

Transcript

Speaker 1: You are tuned in to 90.7 FM, k a l x, Berkeley. My name is Tesla Munson and this is the graduates, the interview talk show where we speak with UC Berkeley graduate students about their work here on campus. Today I'm joined by wildlife ecologist Morgan gray from the department of Environmental Science and policy management. S bomb. That's right. Environmental Science Policy and management, environmental science policy and management. That's great. We can talk about all of those things. You know, it's a mouthful and hopefully [00:00:30] a department full as well. So thank you for being here today. No, thank you for having me. Not a problem. So let's start right at the beginning. Environmental Science Policy and management. What? What is that? Come on. Tell me. So it's a multidisciplinary department. It's within the College of natural resources and it looks at organismal ecosystem level and social science. So all three of them and how they interact to inform our understanding of the environment.

Speaker 1: Okay. So the word [00:01:00] policy sort of, it implies that you guys have a cause. So you say we interacting with the environment. So it's, it's very specifically concerning human interactions with the environment and how we can modify that for us and shape policy to to conserve biodiversity and protect agriculture and make sure that humans across the world have access to food and resources. And what is biodiversity, if you had to explain that to the public, biodiversity is a measure of how [00:01:30] many types of life are in a certain space and how they're organized. So is there a lot of one organism or is there a diverse number of many organisms and hopefully it's the latter. You have a lot of organisms that are abundant in your environment. Was that, why would you want a lot of organisms? Is that, why is diversity a good thing?

Speaker 1: Diversity tends to correlate with stability and that is really important, especially in light of things like climate change. [00:02:00] If we only have one organism and climate rises for example, and that organism can't make it, what are you going to have left? Zero organisms. But if you have a whole suite of organisms, a couple might die out, but then you'll still have some guys left. So we're talking about a pretty large network then, not just like in one small area or can it be one? I mean you want a lot of diversity widespread or just in one area or both? That really depends on the question. I mean, [00:02:30] usually I think conservation biologists tend to lean towards improving biodiversity everywhere more is better. And since I don't really know much about this at all, but I've been in California a few years now, I've heard a lot of things about redwoods and how they don't actually have that many species in like a redwood system.

Speaker 1: Is that, is that true? Or, I know more about animals and plants, but I do think that redwoods are [00:03:00] interesting in that we've recently found out that they're clonal. So you'll have a whole standard redwoods and it'll actually be one individual. And so for example, if that redwood stand dies out, it's not just one tree, you'll lose, but you could

leave, lose hundreds of stems. Same thing I think is true for willows or other organisms that have roots under the ground that can shoot up stems. But as you mentioned, you don't study plants, you study mammals and and fairly large ones that [00:03:30] are at least a carnivorous ones cross kind of a wrist ones. I study mammals that are on the land, so terrestrial mammals and I really like carnivores. So I've worked with um, Pumas or mountain lions, um, gray foxes. I've got some work with bobcat's and a little bit of work abroad with jackals.

Speaker 1: Okay. And the word carnivore, I know it's a little confusing in terms of like taxonomy versus food choice. So when you are talking about carnivores, what does [00:04:00] that group include? Um, the two types of carnivores I work with are typically in the common jargon, cats and dogs. So, um, big animals with for like give milk and that eat meat. Very cool. And how did you get interested in this? Have you always been interested in carnivores? I have always been interested in carnivores, but I'm the first person in my family to graduate college. And when I graduated college [00:04:30] I thought I should use my degrees. So I got a degree in integrative biology here at Berkeley and had some genetic background and went into the biotechnology industry here and worked there for about 10 years. Okay, so you're a Berkeley Grad? Yes, I'm a bear. My golden bears ruined.

Speaker 1: True. And how was your undergraduate experience here? Must have been not that bad if you're still here. No, I love Berkeley. I moved here in 1996 and I've stayed all of them the whole time. Yeah. [00:05:00] Where are you from originally? I'm from Gilroy, California. Okay, so California girl. Yes. And that maybe explains why so much of your research is California focused? Definitely. Okay. And can you tell us about some of the projects you've worked in or, well, let's, okay, first let's talk about biotech. That's correct. So you spent about a decade in biotech and that is what we call the private sector, which is very different from, you know, graduate school and academia. Can you maybe tell us a little bit about those differences? [00:05:30] Well, the one primary difference that I recognized in the biotech industry was that it's very profit driven. It's very quarterly driven. So every quarter we had to have a result to present to our shareholders.

