Prairie Pod Transcript

Season 5, Episode 41: What's for lunch: Prairie predators

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Guest: Marsha Sovada (USGS) Kristin Hall (DNR)

Podcast audio can be found online at mndnr.gov/prairiepod

Transcript:

((music playing - sounds of birds chirping and wind blowing))

Megan: Hey Prairie Pod listeners, I'm Megan Benage, regional ecologist with the Minnesota Department of Natural Resources.

Marissa Ahlering: And I'm Dr. Marissa Ahlering, lead scientist with the Nature Conservancy in Minnesota, North Dakota and South Dakota.

Sara Vacek: I'm Sara Vacek, wildlife biologist with the U.S. Fish Wildlife Service, based out of the Morris Wetland Management District.

Mike Worland: And I'm Mike Worland. I'm a wildlife biologist with the Minnesota DNR Nongame Wildlife Program.

Megan: We are part of the Minnesota Prairie Conservation Partnership and we are here to help you discover the prairie.

Marissa: Discover the prairie.

Sara: Discover the prairie.

Mike: Discover the prairie.

((music playing and sounds of birds chirping))

Megan: Welcome back, Prairie Pod listeners. It's season 5! Mike and I are feeling alive. We can't believe it we're back ready to share some amazing prairie knowledge with you all. Mike how excited are you?

Mike: Yeah, I'm – it is so nice to be back. I was just going to point out, you couldn't help but rhyme in the very first sittens of the season could you? You had to rhyme.

Megan: I had a good rhyme. It's a poem and I know'em and I love'em, oh yeah. (Laughter)

Mike: It is really nice to be back and nice to see you again even though we see each other pretty frequently on meetings and so forth, but.

Megan: It's still nice to be podcasting together.

Mike: This is a fun occasion.

Megan: This is fun. We get to share our love with the prairie with other people. What could be better than that, Mike?

Mike: So you have done four seasons. That's nuts.

Megan: I know. I'm like a veteran.

Mike: You're a pro.

Megan: I should be better at this. (Laughing) Just kidding, just kidding. We're all human people.

Mike: I think you're pretty good.

Megan: Oh, thanks, Mike. I think you're pretty good, too. Wow, this is getting too mushy for me.

Mike: Let's move on.

Megan: So let's, let's move on and share the love. We have expanded the Pod Squad this season. We are so excited to be welcoming Marissa Ahlering, lead scientist with The Nature Conservancy onboard and Sara Vacek, U.S. Fish & Wildlife Service biologist. You heard them in the open. We're popped. They're here with us to share their love of the prairie also. And to just give us different perspectives. We benefit, right, when we learn from different people, when we hear different experiences, and we pull all that knowledge together to form a beautiful prairie bowl.

Mike: I mean, the Pod has always been about partners, partnerships, but we're increasing the role even more here, giving them even more buy-in, and I think it's just a, it's a great move. And people don't have to listen to less of me, which is - -

Megan: People don't have to listen to less of you or people get to listen to less of me?

Mike: Less of me, yes.

Megan: Okay, I just want to be clear for our listeners.

Mike: It's a win-win scenario is what I'm saying.

Megan: This is a lot of self-deprecation to start off a season with joy. I like listening to you, Mike. People like you and they love you and you know stuff about prairie.

Mike: Okay.

Megan: Oh, my gosh. We always do a quote, right? To kick off the season.

Mike: Yeah.

Megan: And we have a great one. It ties into our topic, which makes me even more excited. You want me to just jump in, Mike, do you want me Mike? Do you want me to read it?

Mike: Please read it, yes, go ahead.

Megan: Okay. So our quote to kick off this season is from Dr. Rae Wynn-Grant. She is a wildlife, specifically a large carnivore ecologist. She's a conservation scientist, and I love this part of her bio. She's a nature storyteller and advocate. In addition to all that, she's a National Geographic Society fellow, so she gets to travel around the world and share her wildlife experiences with people to make us more educated and more appreciative about the role that wildlife play in our life. And so I can think of no better person to kick off this season than Dr. Rae Wynn-Grant. And here's her quote: “I grew up in big cities and it wasn't until I was 20 years old, a young adult, that I had my first experience in nature. I went on my first hike, I pitched my first tent, and I saw my first wild animal. And without a doubt, it changed my life.”

Mike: So I was just going to point out. I mean, she, she's 20, like that's not old, right? That's basically a kid, you know. I mean, I'm kidding, but 51-year-old.

Megan: Are you trying to make an age joke? This is when she was 20. She's not 20 now.

Mike: I know that. I know that.

Megan: Okay.

Mike: My point is like it does, you, you are literally never too old to gain an appreciation of the natural world and start becoming more active in the natural world. And it doesn't matter if you're 20 or 101.

Megan: Well, if you're 101 and you're out exploring the prairie, hats off to you. That's what I want to be. I want to manifest that.

Mike: All we need, we all need our, our like gateway hobby or gateway activity.

Megan: Into the prairie.

Mike: Yeah, or whatever ecosystem but preferably some prairie, right?

Megan: I mean, this is the Prairie Pod, just so you know.

Mike: Birding is key one, of course, I say that completely a nonbiased manner but.

Megan: It's okay to explore and discover and because, you know, some of the things that I hear from folks is like I didn't know how. Like I didn't know how to connect with nature, I didn't have access to nature, and access to nature is a whole other podcast for a whole other day. But not knowing how, we want to start this season off with giving you

some tips for how you can help out, give a hand to the prairie, and also get involved, get immersed, get in there. There's lots of ways that you can be helpful and become a prairie advocate.

I want to give a shout-out to Prairie Pod listener Ellen Thomas. She came up with this great idea. She first posed this question to me because she's moving to Minnesota, she's excited about all the work that's happening here with prairie, and she wanted to help. And so then she shared with me some ways and groups that she has found that she can engage with to get on to the prairie, get her boots on the grass and wildflowers, and be a helpful friend. So there's lots of different ways that you can volunteer in prairie restoration and other projects. There's bird counts, there's insect counts. I want to give you some examples. Of course, there's the DNR's website.

