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**CREATORS:** Karen Hodges and Arielle Lomness  
**CONTRIBUTORS:** Karin Haug, Sajni Lacey, Larissa Macklem, Trevor Neill, Michelle Tinling, and Mathew Vis-Dunbar  
**AFFILIATIONS:** Library, UBC ; Irving K. Barber School of Arts and Sciences (Okanagan) -- Biology, Department of (Okanagan) -- Biology  
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**SPEAKERS:**

[AL]: Arielle Lomness  
[KH]: Karen Hodges

[0:00]

[Music Intro]

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[AL] This is Arielle Lomness and you're listening to Frequencies, a podcast from the Library at UBC Okanagan.

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[AL] Today we'll be speaking with Karen Hodges, a Conservation Biologist and Professor in Biology at the UBC Okanagan Campus.

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[AL] Welcome

[KH] Thanks so much for having me

[AL] I was hoping to start off with you telling us a little bit about your role here at the university and any courses you're teaching currently

[KH] So I'm a wildlife ecologist or conservation biologist. I go by both titles. I teach a course in conservation biology. I teach a science writing class where we talk a lot about reaching different audiences with different levels of background knowledge. I teach a spatial ecology class. So that one tackles landscapes and where there's different ages of forest, what happens after a forest fire, where roads are and what that does to species. I've taught a Culture of Science class to graduate students. That addresses everything you should be taught in graduate school but might not be formally mentored in. Uh, so professional skills of various sorts including scientific outreach. I've taught the intro Ecology class and this fall I'm excited, I'm teaching a special topics course in fire ecology.

[AL] Can you talk a little bit about your current research as well?

[KH] So I have all sorts of good projects on the go right now. I have several students working on wildlife and fire. So I just had a master's student finish work on lynx and we're publishing her papers currently. I have a current PhD student working on Martin in fiery landscapes. I have a master student who just finished on

snowshoe hares and fire. I've got a new student who is working on small mammals, the mice and voles, and this sort of thing and how they respond to fire. So that's becoming a theme in my lab [laughter], is how species respond to fire. I have another student who is working on grouse and she is working on a beautiful private ranch and we're trying to understand how the grouse move between forest patches and grassland patches. I have a student working on migratory songbirds and understanding their physiology during migration and where they go and if birds at the edge of a geographic range differ at all from birds at the core of the geographic range. I have a student working on lynx and bobcat in British Columbia and where their geographic ranges are and if bobcats have moved north with climate change. And so he's wrapping up his work exploring those inter species dynamics. I've got another student who's working South Africa, working with a number of sheep farmers. And currently they kill predators to try to protect their sheep so she's working on ways to stop that practice and to develop wildlife friendly lamb. So trying to change an entire culture of how people manage their herds. I do have a number of projects that I handle by myself without students or you know, take an individual undergraduate periodically. So I've written several papers on endangered species legislation. So the Species of Risk Act in Canada, the Endangered Species Act in the U.S. Trying to understand if these laws are actually working in the way that Congress intended them to work. And so those have not needed a sustained graduate student presence but have picked up, you know, individual reviews of particular topics.

[AL] That's a great transition into what I wanted to ask you next, was whether or not you could talk about some of the issues or opportunities you've encountered in communicating your research.

[KH] That's such a broad question. [laughter] I communicate my research to a number of very different audiences and so the way I communicate, you know, whether it's a paper or a talk or a conference is very different and the language I use is very different depending on who I want to reach. So a large part of what I do of course is publish academic papers. So there I put on my academic hat, I use my big words, I use the formal structure that typifies a scientific paper. I teach, so there I'm dealing with beginners who are still trying to learn vocabulary and understand big broad fields and may not know the same species even that I know. So in that context I've got a very immediate response because I can tell if the class is with me or if I lost them [laughter]. When I write a scientific paper somebody halfway across the world could read it five years from now so I don't have that immediate feedback. With my students I can tell immediately if I need to back up, slow down, speed up, where they are. I also talk a lot with managers. People who are