Speaker 1: And like if we did good, our stock price would improve and we would feel good. And if it didn't, um, we didn't do good, we can't get laid off. The money was really good also in biotech. Um, but for someone like myself who spends a lot [00:06:00] of time thinking creatively about like what I wanna do and I really want to be fulfilled with my work, having a routine job in a lab or even being a project manager, um, just wasn't intellectually satisfying for me. And so I decided to take the pay cut and come back to school to be a graduate student in a field that I really was passionate about. It is a pay cut. Yeah. I can't lie. It's a really huge pickup. So [00:06:30] did they let you work on carnivores and biotech or is that done? Not even contemplate? That didn't even come into play.

Speaker 1: What were you doing there? Um, I was developing genetic diagnostics for a company that would look for genetic diversity in cows, for example, and provide that information

to cow breeders for like which cows make the best milk or produce the best steaks. And then we'd give that information to them and that would inform their reading. I also worked for a company that did a genetic [00:07:00] diagnostic for breast cancer. And so that was more satisfying because several people unfortunately that I know or diagnosed with breast cancer and I could actually direct them towards some care that could improve their, their outcome. But ultimately you decided research, uh, in conservation and research and wildlife was more your style and academia was more your style? Well, it, it took a stint at the Monterey Bay [00:07:30] aquarium. I volunteered there for two years. I'm tracking Seattle's along the coast and learning that you could research this type of stuff and you could have a career in this.

Speaker 1: Like I said, I was the first person in my, in my family to go to school. I didn't even know what graduate school was or what academia was all about. So it took a while for me to realize like, Oh hey, this is an option and it's actually a really good fit for me. So how did you find out that graduate school existed? [00:08:00] It was all at Mountain Monterey or did you have a person to help you or it was, well I had several friends who were graduate students, but I just didn't really ever, they were in molecular, molecular and cell biology program, so that never resonated with me. But when I realized you could study animals and you could serve them and you could do that in Grad school, somehow that combination hadn't occurred to me before. Meeting people at Monterey Bay Aquarium. And you, [00:08:30] you said you were attracting sea otters.

Speaker 1: How do you do that? You go out along the coast and you have a radio box and you wait. Well take a step back. The Monterey Bay aquarium has a Seattle Research and conservation program, so when Seattle's are stranded they are brought into the Monterey Bay aquarium. And if they have a good chance of recovery, Monterey Bay aquarium will equip them with a radio transmitter and rerelease them into the wild. My job along with probably like 70 [00:09:00] to 80 other volunteers, was to go out and track these auditors every single day. So I would go out once a week with a radio transmitter box and listen for the signals of the otters. And then when we heard that signals for the auditors, we would look through a telescope to confirm their identity based on this combination of tags they had on their flippers. And so like I would spend the day driving up and down the Monterey Bay coast looking for orders and finding them and just [00:09:30] loving every minute. I was going to say I do that all the time. Yeah, it was really fun. That sounds great. And this actually this in July, I'm gonna go back, um, and participated in a woman in science program with the aquarium and taking out high school girls and showing them how to track orders and like trying to get them excited about science. So I'm really looking forward to going back and also sharing some of my excitement with other girls. No, that's [inaudible].

Speaker 2: Great. We'd love to talk about outreach here on the graduates [00:10:00] program. Can you tell us a little bit about what women, women in sciences,

Speaker 1: it's a program to try to expose other young women to all the different types of careers that can exist for women in science by connecting them with researchers and scientists that are women. So just like it sounds, I guess

Speaker 2: that's really great. If you're just tuning in, you're listening to KLX Berkeley 90.7 FM. My name is Tesla Munson and this is the graduates. [00:10:30] Today I'm joined by wildlife ecologist Morgan grey and we're talking about diversity, biodiversity, wildlife, and we're just about to talk about some of your projects that are currently ongoing with carnivores. So what are you working on now, Morgan?

Speaker 1: So right now I'm looking at how landscape ecology and animal behavior can inform conservation planning. So in short, that's looking at how does human [00:11:00] land use affect how carnivores specifically use the environment. Can we use that information to inform where we should conserve habitat or, or to do restoration programs?