You can go to, you can use your own Google machine and type in volunteer DNR and it'll bring you to our help page, which is a great page that links to all of the different divisions and groups within DNR that are doing work where you can engage with them. Specifically, you can become a DNR scientific and natural area site steward, so you can actually adopt a site and help manage it, check on it, maybe provide some of those bird counts or insect counts. You can adopt a wildlife management area, similar idea. We have the Nongame Wildlife Program will be launching a volunteer page soon, so keep checking back for our website for updates, but currently you can voluntary on our loon survey page and you can monitor a loon family to see about their next success. Who doesn't want to loons all day? That sounds like a great way to volunteer and spend your time.

There's also the Prairie Enthusiast, the Minnesota Master Naturalist, you can volunteer with the Minnesota Land Trust, the Prairie Chicken Society, Pheasants Forever, watershed districts, different parts like Three Rivers Park Districts, also you can volunteer with Great River Greening, the list goes on and on and on, The Nature Conservancy, I feel like we could just keep listing things. So bottom line is, Mike, that there are lots of ways that you can get in there and help the prairie and advocate, and I couldn't think of a better way to start this season than to share some of those ideas with you, so thanks to Ellen.

Mike: Yeah, that was a very good suggestion. Yeah, the key is to get for many of us, not all of us necessarily, but most of us, it helps so much to get linked with other people to help, help get it started.

Megan: Prairie people.

Mike: Prairie people, yeah.

Megan: Prairie people will help lead you on to the prairie.

Mike: Okay. Should we, should we move on to today's subject?

Megan: Let's talk about it.

Mike: I'm, I'm excited about subject, of course, number one because it's wildlife. I say that in a nonbiased manner.

Megan: Strange for a wildlife biologist to (inaudible) 8:24.

Mike: Predators, predators it's a, it's an interesting fun thing to think about because it's something that we often don't really think that much about when it comes to prairie. You know, we so often we think about predators in a forest context, you know, but, but it's equally applicable to a prairie context and so, I'm excited about the subject today.

Megan: I'm super excited about it and I love what you wrote in our intro notes where you said that predators can sometimes get a bad rap because they will sometimes eat the cute little furry critters that we admire. And that is just part of the circle of life, right?

Mike: Circle of life.

Megan: Like prairie predators play a pivotal role in the ecosystem. How many Ps did I get? I feel like a lot. I feel proud of myself.

Mike: Alliteration there, yeah.

Megan: Thank you very much. They're a key ingredient of prairies and I think it's something that deserves a whole podcast episode, so let's jump right in, in here from our fabulous guests.

Mike: Yeah.

Megan: Kristin, do you want to start and introduce yourself?

Kristin: Sure. Thank you. I'm super excited to be on Prairie Pod. I'm an avid listener, first-time contributor, so it's pretty great. So I appreciate you guys recognizing that I worked with prairie predators in my past. I will keep up the alliteration as much as I can.

Megan: That was wonderful, just beautiful.

Kristin: Just introduce you to me, I'm Kristin Hall and I work in the Nongame Program. I'm the State Wildlife Action Plan coordinator. My career to date has been working mostly with birds, and I will admit something. I'm not a great audio birder because I have limited hearing, so I am a visual birder, which is awesome with grassland raptors, so that's my, my background and what brings me to the What's for Lunch episode is that I've worked a lot with open grassland birds. And I'm going to throw in a weird one for you guys. I worked with sandhill cranes, which you think that's not a predator. But we've actually witnessed them eating other birds little ground nesting birds.

Mike: I've heard about this.

Kristin: Yeah, so not only is it a complicated system, but there are surprises every day, so I wanted to throw that little tidbit in there that it's not all raptors that are doing the job. There's a lot of bird-eat-bird world out there. But my, my background and what I'll specifically kind of focus on today because I have worked with a lot of different birds in my, my career, but rough-legged hawks, Swainson's hawks, currently working on kestrels, have a lot of background with birds of prey, and happy to be here with you guys today.

Megan: I'm super happy you're here too.

Mike: Welcome, Kristin.

Megan: Yeah. Marsha, go ahead.

Marsha: Well, I am very privileged to be here on your first podcast. I'm very happy to share some information to share some information with you. I'm a, I'm the only, I found out I'm the only Minnesotan in this group. I grew up in, in Minnesota, in Central Minnesota, my family was very much geared towards the outdoors, so I've always had an interest in conversation and wildlife. In my teen years, it was introduced to David Mech and his work with wolves in northern Minnesota, and that's what really kind of sparked my interest in my younger years. And as I was in, when I was in college, I was able to get an internship to work at Badgers with a graduate student at the University of Minnesota, and that kind of sealed the deal, and that's when I decided I want to do research on predators. And so I was, after college, after actually grad school, after my master's degree, I did a couple temporary jobs, and then I managed to get a job at Northern Prairie Wildlife Research Center. So that, that was so lucky. And I swore Ben for the last 30 years, conducting research on primarily prairies, prairie predators, primarily predators of waterfowl, but I also worked with two species of fox that were endangered or, or threatened, one not on the prairie, it's a Channel Island fox that's endemic to the Channel Islands off the coast of California. It was a, a threatened species. We managed to get it off of the threatened list. And I worked with swift fox, which is a prairie species; it was native to the shortgrass prairies from Southern Alberta and Saskatchewan all the way down to Texas, New Mexico. And, and so I worked with them. But ultimately, my career was very much focused on mammalian predators in the prairies, and I'll just give you a little sidelight with Kristin, the, another species that's a little bit odd that you don't think about as being a predators, we've seen whitetail deer eat duck eggs and chicks out of their nests, so yeah. Little FYI.

Megan: Spoiler alerts here.

Kristin: On the secret lives of instead of instead of just predators- -.

Megan: Secret lives of animals you thought you knew.

Kristin: That's right.

Mike: Yeah, Marsha, if you don't mind, let's just start, let's start with you for our first question here. Thinking about predators and the, and the roles they play in the prairie ecosystem, quite often we talk about how they are important to ecosystems, but then, you know, sometimes it's a challenge for me to sort of articulate why we should care about predators and prey and why they should be there. Can you tell us more based on your experience?

