventually, he threw a rock or a stick and she wheeled around and ran off. But certainly, that was a scary encounter for him, I imagine. But yes, you would want to fight, you'd want to throw sticks. But again, these animals, wolves, cougars, they evolve to be risk averse. And to the degree that you can be the aggressor and turn the tables on them just through your behavior, your voice, making eye contact with them, that would be important.

Dan Stahler:

So, those would be tricks and techniques as a solo hiker out there, just being aware of your surroundings. But I wouldn't let it dominate your thinking about there and certainly ruin your experience of being in nature.

Kristin Kuhn, Host:

Perfect. So, be aware if not paranoid, and then if you are going to have a negative encounter, make yourself seem not worth the effort.

Dan Stahler:

Exactly. Yes.

Kristin Kuhn, Host:

Perfect. Thanks for that. Okay, Dan. Jeff from Montana wants to know, and actually this is a two part question. First, do cougars purr, and second, do you dream about cougars?

Dan Stahler:

Cougars do purr like other members of the feline day, and they sound just like your house cat. We've heard purring on our cameras. Cougars will often come up to our cameras if they see them and come up and sniff them. And you will hear that. We had video footage of a female just happened to plop down in front of a camera and four kittens of hers came up and rolled around in the snow. And you could hear some purring going on. It's their way of communicating with their young, in those situations. It's a sign of comfort and connection and bonding. So yes, they do purr.

Dan Stahler:

Do I dream of cougars? Yes, I do dream of cougars. And to be honest, most of the dreams happen either the night before I capture one or the night after I capture one and I'm thinking about its wellbeing and hoping everything is fine or some event of the day. So, I do have dreams of cougars from time to time and they're usually pretty cool.

Kristin Kuhn, Host:

Awesome.

Dan Stahler:

Great questions.

Kristin Kuhn, Host:

And in a similar alignment with that question about purring, Sarah from Idaho wants to know, how are cougars similar, perhaps behaviorally, to house cats?

Dan Stahler:

Oh, so similar. Great question. We always talk about, there's a challenge in our country with people wanting to have wild animals as pets. Wolf, dog hybrids are the primary example that comes to mind.

Dan Stahler:

That said, there are states out there that, I forget what the statistics are, but many states, well, not about many. Some states still allow you to actually have cougars as pets captive, raised pets. I would not recommend it.

Dan Stahler:

We always say, if you want to have one of these wild animals in your home, get a dog, get a cat. They're so similar. Cats, let's talk about them specifically. Here's a great example of that. Purring. The long tail,

the ninja-like acrobatics that they do, cougars do that on a larger scale. It's amazing to see how athletic cougars are.

Dan Stahler:

If they bail out of a tree after they've, they don't like the situation being there. When we do our catch work, sometimes they don't stay there put for us to dart them. They launch out of the tree, fly through the air like a flying squirrel, hit the ground without even skipping a beat and keep running. It's just amazing how athletic they are.

Dan Stahler:

If you see them or track them in the snow, you can see what they're doing as they cross logs and rocks. Very similar to just watching your house cat bob around the house. And again, that long tail, that counterbalance and their agility, they do that.

Dan Stahler:

We've had videos of cougars walking through snow or getting their feet wet. They go like this and shake them.

Kristin Kuhn, Host:

Oh, the little shake.

Dan Stahler:

They'll shake their paws. Have you seen that with your house cat? They do that.

Kristin Kuhn, Host:

Yep.

Dan Stahler:

When your house cat uses the litter box, it goes in, it digs a little with its hind feet, it scrapes and either pees or poops, exact behavior of a cougar. They do the exact same thing. They go and they scrape with their hind feet. It's actually a really important social communication where males in particular will do what's called scraping. They go up to under like a soft pine needles or dirt underneath a big tree, often a canopy of a tree. They sit down and they use their hind feet and scrape a little depression in the ground. Look for it when you're out hiking in Cougar Country. Once you figure out what a cougar scrape looks like, you'll see them everywhere.

Dan Stahler:

And they do that. And they urinate that, sometimes defecate in it. And that is a visual and olfactory signal. I'm here. This is who I am. Females do the same thing when they're in eustress. They'll scrape and urinate and then caterwaul to draw on a mate.

Dan Stahler:

So, if you've heard your house cats at night caterwauling with the neighborhood cat or fighting, that's what you would expect, or finding a mate. That's what cougars do as well. So, there's a lot of those

similar behaviors there. When they eat something, we all know that there's a big conservation concern with house cats outdoors killing birds and animals. That's a real problem for sure.

Dan Stahler:

But if you've observed that with mice, maybe hopefully they're doing it inside your house, when they chew on the side, they chew using their carnassials, off to their side. We actually have this really great study going on. I just want to mention it, because it's pretty cool. Where we put these accelerometer GPS collars on our cougars and they operate like Fitbits, where they're continuously recording the body position of a cougar on three dimensions.