Speaker 2: Should we be afraid of carnivores to Californians want carnivores like in our backyard? I mean, I know it's a big state, but

Speaker 1: that's a really good question. Um, I can't speak for everybody. I guess carnivores are fearful to s or people are fearful [00:11:30] of carnivores. Um, but my understanding is that we have a lot of carnivores around us all the time. They tend to leave us alone. They don't want anything to do with us. Really. One of the projects I'm working on, um, looks at how human land use in the Santa Cruz mountains influences how the mountain lions in that area use the land. And maybe it might come to a surprise to some people, but there are a lot of mountain lions in the Santa Cruz mountains all around the [00:12:00] Santa Cruz region. And they are rarely seen by humans. They don't want to do any of their behaviors. There was recently a paper published by Chris Wilmer, his lab at UC Santa Cruz that was showing that mountain lions will use land by humans houses to maybe walk by.

Speaker 1: But in terms of their more discrete behaviors like hunting or meeting, they prefer to stay far away from him. And so I don't [00:12:30] think we should be afraid of mountain lions, for example. And other little guys like gray foxes, we shouldn't be afraid for our own safety, although in some areas I have heard that they could maybe predate on pets. So gray foxes and coyotes could be a little bit on favorite in that way. So you work on mountain lions and gray foxes? Those are your carnivores of choice right now. Yeah. Nice. Okay. And I read something about land use [00:13:00] and maybe corridors. Do you work with this idea of land use corridors? Yeah, so the lab I'm in, um, which is my PII is over. My primary investigator is a dean American lender and she's pioneered a lot of work with corridors. And so that is really the idea of corridors, um, is really important in a state like California where we have this mosaic of human settlement interspersed with natural environment.

Speaker 1: [00:13:30] The Santa Cruz mountains are a great example of that. Where you have like through highway 17 was beautiful mountains and then it just comes to a stop right at San Jose. And like even here in Berkeley, Tilden Park up in the hills, you know, it a butts Berkeley. So there's a lot of places in California where we have natural type of habitat, like developed human developed land and then more natural and then more natural habitat. [00:14:00] And so corridors would connect the natural habitat to one another and would allow animals to move through them plants to, but like I said, my focus is on animals. Okay. So it's literally like what it sounds a corridor is to help facilitate animal movement from one piece of land to another. And ideally ones that are unoccupied by humans are not a lot of human settlement. And so what's the purpose of that?

Speaker 1: Is it just to create more space? [00:14:30] It's to create more space. It's to allow for migration and to allow animals to move from one place to another to facilitate the maintenance of biodiversity. So going back to that conversation we had earlier about biodiversity, if you have an extinction in one of those patches, but you have a corridor that connects to another patch, you kind of provide an escape route for migration of those animals. And this is also becoming really important with climate change. [00:15:00] As some patches are going to get hot, you'll have a corridor that can be an escape route to like a cooler patch to allow some species persistence. And what, what kind of things make up these corridors? I've seen photos of actual arches over roads like covered in grass. Those are awesome. So those would be like corridors that crossroads. There are also corridors, um, between vineyards in Napa and Sonoma for example.

Speaker 1: And it's just areas that are not developed into [00:15:30] ag land, for example, are far from roads. Um, don't have human habitat on them. And other countries like Gla and South America for example, they have practices of surrounding their farmlands with corridors of bushes and trees and also their, um, I think any waterway also has to have a barrier of um, vegetation, which can be a corridor for animal movement. So this may be isn't a new idea. Is that something they've been doing for awhile [00:16:00] or it is, it depends on the location but it has been going on for a little while. And what are the types of corridors you're looking at? You said mostly vineyards or up in the mountains. Are there bigger ones? Um, the corridors that I'm looking at tend to be, well I'm looking at how, so I guess you can think of corridors and the Matrix as being like matrix is totally bad.