Marsha: Yeah, I can, I can. When Northern Prairie Wildlife Research Center, when I first started there, it was one of only five wildlife research centers, federal wildlife research centers in the country. And its main focus was, and its mission was to conduct research that would better provide an understanding of waterfowl nesting in the prairie pothole region, and other birds, too, not just waterfowl, but. The, the idea was to develop management strategies that would help improve waterfowl production on federal lands. Again, I'm a federal biologist, and we got the refuges and most importantly for my work,

is to better find better ways to manage our waterfowl production areas, areas that are purchased by duck stamp money, so they're essentially purchased by duck hunters. And so the, the goal was to try to improve production in those areas and find management strategies to do that. Well, when I entered my career at Northern Prairie, I was mentored by a guy by the name of Alan Sargent, who is an amazing predator biologist. And so I got lucky and was under his wing for many, many years, and the interesting thing about when I started was that people weren't recognizing how important predators were to the, to production of waterfowl. It was habitat, habitat, habitat. You know, we got to get the habitat, which is important, not saying it's not important. But the early work that Sarge, Alan Sargent did and, and I was able to jump on was identifying the importance of individual predator species and get a better, better clue as to what was going on with waterfowl production. And so most of my research was looking at individual predator species and then identifying the importance in developing ways we can monitor those species, and then most importantly, to evaluate the potential tools that we might have to manage predation and to manage predation, not necessarily predators, but manage predation on these lands that we're responsible for, for managing for waterfowl production.

Mike: So it's interesting, so the, it's a little bit counterintuitive for, for many that, you know, we think about predation, they can do nothing but hurt these waterfowl, right? They eat the birds, they eat their young, they eat their eggs. But you're saying here that the predators had a role in, in that, in that relationship that was important that was beneficial for the waterfowl?

Marsha: I don't know if I would go necessarily that far other than the fact that there's that mesopredator release thing that goes on and there's a balance in the predator community, so that, you know, the top end predators, the coyotes, fox at one time wolves probably, I know they suppressed some of those smaller predators, which would ultimately be more abundant but.

Mike: Can you, can you explain that, that phrase mesopredator release?

Marsha: Yeah, when you've got, for example, when, when we lost coyotes, you know, coyote densities went down, racoon densities went up. Probably badger densities went up. And so we have the, the smaller predators were called the mesopredators had an advantage in, in terms of their population growth. That's what I mean by that.

Mike: Some of those mesopredators, have they had, have they had positive responses to human-dominated landscapes, too, right?

Marsha: Absolutely. Particularly racoons and red fox were, you know, to the advantage and probably skunks to a certain degree. They all had, had, you know, that, and badgers had negative influence by the onset of people. So yeah, there, there's, there's it's complicated, there's lots of ways that things can go, but human activity has definitely had a, a major impact. I don't know if the, if you want me to go into it at this moment, but particularly in the canid communities, what's gone on historically has been pretty dramatic on the prairies with the wolf-dominated prairie ecosystem back in the mid-1800s when the European settlers came. And then swift fox were here then, too. But once we had the European settlement, there was a persecution of the, the wolves, their

populations went down, but that opened a door for coyotes. And so coyote numbers started to increase and we saw a, a, a flip there. And then by the late 1800s, far more ranchers around, they decided that this growth of coyotes was more than they could deal with in terms of their, their, their livestock production, and there was coyote persecution at that time. And, and, and this is done primarily with poisons. Things that we can't use now. These poisons and then at one point, they were hunted. But so once the coyote populations were suppressed, that opened the door for red foxes. And one thing I probably should have said earlier is that what happens in these canid communities is there's interspecific competition, and the, the largest canid wolf suppressed coyote populations, coyotes avoid wolves, they don't necessarily, wolves don't necessarily kill them, but coyotes avoid them 'cause they're harassed. And so, and the same thing is true between coyotes and red foxes. Red foxes avoid coyotes. And if you've got a coyote-dominated landscape, doesn't mean that red foxes aren't there, but they're squeezed into little areas and coyotes fill most of the space. And, and so we've got, and red foxes are probably the most of those three, they're the most important predator of waterfowl, nesting waterfowl. They, they do the most damage for several reasons. One, when they're the dominant canid in the landscape, there's more miles more square mile out there because they have smaller home ranges, and they fill the, they fill the area. And then, and they cache eggs and the others don't do much of that, but red foxes, that's just innate. They cache the eggs so they don't, they don't have to satiate. They can take more and more eggs every night. When you hear stories about red foxes caching golf balls, you know, well that's just a little egg to them. They just take that golf ball away and bury it, you know. And so there's, there's reasons that red foxes are, are a negative impact, have a very strong negative impact on nesting birds.

Megan: It sounds like to what you're describing as you're describing what happens in the canid groups, right, and how some take over when others are decreased. Like I just want to sing the Circle of Life song because what it sounds like to me is that this is all a very complicated system, and the interplay between predators themselves are complicated. So it's not just predator-prey dynamics, it's predator-on-predator dynamics. And as we remove things from the complexity of this system, we change and simplify in a way that's not necessarily advantageous to the prairie as a whole, right? 'Cause it's about balance and it sounds like we're definitely not in balance.

Marsha: There's truth to that but also recognize there's always probably been dynamics in a system. And nothing is - -

Megan: Changes part of the system yep.

Marsha: Yeah, but the problem is that as human beings, we've greatly influenced that dynamic, and the, the onset of agriculture into the prairies has had a huge influence on what goes on. You think about historically ducks could spread out and nest everywhere. Of course, they were always geared into water and wetlands and, and focusing on that when they settled in, but agriculture has come in and now we've got all these acres of cropland out there, and we've got little patches of grassland where the ducks want to be. Well, you know, if you're a predator, you don't want to spend time out there in the spring on that black field that newly seeded field, you're going to go right to that little patch of grass. And so we've got the chance of encounter goes up immensely because

of how our landscape is, is, is, is composed at this time, yeah, it's fragmented and, you know, so, so one of the tools for managing predation is to try to put more grassland around. You know, give ducks more - -

Megan: I love that, I love that.

