

Interview with Anna Hargreaves.

<https://www.youtube.com/watch?v=tZaLGKXYsZ0>

STEMM Diversity @ McGill: Please state your name and affiliation.

Anna Hargreaves: My name is Anna Hargreaves and I'm an assistant professor in Conservation, Ecology and Evolution in the Biology Department at McGill University.

Q. Could you give us a summary of your research?

A. My research has two main pillars. The first is—I'm interested in understanding species' geographic distributions and I do this by looking at the ecological and evolutionary processes that happen at the very edge of a species distribution because it's those edge populations that determine how stable the range is, and how it might respond to global change like climate change. And the second pillar of my research is looking at interactions between species—species interactions—how they evolve, how ecologically important they are, and whether there's any predictable variation geographically in their importance and their character. And I'm also especially excited where these two themes overlap: looking at the importance of interactions between species and defining how a species uses its habitat and where it occurs globally, and where those interactions tend to be more intense and important in areas of high biodiversity.

Q. Why is diversity important to you?

A. There're many reasons why I think diversity is important. The most important for me is that science really benefits from a diverse set of life experiences and opinions and ways of thinking and ways of approaching questions—and so, the more diverse the group of people you have who are doing research, the more diverse the backgrounds that they bring and the approaches that they bring and the ways of thinking that they bring. And I think that's really important: I think you get more creativity, more variety in how questions are being addressed, maybe more variety in which questions are being asked, and I think that can only benefit research. The second reason that I think is secondary but still important, is that the more diversity you have in a group of people doing science, the more easy it is to make other people feel welcome. So just by having a diverse group of people—faculty, more example—I think it's easy for more students to see themselves naturally doing science and in that role.

Q. Tell us about your journey through biology and how did your interest in biology develop?

A. It's hard to pinpoint when my interest in ecology and evolution started, but if I had to pick a moment it would be when I was a teenager watching a video by a man named Bill Mason, who is a very famous—within Canada—advocate of canoeing and wildlife, and he did research with wolves in Algonquin Park and produced some amazing videos that were really inspiring. And I saw those videos and I thought, that looks like a great career, and that's what got me interested in fieldwork. From there I did a lot of fieldwork in a lot of diverse systems. I've worked in the Arctic, down in Costa Rica, lots of places in between, South Africa, and the more fieldwork I did, the more I realized that I wanted not only to be collecting the data, but I wanted to see where the data led. Eventually it gets frustrating—you start a research project helping someone and you

know that there's this big question driving it and you collect all these data, but you never see the answer to that question. I became more and more interested in the data part of research and through a series of projects—I did an undergraduate thesis and then a Master's thesis and then a PhD—my interest and love of working with the data began to match my interest and love in fieldwork. And so now I try to have healthy doses of both in my life as a research scientist.

Q. What were some difficulties you faced along the way?

A. I would say overall I've had a very easy path, so the difficulties I've faced are the same difficulties that everybody faces. It's a very competitive field, and so you have to manage that competition. It's a lot of hard work. One of the hardest things I think is—I think it's very healthy in academics to move around, so I did my undergraduate at Trent University, I did my master's thesis in Alberta, I did a PhD back in Ontario, I did a post-doc out in British Columbia, and all of those moves are fantastic, but once you have a partner and a family you have to balance how you move for both people's jobs. And my partner also pursued a master's thesis, so I think more and more, these days, that's a tricky balance that people have to work out. But otherwise, I'd say, you know, the journey has been much more fun than it has been difficult.

Q. Where there any instances you feel that you were treated differently because you're a woman?

A. Discrimination is really tricky, because in one's life experience, each thing tends to only happen once. And so, it's almost impossible—in my experience it's almost impossible to say whether there were any times that certain decisions happened because I was female. A friend of mine has a category in her life that she calls “things that were probably sexism but that I don't know for sure because I only have a sample size of 1”. And so, I think most people have something like that. For example, another female colleague and I put in a workshop proposal when we were both post-docs, and we had invited an excellent slate of people to be involved in the workshop, men and women who were well-known in their fields. And one of the comments we got back was that the two leaders—myself and my colleague—could probably use more senior guidance. So that's the type of comment where you feel like, would we have gotten that comment if we had both been men? But we don't know. We don't know the answer to it. This is where I think statistics are really important. Statistics and experiments. The data show that discrimination definitely happens, but whether any particular paper rejection or decision in my academic career has been influenced by me being a woman, I don't know.

Q. What are some positives experiences you've had as a woman in research?

A. Working with other female colleagues is always great! I feel like there's always a bit of camaraderie there. It's a privilege to be able to contribute positively to diversity just by being somewhere. And so, I feel like—that feels great, you know, just by coming to a new faculty, one has increased the diversity there. And otherwise, I'd say that I've had an amazing number of positive experiences in my career, but again, I don't think most of them were related to being female, I think they're the benefits of being able to have a career that's driven by your own passions and interests.

Q. Have you seen much improvement for women in research?

A. Definitely. Yeah, definitely. I think one of the biggest improvements has been the recognition of implicit bias recently. I think a decade ago most people would not have been able to tell you what implicit bias was, and now I'd say the majority of people in a university context have heard of it, probably many of us have taken the tests that reveal our own implicit bias, and I think that that recognition that all of us grow up in a culture that value certain things, and so all of us tend to approach new people with a background of bias. I think that's a really healthy realization, and it, just, gives everybody a tool for thinking about their own decisions and their own interpretations and their own interactions with other people. And I feel like it's made the conversation maybe less threatening and easier, once you acknowledge that everybody has implicit bias—women in studies show just as much implicit bias towards other women as men, often—it means that it's something that we've all got to deal with, and that we can all work together without anybody feeling like working on an issue means that they're discriminatory. And I think that the diversity since I've been involved in science has increased—at least the gender diversity. When I think about my undergraduate degree, I can only think of two female faculty members, and I think that that percentage has grown a lot in the last decade, and awareness about issues and openness to talking about them has increased a lot too.