Speaker 1: Human Environment in the corridor is like this perfect habitat. California especially around [00:16:30] towns, you don't ever really have perfect habitat. So I'm looking at what variables can influence the gradient of suitability for the corridors. So, um, the variables I tend to look at are things like distance to road. How far is it to a road? Cause animals usually avoid roads. How dense is the habitat of natural goodness, I guess so natural. How dense is the natural habitat and then how dense [00:17:00] is the human settlement nearby? So it's kind of a confluence of those three variables that I'm interested in right now. And can you give us a spoiler? What is the most influential

variable? Rhodes is pretty influential for the animals that I'm looking at. So like you will see some scavengers like roads, but mountain lions really don't like roads. Gray foxes don't like roads.

Speaker 1: Um, and so in addition to the beautiful overpasses [00:17:30] that you mentioned above freeways, there's also kind of like the little sister of those, which is like culverts or things that go under roads. And so that's another, um, less glamorous type of corridor that little guys like gray foxes, badgers, bobcat's will use. So do you think that your work or the work of your lab, I mean, I'm, I'm sure I know the answer to this, but do you think it can influence policy in some way? I, yes, it has. And we, um, [00:18:00] my lab definitely out has outreach with land trusts in the bay area to prioritize land for acquisition that we've caught. We're talking with the nature conservancy right now for a project in San Jose. Um, so these are all, all the research that I'm doing has the potential to change what's happening right now.

Speaker 1: And that is really exciting for me. And speaking of change, you've mentioned climate change a few times. Ha. So [00:18:30] how does this work play into climate change beyond just some spots are going to get hot. So this work would play into climate change in that I, I like some scavenger type of carnivores. I like to collect data and people often have large sets of data that they can't use all of. So I have a lot of, or I have access to data that I can use to validate some of these climate change models. So we have, um, a project [00:19:00] in my lab in the Malcolm has mountains, um, in northern California where we're trying to identify what are the best, um, corridors to protect. So for acquisition to buy them to protect, um, connectivity between Habitat Patches and I'm in the position where we actually have data where I can invalidate some of those predictions to give it more weight when we talked to our collaborators who want to do the acquisition.

Speaker 1: So climate change is real? [00:19:30] Yes. Climate Change. Oh No, I keep hoping that it's not, but every scientist I have on here, so as it is, so yeah, it's real. Sorry girl. That's not your fault. Maybe our fault, but not not your fault. Um, so d, where do you see yourself going? Do you want to end up in policy or do you want to stay in academia? Is Biotech out of the question now? Both tech is pretty much out of the question. Yeah. I would love [00:20:00] to teach. I've really like I'm interacting with other students, but it's a very competitive field to get into teaching. And as a California resident and native, I love the Bay area and would love to stay here. So I'm also really open to working at a nonprofit or with a state agency. And because of the collaborations in my lab, I have had some experience with people in both of those sectors, which has been really helpful for me to see like, could [00:20:30] I do this?

Speaker 1: Is this something that would be satisfying? And in both cases I think the answer is yes. And you've mentioned collaboration and nonprofits a few times. Is there a lot of support for that here in California? Does the, I mean government or like you know, even just voting support or what kind of support does it take? Um, well, in the case for the Seattle

for example, it is, I think on your tax form you usually have like, I wanna donate some extra dollars to one of these organizations. And the seawater research [00:21:00] and conservation program is one of those boxes you can tick and you can give money to. In terms of the larger research projects, like the Puma project that I've collaborated with that is actually funded by private investors, like the, um, the Moore Foundation for example. So that's not taxpayer money, it's private investment. But d,

Speaker 2: do you think that California is different from other states in terms of being progressive on this front and wanting to actually maintain biodiversity, [00:21:30] or is that a nationwide trend we have going on? Hopefully.

Speaker 1: Well, you know, California is interesting. I think in this area it definitely is a priority, but across the whole state, on average, I think it's kind of a wash, because I remember, Gosh, was it 2012 when there was the state park initiative to raise, I think registry some. There was some, oh, I'm going to make this sound horrible, but there was an initiative put to this state that was basically [00:22:00] like, do we prioritize keeping our state parks open? And it was voted down, which was surprising. So, so still a long way to go here in California? Yeah. Oh, one cool thing was I think that there's always talk of like these glamour plates, like the audit, the whale glamour plate. I think that gives money to whale research. And so there's talk of having a mountain Lang Glamour Plate for California. So it's like glamour plate. Oh, those license plates have the pictures on them. Oh, that actually gives money to yeah [00:22:30] nation cause you have to pay extra for those. So I thought that just went to the DMV. Well let me, I'll have to check. But I'm pretty sure the whale one gives money to whale research, but, oh

Speaker 2: that's great. And speaking of research, I always try and dedicate part of the show to undergraduates and other students and you know, especially someone like yourself who didn't really have an understanding of what graduate school was and had to come so far. What advice would you give to students?