Marsha: Yeah, yeah. It's true, and it - -

Mike: That was well put, I like, yeah, it helped a lot, yet another reason to get more grass on the landscape.

Marsha: Yeah, yeah, absolutely. And, and there's data that show that in areas where actually northern prairie Ray Greenwood worked in Canada in some of these huge, huge grassland areas, and, and down here in the States, too. But the, the ratio or the relationship between grassland and nesting success is a positive correlation. You know, the more grass, better nest success.

Megan: We like to hear that for sure. I want to pivot a little bit and hear from Kristin, same question, this is great. Oh, gosh. I can already tell I wish this was a three-part episode because I'm already learning so much. So speak to us a little bit about raptors and their role in the ecosystem, and you can tie in some of the historical context also if you'd like to in your response.

Kristin: Yeah. I think it's fun that both Marsha and I are tag teaming this because I can bring us to a, a different level of the prairie that is like at the, the grass seed level. So we, we have.

Megan: I'm not talking about the sky, what, you're going to take us up high where the raptors are.

Kristin: It gets to the sky but first you got to start with the seeds in the soil and who's eating those seeds or who's caching away those seeds. And we've got small mammals all over the place within prairies that rely on those native seeds, actually. They, they don't do well in nonnative grass-dominated settings because those seeds are different and provide them with different levels of nutrition. So in, in my little microcosm of the prairie where it kind of all ties in is that we've got these small mammals out there in the landscape that are being eaten by just about everything, but one of their main predators are the aerial predators, and that is your kestrels and merlins, your prairie falcons, oh, your buteo, your open grassland raptors. So I was in my work, I was fortunate to work on rough-legged hawks in the winter, so dealing with the winter landscape. They actually breed up on the tundra, a little bit of a different ecosystem than prairies, but still open landscape, and they're small mammal specialists, so they really hone in on small mammals. They have feathered tarsus and tiny feet. They can take other birds but their, their main prey source is small mammals. So and we'll get into this later, but one of their, their main threats is people, and, and I can talk about that when we get into the threat section but.

Megan: Before you keep going, you said a couple cool words there that I want to make sure our listeners know. You said buteo and tarsus. Give me a quick what's a, 'cause for

folks who don't know how that's spelled, it's b-u-t-e-o, just so you know what we're saying. What's a buteo?

Kristin: I am a nerd, that's, those are just words come out of my mouth without even thinking about it. Sorry. Nerd alert. That's what you should say when that happens.

Megan: No need to apologize. We just want to make sure everybody's tracking what you're saying.

Mike: You're an expert, Kristin.

Megan: Yeah, you're an expert.

Kristin: Nerd is more appropriate but a buteo is a big redtail is one of the main characteristic buteos that we have in North America. They're your open grassland raptors, so they're the open land raptors. There's also the accipiter, which is your forested landscape raptors, so they're not only just raptors, but then they get into their little separate categories as well. So buteo is open, open lands raptor. And then tarsus is their legs. So most of them, like if you see a redtail perched on a utility pole or wire, you can see their, their yellow leg. In rough-legged hawks, they're, they're feathered tarsus, so it goes all the way down, that's why they're called rough legs because it's feathered all the way down to their feet. They're super fuzzy and warm if you ever hold one in the winter, which is a rare, rare thing to do.

Megan: Please, listeners, don't go try to hold a hawk, just don't.

Kristin: Don't just hold a hawk, that's true.

Megan: (Inaudible) is a wildlife biologists that are trained and do studies on them. Also, I'm going to start referring to my legs as tarsus because I just want to, it just sounds better. Look at my nonfeathered tarsus.

Kristin: Right.

Mike: And I was going to say I am rough-legged as well, so.

Megan: Okay. This has gone down a road. Please continue, Kristin, talking.

Kristin: Well, aside from the small mammal piece, the, is a nice prairie dynamic, and it is dynamic. I'm glad Marsha mentioned that. Like it, it isn't a static thing where you just have this predator, eats this thing, and that thing won't get out of control, and eat that thing. It's constantly changing and that flux is important, you know, the, that prey-predator cycle where you've got the bounce in prey and then you get the bounce in predators. We have, I don't know, snowy owl eruptions that are caused by those things. And those are normal. Those are part of that dynamic system that we really need to recognize as being normal, not an anomaly. That's just part of the system and how it kind of plays out. Another piece of the raptor part is that they do eat a lot of insects, especially our kestrels, which is my, I have to say it's my favorite bird, and it's like saying it's your favorite kid. I'm putting it out there, I'm sorry, they are - -

Mike: I've heard a few people say kestrels are their favorite bird.

Kristin: They're just so - -

Megan: This one is your favorite kid just while we've got you on the line. Just kidding. Moving on.

Kristin: I love them both equally.

Megan: There it is.

Kristin: No. Kestrels are phenomenal, they're tiny and fierce and just they play a really important role. They do eat a lot of insects, especially when they're nesting, and that's part of their protein base, and it's more so than you would really realize. They're known as like the sparrow hawk or small mammals as well, but they really do eat a lot of insects, and that's another balance in the prairies, especially for like your grasshoppers or things like that. Like you need to have some sort of check and balance in there to kind of make sure that we don't have a plague of grasshoppers kind of clearing out the prairie plants as, as they need to establish, so. Those raptors have a really great niche that is super fun to learn about and understand.

Mike: Kristin, can you talk to us a little bit? I know a lot of these hawks, raptors, are, are having some trouble, and you touched on it earlier. Can you talk a little bit about that, their status and, and, and what's going on, the threats for them?