responsible for a land base, so this might be a forest manager or a national park person who has to manage whether there's timber or salvage logging or fire management. I also do a lot with managers who manage wildlife, whether as a furbearer, or a hunted species, or as prey for a predator, or an endangered species. So for them most of what I do is conversational. We have coffee together, we sit around a very cluttered office and we look at maps. I might bring a scientific paper with me as backup. But mostly it's chatting and they have questions and I have questions for them and we share information. Or very often we'll go into the field and we'll actually look at particular places and talk about do I think that's a good place for a lynx or a wolverine or a bear. And have that conversation in real time in a real place so that we're sharing the knowledge that we each have.

[6:15]

[AL] And do you find that working with the different groups, ah you need to provide different levels of information or that they may take it in in different ways? Like if some of them may be more interested in the facts or some of them may be more interested in gaining a bit more science literacy?

[KH] Every audience is different. People come with different curiosities different base level of knowledge. And very often very different outcomes for what they want information for. You know I've talked to the media sometimes about research that have been published or topics that have emerged. Sometimes it's just "Wow that's cool!" So a couple years ago I did several media interviews about climate change and species moving north and having bigger geographic ranges and that one was mostly a "Gee whiz that's neat" kind of story rather than a we have to manage it or we have to go and do something. You know, no, it was there's hummingbirds in Vancouver in the winter that didn't use to be there. What's happening? When I'm talking to a manager who needs to make decisions, then we're having a very different conversation about what's the state of the science. Can you support one decision over another or do we not have enough knowledge yet and maybe that's a research gap that we have to go and fill. So very often it's a very specific, you know. If I'm doing a cut block should it be long and skinny or should it be mostly square? Should it be this big or, you know, three times that size? What happens if I salvage log, will I still have marten in twenty years? So it's a very different level of question and interest. And so I've had a number of really thoughtful conversations about the kind of science I and my students do, what the law says, what the policy says, and what this poor manager has to do to

read the scientific papers to turn it into the policy speak to draw the map that will actually you know implement the change on the ground we want to see

[AL] In the context of other scientific disciplines what is science as a process that informs literacy?

[KH] It's a way of asking intelligent questions, it's a systematic way of trying to get knowledge that will address those questions. And that cuts much broader than just my ecological I care about wildlife kinds of questions. So absolutely sometimes I do find myself saying here's what science can bring to the table and that's true whether you're a physicist or a mathematician or a chemist or a biologist. That systematic approach, the logic, the experimentation, the interpretation of data, the fact that we share our knowledge publically and ask for other scientists to judge it. And so it's a shared communication not just a private "hey I went out in the woods and I saw something" but that peer review and the feedback that goes into making scientific information.

[AL] So how do we avoid inaccessible or pretentious language when we're talking about science?

[KH] The pretentious language can be fun. And it is more precise when you are dealing with another specialist. You get more nuance in a shorter package if you trot out your jargon words. But it's also very pretentious and it's very in group out group. That you have to know all those shades of nuance to have that specialized conversation. The same is true if you are remodeling your kitchen. You know, you listen to the guys talking about all the kitchen cabinets and stuff and occasionally you just have to interrupt and say "Excuse me, I live here. What are you talking about doing to my house?" Right. It's the same thing scientifically. With my own colleagues we can talk jargon all we like and we're fine but the minute somebody else is listening in or wants to be part of the conversation we have to shift to words they can use. It doesn't mean that we're dumbing it down. It doesn't mean we are changing the content of what we are talking about. It just means we are trying to communicate in words that have meaning for all of us.

[10:15]

[AL] So when we're thinking of science literacy and its impact on the general public, how do you see some of the work that you've been doing playing into the end result for them or a dialogue created with them?