Dan Stahler:

And it records that data into the collar. And then we can pull all that data off. And when you look at it, you actually see when they turn their head and rotate, you see the axis switch in the signature of the data. And that means they're feeding on something. Because they turn to the side.

Kristin Kuhn, Host:

Oh, wow.

Dan Stahler:

And so, we can actually estimate feeding rates from that accelerometer data. I say that only because it links to that behavior. When you watch your house cat linking to the side and chewing with their carnassials on a mouse or even their cat food. So, there's a lot of similarities there, for sure.

Kristin Kuhn, Host:

Too funny. Right on cue. We have a visitor.

Dan Stahler:

Oh, there you go. You've got a cougar.

Kristin Kuhn, Host:

Just walked up. Strictly indoor only. No bird killing for this guy.

Dan Stahler:

Yes, here you go.

Kristin Kuhn, Host:

Like he heard us talking about cats and came to say hello.

Dan Stahler:

So yeah, watch your house cat. You'll see very similar behaviors that you would see on a cougar in the wild.

Kristin Kuhn, Host:

Amazing. Very cool. London from Montana wants to know, what are the signs that a cougar is in the area? And you just mentioned the scrapes for us, which is very cool. What else can we be on the lookout for?

Dan Stahler:

I mean, the best thing, I mean our tool. I mean, what we do every time we're out there looking for cougars is, of course, looking for their tracks. They have a very distinct track that's different from the canids, that's not the same symmetry. You can look online or in a tracking book to see what I'm talking about. But they have very distinct tracks and they meander through very specific habitat types. They avoid open areas.

Dan Stahler:

And so, you want to look for their tracks, that would be one thing. The scrapes are a great thing to learn, to keep an eye open for, because as someone that studied cougars now, I can't walk out in the woods in Cougar Country and, I mean, if they're not there, I don't see them but it's amazing how often you pick up a scrape that's like, oh, a cougar came through here.

Dan Stahler:

Their kills, of course. We didn't talk about this, but one of the evolved behaviors of a cougar kill, their behavior is caching it. So, that has evolved. And remember, the modern cougar has been around for a million years or more. And they evolved with a rich assemblage of large carnivores. In fact, much larger carnivores, right? Short faced bears, the saber-toothed, the dire wolves, the hyenas, the cheetahs, all these things they're overlap in space and time through, into the place to scene.

Dan Stahler:

And in response to that competition, they have a caching behavior. So, when they make a kill, they tend to cover it, drag it and undercover. They conceal it, they pull out the hair, they shred their hair off and cover it up or scrape dirt, snow, branches, debris.

Dan Stahler:

And it's amazing how well they can hide it. It keeps all the bird scavengers from finding it as easily. It really helps protect and preserve the meat for longer. If it's wintertime then they bury it in snow. It prevents it from freezing as much. So, it's more efficient to feed on when they uncover it.

Dan Stahler:

For all those reasons, they cache it. So, they're hard to find, but you can see a telltale cougar kill often because of that caching behavior. And they usually leave a latrine, we call it. Their toilet, their litter box. That's usually away from the kill site to avoid it. And they'll go back and they'll defecate in the same spot and bury it like a cat would with a litter box.

Dan Stahler:

So, you keep your eyes open for those latrines, those covered cached kills, their tracks and those scrapes. Those are all the things you would look for.

Kristin Kuhn, Host:

Thank you so much for sitting down with us today and sharing all of your incredible stories and wonderful knowledge about these amazing cats. We're just so grateful to be able to talk to you.

Dan Stahler:

That was fantastic, Kristin. Thank you so much. I enjoyed it.

Kristin Kuhn, Host:

Thanks, Dan. We'll see you in the park.

Dan Stahler:

See you in the park.

Kristin Kuhn, Host:

Well listener, that was a journey. A huge thank you to wildlife biologist, Dan Stahler for helping us get to know this resourceful, elusive animal, and better understand their vital role in this ecosystem.

Kristin Kuhn, Host:

If you want to learn more about the cougars of Yellowstone or see some videos of Dan in action, check out the Yellowstone National Park webpage on cougars, which we will put a link to in the show notes.

Kristin Kuhn, Host:

The Voices of Greater Yellowstone podcast is produced by the Greater Yellowstone Coalition, a nonprofit dedicated to working with all people to protect the lands, waters and wildlife of this special ecosystem. As always, you can support the podcast by making a donation to the Greater Yellowstone Coalition. People like you make our work possible. So, thank you from the bottom of our hearts.

Kristin Kuhn, Host:

Also, if you head over to the episode page on GYC's website, you can help us settle the debate and vote on which baby critter is cutest, wolf pups, grizzly bear cubs or mountain line kittens. Thanks for listening in and we'll catch you next time.