Kristin: Yeah. You know, one of the main drivers is the habitat change and that fragmentation in the landscape, nonnative grasses that are coming in, that affects their prey base, all of those things are part of the, the piece, picture as to why they're declining. I, I would throw out that our climate issues are definitely first and foremost in that. There's a lot of asynchrony and seasonality of things now, and so you've got different, different things blooming that cause different bugs to come out at different times, and if that's not in sync with the nesting season of your kestrel, for example, then their, their base or nutrients that they're currently relying on is changing, and those adaptations aren't happening as quickly in the wildlife side as they are on the landscape side. So I think climate is a, a major reason and major reason for these declines. And then there's, there are being a predator, there is that persecution piece of things. You know, it, it is, it used to be a mindset to control predators to do your part for conservation, and that is not at all the case, and I'm sure Marsha has a lot to say about that as well. You really do need predators in the landscape. I worked in Montana with rough legs and they were constantly shot off of utility poles. And one of the big pieces of our research was finding out that they were shot and not electrocuted because that's another main factors for raptors that perch on these poles is they do get electrocuted and the utility company had been working on retrofitting problem areas and was wondering why are we still finding dead hawks on these poles. So we were out there researching the hawks anyway and we, we were able to collect them and take necropsies, which is an autopsy for wildlife, and find that they were actually shot, and then that, that drove on an education campaign that these birds, specifically rough legs in winter, are small mammal specialists, they're not preying on pheasant or, you know, some of the, the economic high-level birds that people want in the landscape. They're, they're actually not your competition, they're actually helping you out. So it's, it's a lot of education and based on how these systems are complex and it's not just the predator is

the bad guy, they really are helping the system in ways that are maybe not direct, but that secondary complex system is, is a tough one to understand and get out there to people to understand.

Mike: I was going to say that my dad, he told me when he was, you know, a boy back in the '40s and '50s, you know, living in a, in a farming community, that he was, you were dutybound, you were obligated to shoot raptors when you had a chance. Like if you didn't, you were doing something bad, you're taking a, a predator.

Kristin: And that, that's a, as much as it was historic context for, for doing your part for conservation, it still happens today, and it, it, it is kind of that mentality or tradition that is hard to, hard to break and change, but I do think that with, I don't know, more news and more evidence out there of seeing how the landscape is changing and how, you know, I used to drive kestrels are a great example. I constantly hear people say I used to see kestrels on the wire all the time, and now I hardly see them at all. And that's in a 10-year period. What's been happening? And they really have declined precipitously in the last 20 years, and we're really trying to find out why. Part of my, my research with the DNR with help of a bunch, bunch of people that love kestrels as well is trying to figure out where they're most vulnerable and what those gaps are in our knowledge to figure out what is the main threat to these birds. They eat a lot of insects. That might be where, that's what I suspect is the window, but.

Mike: Possibly, yeah. Yeah.

Kristin: Also declining.

Mike: What are, what did you say?

Kristin: Insects.

Mike: Oh, yeah, yeah, absolutely. Marsha, in the, in the mammal world, you talked a little bit about their, some of their complex species interactions there. What do you think, what are the threats to some of these species and you know are some of those mammals in trouble?

Marsha: In terms of the predators, I don't think there's, I don't think there's any really in trouble, but they do have human impacts that affect them. And, and that's, you know, part of what we saw in the historical context, too, that it was human activity that had a great deal to do with what happened with the canid community, and then, yeah, but most of these mammals are not very specific. They're most of them are pretty opportunistic. For example, I would be willing to bet quite a bit of money that if you took all the ducks off of the, off of the prairies, the mammal could be just fine. They would, you know, there wouldn't be any problem at all. But they can be impacted by human activities, and so some of it's shooting, you know. Back in the, the, the '40s, '30s, '40s, North Dakota was far more, the population was dispersed and there were a lot of people out surprisingly. But they were dispersed. So every little farm kid had their .22, and any time they saw a hawk or a badger or whatever, they're plinking at it, so there was a depression of populations just because people were there. We're not, we don't have that kind of population out here any longer, so I think the bigger problem is, is, is just their interactions with each other, and then there is persecution, there's no doubt about

that. It's regional or it's local, it's not necessarily throughout the prairies. And also, these animals, you know, there, there's also disease issues. You know, skunks suffer from rabies regularly but most of the time we never know it. We can lose a whole part of a population in a region and then it, they work their way back, they're so adaptable, their reproductive rates are so high, they disperse so well that they can make it back. And that's true with many predators. You know, high reproductive rates, they can, they can withstand a lot of pain and still the population can recover. So, you know, it's, I don't think it's quite as, it's not as critical as it is with the hawks I don't think in terms of how these mammals can adjust and adapt and make a comeback when they have a, you know. Another brief example, we had mange in fox and coyotes in North Dakota and, and other places in the late '90s, it, I mean it, you'd hardly see a fox or coyote around, you know, for years, and now they're making their way back. It's taken a little time but we have really strong coyote population and, and foxes are making a comeback now, too, so.

Megan: And that comeback is reliant on having the habitat there, you know, so that they can have a comeback.

Marsha: To a certain degree but the challenge that is for example, the City of London probably has one of the highest red fox densities in the world, in the town. Chicago is filled with coyotes. You know, there's, there's telemetry studies working on coyotes and fox and racoons in the city of Chicago. These animals are so very pliable. I mean, they're adaptable. They can, they can, they can do it. But they do, you know, I think it's that, that persecution by human is probably a stronger, has a stronger impact than the habitat might because they can live anywhere.

Megan: And there might be differences for some of the species, like the whole - -

Marsha: Oh, absolutely, yeah.

Megan: - - look at the whole larger home range, you might then habitat might go higher up the list or, or not, but yeah, that makes sense.

Marsha: Yeah, yeah, for sure. And how very numerous they are, you know, what, I mean, skunks eat a lot of insects, you know, eat a lot of insects. So, you know, and, and so do, you know, I wouldn't put it a lot with foxes, but they eat insects, too. They eat a lot of grains, waste sunflowers are big on many predators' list of things to eat. You know, they go into a sunflower field with the chaff or whatever that's left after harvest and they're eating that. So yeah, they just are very opportunistic and they can deal with some of these, these changes, these dynamic changes.

Megan: That's super interesting. I want to ask there's a couple things I want to hit on quick, and one is we've been talking about kind of their, their role and how dynamic the system is, and it can change, and the predators can adapt and respond to those changes. As we know, when you're on a prairie, nothing ever stays the same. That's the golden rule of prairie management, get comfortable with change because that is what the prairie is able to do season to season and it sounds like the wildlife that are adapting to the prairie are well-equipped to deal with some of those changes. One thing, Kristin, I'm wondering if you could just summarize really succinctly if someone said to you why

do we even need predators anyway, what are their benefits? We've kind of delved into the long story and I'm wondering if you can give me the quick and dirty short story of what are the things that you would put into a list to say this is why we need predators? I know, this is a hard one. You're welcome.