Speaker 1: [00:23:00] Um, so for undergraduate students I would advise reaching out to Grad students and even professors. Like that's what we're here for is as, mentoring is a huge part of the academic career. So to take advantage of any Grad students you have in classes that you're really excited about will not take advantage. But having access to them and talk to them about like maybe volunteering in their lab. In my case, I s I did [00:23:30] a lot of Internet research and found my advisor and liked the research he was doing and just met up with her and offered to volunteer time. I looked for volunteer opportunities also at, um, conservation agencies like the Lindsey Wildlife Museum and Walnut Creek and the Monterrey Bay aquarium, which is a little bit of a slog to drive down there. But, um, the work was really rewarding and beautiful scenery. Oh Gosh. It's so beautiful. [00:24:00] What about high schoolers?

Speaker 1: Do you think they have a shot? Yeah, high schoolers definitely have a shot. Uh, I just been out, I've been out of high school for a while, so it's kind of a distant memory, but

things like the women in science program. So if there are correct, if there is curriculum that exposes students to science or any of that at your school to go and take part of that. And you also, I saw that in terms of other outreach, am I correct in remembering that you work with [00:24:30] the graduate students? Not The committee, but the Grad Student Association? Yeah. Or with the faculty. Yeah. So I'm the president of the SPM Graduate Student Association this year, which is basically the GSA, the Grad student association is the link between the graduate students in the whole department and the faculty. So we're a group that can communicate, scratch the student wants and needs up to faculty and tries to like advocate for Grad student [00:25:00] wellbeing and livelihood in the descent.

Speaker 1: Is that something Grad students need? In my department? Um, I mean wellbeing and livelihood, wellbeing and livelihood. Everyone needs this. But in your department, our department, um, is generally resource constrained or at least recently we have been. And so it's been helpful to hear from Grad students to prioritize what kind of initiatives we want to make sure that the faculty [00:25:30] and the administration hear about from us. I hadn't, do you have words for the general public about, I mean, I don't want to ask you again, why is this important, but what can we say to the public to really encourage them to learn more about conservation and biodiversity and you know, even land corridors. I think the most important thing is for people to go out and see wildlife. And to get out of cities and to see trees and parks for themselves firsthand [00:26:00] because it's exposure to non urban or non suburban lifestyle that can inspire the heart connection, the beauty that helps us prioritize wanting to protect what's there. And there's certainly a huge network of East Bay Parks and state parks, national parks. Even in California. Yes, we're in, uh, in, in Berkeley, in the bay area. We're in a kind of hotbed of parks. It's just like any way you want to go north, south, east, [00:26:30] west to the coast, I guess. Not all the way up. Yeah. But there's a lot to see. And Do, do you have a favorite park? I actually still love a sila mar down in the Monterey Bay. It's my favorite place. Go to [inaudible].

Speaker 2: Well, um, do you have any last words you think for the audience? Go for a hike. Go for a hike. That's it. Great. You know, that is definitely a great advice, especially here in the bay. Thank you so much, Morgan. If you're just [00:27:00] tuning in, you know, it's too late now, but, uh, you can listen to these episodes online or on iTunes. They're available as podcasts. Just look for the graduates on KALX. But this has been another episode of the graduates here on KLX Berkeley. My name is Tesla Munson, and this is the interview talk show where we speak with UC Berkeley graduate students about their work. Today I've had the fortune and pleasure of being joined by Morgan Gray wildlife ecologist in environmental science policy and management. [00:27:30] Yeah, ESP. I'm here at Berkeley. It's a mouthful, but a welcome mouthful. So again, thank you. Thank you so much. Thank you for having me. This is fun. Thank you. And, uh, we'll be back two weeks from today on Tuesday, August 12th to hear from botanist Adam Schneider. Until then, stay tuned. You're listening to 90.7 FM K alx Berkeley.

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