Q. What are some things that you feel still need improvement for women in research?

A. I think even more recognition of implicit bias would help. Because diversity tends to be increasing in time, the younger cohort of scientists tend to be more diverse than the older cohort of scientists. And so, there's often times when one is asked to think of a scientist to nominate for something—so that could be an award, a recognition, it could be something as simple as a seminar invitation—and I think for all of us, the most famous scientists come to mind first, and the most famous scientists tend to be the older generation. And so, it's really easy to ask for a slate of nominations and have all of them be older white men. I think we can do a lot just with small tweaks to how we approach things like that. For example, you can say “everybody can nominate one person and if you want to, you can nominate a second person who is underrepresented in STEMM”. And that just creates a more diverse slate of candidates—and often once you have the diversity in that slate of candidates, people who are a minority in STEMM get voted in for awards or for seminar invitations just as often, it's just that they aren't always the first person you think of. And so, small efforts like that to make sure that we're casting the net wider, I think, can go a long way. And the small things really build up for people, you know, the invitations and awards contribute to someone's career momentum, both as faculty but also as graduate students. So, small changes like that, I think, can have a significant impact, positive impact down the road.

Q. How do you maintain a healthy balance between family and work?

A. Another excellent question! What I used to do is that I would go really intensely from one to the other. So, I would have a work objective and I would work on it obsessively and intensely until it was done, and then I would throw work aside and I would go away for two weeks with my partner, my family and just take a complete vacation. But we now have a one-and-a-half-year old, and you can't do either of those things with a one-and-a-half-year old, so you can't work as intensely and you can't take intense vacations in the same way, so I've had to really adjust how I

approach work-life balance. And for now, the answer is that I don't work as much. I still work more than 40 hours a week, but I don't work nearly as much as I used to, for example, as a PhD student. And I think it's healthy to recognize that different parts of your life— you place a different emphasis on work versus family, and that balance is fluid, and it can go up and down as your needs require. So, currently I try and work really hard and efficiently between the hours where my child is in daycare and then I try to play with them and do all the general life maintenance that needs to be done in the hours that he's not. You just do what you can do.

Q. Have you had any mentors in the course of your career?

A. Yeah, many mentors. I think anybody who's successful in science—you have to have had excellent mentors. I've had a lot of amazing scientific mentors. One of the things that's really interesting is that different people approach science in really different ways and have really different skill sets that they bring. So, I've worked with people who are amazing at recognizing exactly the data that needs to be collected and collecting just that data to tell a story and publishing efficiently and are hugely productive, and I've worked with other people who are very contemplative and will roll an idea over and over and look at it at all angles and often come up with insights that other people don't think of. I worked with people with a lot of different styles of lab and interacting with their students, and one person, I think, wisely said to me once that you have to choose the type of scientist that you want to be. So, if your goal is to be famous and to go down in textbooks, you're committing to a very different work-life balance than, you know, if you want to be, like, a solid scientist toward the top of your field but maybe not famous. Or you can focus on teaching, say I'm really interested in this one organism and I don't care if anybody else cares about it, I'm going to learn fundamental things about that and that's what makes me happy. The most successful scientists are the ones who have thought about this question and have chosen which type of scientist they want to be and then accept the consequences of that choice. And so, the worst thing to do is to want the benefits of all of those different options, because you can't be incredibly productive and famous and going on world speaking tours and have lots of time with your family; you can't work on your esoteric question that you really love that maybe no one else cares about and get thousands of citations. So, I think it's good to have a diversity of mentors to see that diversity of approaches and then figure out which one of them works for you. And then I have had one mentor especially in the arena of diversity in STEMM who's Judy Meyers, who's an emeritus professor at the University of British Columbia. When she started in the 70s, she was routinely the only woman in the room, and she's been an amazing advocate for women in science, especially ecology, for decades and watching her has revealed all of the different ways you can promote diversity, especially just the small ways that add up to make a big difference.

Q. What advice do you have for someone interested in research in ecology and evolution?

A. The advice that I have for everybody is to think really carefully and get to know yourself as much as possible. The more you know what kind of conditions bring out your best self, where you're happiest working, where you're most productive, the better able you'll be to sculpt a career that really makes you happy. And that includes choosing the right supervisor, it includes choosing the right types of questions, whether you want to work in a lab or field environment, the more you know your own personality, the happier you'll be in the long run.

If you are academically successful enough and driven enough to make it as an academic, there are almost certainly easier ways that you could make more money. So, I think that, in terms of academic research, you have to do it because you love it. There's no other reason to be here. But if you love it, it's absolutely the best place to be. I think I would just end by saying that we talk a lot about advice to people who are in underrepresented groups in STEMM, and I think it's equally important to give advice to people who are not in those underrepresented groups—the gatekeepers, if you will—and I think that's harder, because often those people aren't as aware, you know, they're not reading the blogs, they're not watching the interviews about diversity in STEMM. But one thing we can do is that most of us are only in a minority in some aspect. For example, I'm a woman and scientist, in science, but I come from a middle-class background, I'm white, English is my first language, which is a huge advantage. And so, just as I really appreciate my male colleagues who understand the value of diversity and are supportive of efforts to increase it, I think that it's just as important for me to help foster diversity in other ways. And so, I think that probably applies to most of us, and I think, you know, maybe it should go without saying, but it's worth saying.