Kristin: Yeah, thanks. That is, well, you know, I actually, my most succinct answer is somebody's got to clean it up. Like and, and that goes to, that goes to the, the carrion eaters of the world, that goes to like there's a lot of turnover in the system, let's say, and we didn't have our vultures and raptors and things to kind of come along and make use of those existing proteins on the landscape, then, then it would be quite a mess out there. So I think it's a tight little system when you think about it in the, in the triangular shape of here's the prey, well here's the herbaceous base, and then there's the prey base that eats the herbaceous, and then there's predators that eat the prey. And that system keeps, keeps things kind of clean. It, it would be a mess without predators. That just - -

Megan: I watched a video, that was wonderful. I watched a video of a, a badger burying a carcass. I can't remember if it was a bison carcass or if it was a cattle carcass, I'm not quite sure what it was, but it was phenomenal. This badger like managed to basically store the remains of this animal underground I imagine for several meals for its family, and it was just incredible its digging capacity and its ability, like the, the video was timelapses, so you're just watching it and it's just like dig, dig, dig, bury, bury, bury, dig, dig, dig, bury, bury, bury, it was fascinating. Like they have an incredible ability to recycle, essentially.

Kristin: Yeah, they're good recyclers, I'll give them all the credit, recyclers, garbage carriers, whatever you need to call them. They're awesome.

Marsha: If I can add a little bit here, go on to Google or somewhere and just go into look at how wolves have changed the ecosystem in Yellowstone National Park and how the improvements in the whole ecosystem because they replaced or they brought wolves back, they were able to reduce the numbers of elk that were destroying the habitat, and it's a, it's just a, a fascinating interconnectedness that just returning wolves to that ecosystem has improved the park immensely. It's, it's a fascinating story.

Megan: I'm glad you mentioned that one, Marsha, because that video is also super cool where they do a timelapse of looking at the, what am I trying to say? The riverine habitats, so the edge of the river basically where there was, you know, riparian, thank you. Where there was lots of sediment erosion because the movements of the ungulates in Yellowstone were basically changed when the wolves were brought back, so it led to a decrease in overgrazing or just kind of loafing in some of the same areas, and I thought that was super neat. So I'm glad you mentioned that one. We, so I'm going to ask a question.

Mike: Hey Megan?

Megan: Yeah.

Mike: Sorry to interrupt. It makes me think about bison. Is this something else that we're missing from today's prairies is, is, is not just bison themselves and their very obvious

role and there's a disturbance, but the relationship between bison and other predators, particularly wolves and how that impacted, you know, bison movements and how that led to maybe I'm really making things up as I talk here, but like (laughs) - -

Megan: That's what we like to hear on the science-based podcast. (Laughing)

Mike: I think there's got to be parallels between like what we're talking about happening at Yellowstone and what we're talking about in this system in prairie. I just suspect there was something similar. She had another challenge, yet another thing that's missing from today's prairie that we had to somehow compensate for in our management.

Megan: Which brings me to my next question, Mike. Do we need to manage predators? Like that's a, that's a question that we get asked a lot as wildlife biologists is, or we're told that it's something that we need to be doing, and I think Marsha gave a really great illustration earlier of okay, well if you take away the wolves, then you have coyote. If you take away the coyote, then you have fox. You take away this, then you have that. It seems like an impossible thing to try to manage them and keep up with the dynamics of the system and sort of we can't set aside that humans are part of this system now, so how would you even, is that something we should even be doing? Marsha, I punt that to you.

Marsha: Okay, I think you have to look at it at a different level. And if you want to look at the prairie ecosystem, I think we've got problems being able to tackle that. But you, and I'm not talking about, I, I never talk about managing predators, I talk about managing predation. And you can manage predation, particularly at a local scale. You know, right now for, for waterfowl to sustain their populations, they have to have 15% to 20% nest success. In a lot of places, they're not making that. You know, it's much lower than that. And so we do have some responsibility to try to improve that through management, and you can do that through things like there's peninsula cutoffs and islands, or some way to separate the carnivore, the carnivores from the, the nests. That does, that does work under the right conditions. And so there, there's, or you can manage for coyotes rather than foxes. You know, so, you know, you don't want to kill all the coyotes out there, leave some. It's okay to harvest them, I'm not going to call the fur bearers that they, fur bearer that they or the hunters that they can't hunt coyotes, they can, you got to keep the numbers down, but it's okay to have them because they reduce fox densities. So that's a biological that you might be able to, to approach canid or predation issues.

Megan: I'll be honest, I like something that you said earlier. I want to just touch on it really quick 'cause it makes me super nervous when we start talking about one of our strategies being kind of manipulating the landscape or engineering the landscape to a certain end like where we're creating artificial islands or we're, we're reducing connectivity so much of what Mike and I talk about it on the Prairie Pod is increasing connectivity, so always makes me a little nervous when we take this engineering approach, I guess, a little bit to the landscape, so something I want to make sure we call out that you said earlier as one of the best things we could do is to get more habitat to try to - -

Marsha: Absolutely. Absolutely.

Megan: - - try to rebuild and make connections as maybe our first, first try, right? Our, if there's tiers, right? That's like level one gold star, let's try to build more habitat, get in better balance.

Marsha: That's number one gold star just takes longer. It takes longer, yeah.

Megan: It does.

Marsha: And, but I agree with you it's number one gold star, without a doubt. We need more habitat and we need, you know, the, the one study that I didn't do, I retired too soon, is there, you know, there's, we want these big grasslands, but then we have to decide where we want the wetlands because the wetlands are drawing the predators into the grass. So if you can keep the predators towards the edges 'cause the birds will still be in the middle, you know, if we can keep, and these are mammalian predators now, and I'm speaking specifically fox and racoons and skunks are really drawn to wetlands. So if we can manage the landscape, you know, in a big scale to try to make it advantageous for ducks to be there, and not encounter predators, yeah, I mean, like I said, that's the one study I didn't do that I would have like to have done. But, you know, landscape, lots of grass is great.