[KH] So I'm hung up on your phrase "general public". Because the current expertise in the science communication folks is that that term should actually disappear. [laughter] Because I don't know who or what is a general public. That could include a high school dropout, it could include a lawyer, it could include somebody with a four year arts degree. I would talk to all of those people in very different ways and so that isn't general to me. I would need to know a lot more about who specifically I was talking to in what context. And trying to understand and respect what they know and why they would find my science at all relevant or interesting to them is a necessary precondition for me to be able to share my science in any kind of a meaningful way. If you look at the people who have been really successfully science communicators or have who bridged between policy communities and the academic community or the people who have written the popular books, they are unusually skilled at explaining the complicated stuff in language that is not complicated. And so that I think is an underrated skill set. And that's certainly not one that, you know, we have formal courses at university to teach you how to do this. But I guarantee you that if you start actually probing, if you use the linguistic tools and you know corpus linguistics and you count vocabulary words and so on, you will see a pretty big difference in the kinds of conversations a scientist has with her peers, than with a policy community, than with a high school class, than with a field trip of locals.

[AL] How do you convey this sense of adapting ones communication to differing audiences in the classroom?

[KH] I teach a science writing class. I'll start with that group of students. There often third or fourth year students from different scientific backgrounds. I routinely have students in biology, chemistry, environmental science, psychology, all in the room together. And so I actually start, in one of the early classes in there, we have this general public discussion and I give them a scientific paper and a New York Times article and then one other media story all on the same topic. And we talk about you know how are these ideas expressed. And they start with "Oh ya you know this is for the general public" and I'm like "Really? Who reads the New York Times?" "Oh general public." "Well no who's that?" "Ohh people who have had some education. Ohh." "How much education? What kind of education?" And all of a sudden you start to see the students understanding that the language you can use in a New York Times article is quite different than you can use when you're writing for specialists in that field, is quite different than what you would talk about if you were teaching twelve year olds.

[AL] You've talked about communicating science to make it accessible particularly in the decision making process. Can you elaborate on the advocacy role of scientists with respect to this?

[KH] So this is a question about the advocacy continuum. The objectivity to advocacy continuum. And there's a fair bit written about it and some of it is actually good content. Others is just opinion. I'm a citizen. I care deeply and passionately about how well we live together on the planet. I have really strong skills at communicating, at doing good science, at asking and answering meaningful questions that other people use to make real word decisions. I think I would be abdicating my responsibility if I didn't share those skills and that knowledge. I started work that was relevant management when I was a post doc and it was eye opening. I had not been trained for it, I wasn't aware of any of these gaps of communication or, you know, skill sets involved, and so it was absolutely stunning to me to realize that a scientific paper I could write would actually be read and used by people who make decisions. You know, somehow I hadn't put those pieces together and so the first time that happened I was like, "Oh my god, you know. Did I get it right? Was the science sound? Was it...you know, people are using this! If there's a mistake here it matters, rather than just a conversation I'm having with other scientists." And I think now I've become much more comfortable with that. That most managers and policy makers don't expect science to be perfect. And they certainly see enough different pieces of science that sometimes contradict each other that they're aware that that's the reality of how science works. And so any one mistake anywhere is less critical. I think I've also gotten a lot better at understanding their needs. Being able to convey my work in a way that is more user friendly more immediately. I'm a scientist because I love it. It's such a powerful way of approaching the world and of noticing other life forms and what they do and then thinking about how to understand them, to manage them, to try to live gently on the planet and so that passion for understanding, I wouldn't know how to take it out of myself [laughing]. And so it's very much present when I'm teaching.

[AL] Thank you so much for joining us today. It's been lovely getting to talk to you about your research and the work you've been doing with a lot of your students as well.

[KH] It's been a pleasure to talk to you. As I hope you can tell, I love the work that I do and it's so fruitful and fun to be able to talk about my ideas with such a range of people.

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[AL] You have been listening to Frequencies a podcast from the Library at UBC Okanagan. Your host today was Arielle Lomness. Editing by Karin Haug and Matthew Vis-Dunbar. Music by Trevor Neill. Artwork by Alison Ward. And additional support provided by Michelle Tinling, Larissa Macklam and Sajni Lacey. Thank you for listening.

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[End]  
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