Megan: I love that. Lots of grass is great. That's a tagline.

Marsha: Yeah.

Mike: Yeah, that would be a good one. So yeah, we've covered raptors, we've covered mammals. I just want to think for one minute about the diversity of predators that are out there on the prairie. And yeah, we're kind of just scratching the surface here with, with mammals and raptors, even though they are, of course, super important. How about the insect world, right? That has a huge influence on the ecosystem as a whole, so I just wanted to bring up a couple of, well actually, one is not an insect, one is a spider. But two, two little critters that are really cool that I encourage listeners to check out. One is the assassin fly. Okay. And people usually call the assassin fly a robber fly. I want to start a campaign to go with assassin fly because it's a much, it's a much cooler name, and it's much more biologically accurate. Okay? But these, these are, these are in prairie and.

Megan: I'm sorry to just, I'm just sorry to interrupt you, I'm just thinking here. You know, Chris Helzer has a great radio, he's lead scientist for The Nature Conservancy. He has a great video about how to bring people into the prairie and it's, you know, a great little stick figure progression of how us scientists, right, can get really excited about these things. I don't think if you're a person listening and you're new to the prairie, that calling something an assassin fly is going to make you excited about taking a hike in the prairie. I'm with you. It's a more accurate name, but maybe we should just ease people into it a little bit.

Mike: They, they kill other bugs, they assassinate other bugs.

Megan: See, so you want to come to the prairie because these flies are here and they're helping - -

Mike: But they're, they're really cool looking. Yeah, just go online and look at some info. Better yet, of course, go out in the prairie and find them. Once you, once you get an image in your brain on what they look like and, and sound because they, they buzz very loudly.

Megan: Oh, great. I can think of nothing less terrifying for a newbie prairie person than a loud buzzing of the assassin fly.

Mike: They're not scary, all right? They really aren't.

Megan: Okay, all right.

Marsha: Let's call it a 007 fly. A little more mystery, little more, you know, intrigue. I think that assassin might be rough.

Megan: (Laughs) Tell me about the crab spiders.

Mike: That's, that's one very cool, one very cool insect predator. Another one is, is the crab spider. So these really are beautiful little spiders, and they're little, like less than an inch in diameter. And they're, they're on flowers, and they're, they're slow, they can't see very well, but they're excellent at sitting there being in camouflage and they actually will change color to match the color of the bloom. And they only ambush insects or other bugs as they come to the flower to nectar or whatever, and yeah, two very interesting and, and cool predators in the, in the ecosystem, in the prairie ecosystem.

Megan: This is great. We could keep talking about this forever. We've got to move on to our next section, but this has been just so enriching and I really, it's recommitted me to wanting to do a Predators Part 2 because there's so many things to think about and talk about and, and work through, and so many different groups of predators because as Kristin was describing those different levels of the ecosystem, right, in the really simplified way that we look at it, like there's things that are eating seeds, there's things that are eating plants, then there's things that are eating. Things that are eating plants and then there's things that are eating those things, blah, blah, blah and it goes all the way down. But it's so much more complicated than that. It's the web, right? It's not this things don't necessarily stay at the same level all the time. They're integrated and especially like Marsha said, if there's, if there's omnivores in the system, then it's all out the window and everything's crazy complicated in the best kind of way. So let's move on to our next segment.

(Music playing)

LET'S SCIENCE: To The Literature!

Science!

All right. This is the part of the podcast where we recommend a book, a blog, or a paper, and so I'm going to start with Marsha. What is your pick for the day? Tell us a little bit about this book you chose.

Marsha: I, I chose a book called The Invention of Nature, Alexandra von Humboldt's New World. It's by Andrea Wulf and it, it ties into you're talking about how this is all complex and tied in 'cause it's exactly what, what von Humboldt did. He was an 18th

Century basically version of a modern environmentalist that we would have right now. He knew about everything and he knew everybody, just the most fascinating man, traveled the world, knew people like Thomas Jefferson, influenced people like Darwin, and just an incredible mind that this man had. But he was basically showing the interconnectedness between the world and the, and, and treating the earth as an organism and how it's all interconnected, and, you know, he pointed out that we could very catastrophically damage our earth by our human activities, so it seemed like apropos for the time and just such a fascinating man. It's my favorite book. I think everybody should read it. Just really interesting.

Mike: I want to check it out now.

Megan: Me too.

Marsha: Yeah, it's worth it. Yeah. Really did, yeah.

Mike: What's your pick, Kristin?

Kristin: My pick is a blog, and I'm, I'm not a blog, you know, it, it just came to me at the right time, it's from a mentor of mine early in my career. I worked on American Dippers, which if you want a fascinating bird to talk about, I could go forever about that bird. But my mentor and now friend at the time put together this blog. She's a conservation biologist and now conservation writer, and it's called Words for Birds. So it's just www.wordsforbirds.net. And she has various examples of her writings, she touts other organizations that do good work for birds, and one of the pieces in there is Summer Hawk Winter Hawk, and that's, that's just so right on for what I got to talk about today, so I thought I'd throw that one up there. Her name was Sophie Osborne and she lives in Montana, and has done great work for raptors and just bird conservation in general, so Word for Birds is pretty awesome.

Megan: I love that as we describe these different references, you know, one of the things that I want to make sure is clear, and I think if you're a regular listener to the Pod, you already know this, right? We talked about how important partnerships are, but the partnerships expand beyond Minnesota. We can benefit what folks in Montana are doing, what their prairie is doing, we can benefit from what's happening in Pennsylvania, Illinois, Idaho, Iowa, oh my, it's everywhere! Like where there's prairie, we should be learning and connecting with each other because that is part of figuring out this big complex system. And as our colleague always says, no one person has all of the resources, tools, or abilities to figure it out, so we put our heads together, which is the whole part of what this podcast is about. We are just better for it. So I just had to point that out 'cause I think it's nice that we're mentioning all these different states today.

Mike: Hey Megan.

Megan: Yeah, Mike.

Mike: Take a hike. I've been waiting so long to say that after, after we stopped recording. Take a hike, Megan.

Megan: Oh, my gosh. I think we should all hike together, Mike, since we're talking about partnership. All right, Marsha, let's start with you. Where are we hiking today?

Marsha: Well, one of my favorite places to go is in central North Dakota, it's called Chase Lake National Wildlife Refuge. It's where there's a at one point it was the largest pelican colony in North America. It's since dwindled a little bit just because of rising water and the island is getting smaller. But it's native prairie and it's away from the world, kind of out there where nobody else is, and it's just a lovely place to spend an afternoon and watch the pelicans soar and, you know, lots of other birds that, that it's a great place for birding. And it's, it's very peaceful. That's where I like to go.

Mike: I like the sound of that.

Megan: I like pelicans. I'm just fascinating by them. Their, their bills are just so big, it's improbable.

Mike: How far away is that, is, is Chase Lake from Theodore Roosevelt?

Marsha: Well, Chase Lake is closer to, it's, it's right in the middle of the state, basically. Yeah.

Mike: I was just thinking if I made a trip to Theodore Roosevelt, I could stop by.

Marsha: Stop off the freeway in Medina and go north 15 miles and you're there.

Mike: Sweet.

Marsha: And at one point, they had about 19,000 nests on the island at Chase Lake, pelican nests, yeah, so it was a major, major event out there.

Megan: That's awesome.

Marsha: You want to talk about pelicans, call me, because I studied them also, so.

Mike: Marsha, what have you not done?

Megan: Yeah.

Marsha: I'm old.

Megan: We prefer the word experienced, knowledgeable, expert.

Marsha: It's fun.

Megan: Kristin, what's your, what's your pick?

Kristin: Well, gosh, all of these, I love Theodore Roosevelt National Park.

Marsha: I do, too. That would be my second place, yeah.

Kristin: So shout out to that. I also like Neal Smith Prairie Restoration in Iowa, but that's another thing I'm going to talk about right out my door because I am full-time working parent of goats and dogs and kids, and I don't have much time to take a hike. But oh, my god do I need it all the time I need to take a hike. So.

Megan: Is it in that order, goats and then chickens and children? Is it, is that the order of - -

Kristin: It's dynamic just like all systems, it's very dynamic.

Megan: There it is.

Kristin: But I will give a shout out to Browns Creek. It is right, I actually do live on part of the trail, I live on a little lake called Lake Miccosukee in Stillwater, Minnesota, and Browns Creek kind of runs around that, and there's a biking trail that gets you right to downtown Stillwater. But the prairie piece of it that is so cool is it's kind of a nice example of the prairie hardwood transition zone that is in the middle of our state, and there are little openings that they have restored or cleared of invasives and whatnot. And those openings provide you with a bunch of edge, and when if you're a birder, edge is such a great spot to stop because you get a ton of different birds. A good, a good friend of mine, Joanna Eckles, who works for American Bird Conservatory, she lives right up the road from me and we go there with other larks, awesome group of people that I bird with, and we see the warbler wall is what we call it in the springtime, and you just stand in the prairie part and watch all these birds come out as the sun comes out and they are singing and it is awesome, and it's just right out my door.

Mike: You are lucky.

Megan: Warbler wall.

Kristin: Warbler wall. I mean, you can't beat it. We also go and listen for like woodcock when they're doing their sky dance in the spring. I mean, it's, it's a gem, and it's so close.

Megan: Man, just thank you both so much for being here and sharing your knowledge and your expertise. We definitely, Mike, you said we scratched the surface. That, this was a light scratch on the surface. There's so many more things we could talk about with predator dynamics in a system. But I learned a couple key takeaways.

Kristin: I'm going to interrupt you, Megan, because the mention of grazers, that's I hope you guys have like seven episodes dedicated to grazing in the prairies and, and that, 'cause that's a huge, all he said was the word bison and that's all it got. It deserves a lot more attention.

Mike: So true.

Megan: I know. We did a whole how not the cow, but they're, all of these topics. I mean, we could go on and on. We're just building in work and job security for ourselves because, because the prairie, this is what I learned today. I already knew this, but this reinforce prairie is ripe with change, it's a dynamic system, the wildlife that live in it are dynamic, and it is just going to take hundreds of thousands of us to figure this all out. That's what I learned. Diversity, habitat, all things that are important. Oh, man. Next week we'll be chatting with Angela Miner, Ben Carlson, and Travis Issendorf with The Nature Conservancy, and they're going to share all of their secrets for how to make reconstructions more diverse through targeted seed harvest and production, sow what - more seeds of course!

Mike: Sow what.

Megan: That's what we want to be sowing. More seeds. So we will learn the more diverse a restoration is, the better chance it has at survival in the face of climate change, invasive species, and so much more. I'm pumped for this episode, pumped for this season, season 5, feeling alive.

Mike: I will say that I was very happy, you know, we, we cohosts of you, Megan, are rotating. I'm happy that I got this one. I really enjoy talking about predators and wildlife.

Megan: I thought you were going to end that sentence differently, but I'm glad that you took it in the direction that you did. I thought you were going to say I'm glad I get a break, but--

Mike: Well that, too. Yeah.

Megan: That's good, too. As always, you can find all of the links of the things we talked about today, our resources, references on our website at mndnr.gov/prairiepod. This episode was produced by the Minnesota Department of Natural Resources Southern Region under the Minnesota Prairie Conservation Partnership. It was edited by the magnificent Dan Ruiter and engineered by the fabulous Jed Becher. Man, we'll catch you next time. What should we say? See you later, alligator. That's not a prairie predator. (Laughter) I need, we need something that rhymes that hawk.

Mike: I was just going to say let's just say sparrow hawk.

Megan: Well, that doesn't, that leaves Marsha out, we could say like sparrow hawk FOX. That would just be terrible, Mike. I can't think of anything clever to say.

Marsha: How about everybody has to eat?

Mike: That’s a good one.

Megan: Everybody has to eat.

((sounds of birds chirping and wind blowing))