Episode 89: Heather Roberts

# KL: Katie Linder

# HR: Heather Roberts

# KL: You’re listening to “Research in Action”: episode eighty-nine.

# [intro music]

# Segment 1:

# KL: Welcome to “Research in Action,” a weekly podcast where you can hear about topics and issues related to research in higher education from experts across a range of disciplines. I’m your host, Dr. Katie Linder, director of research at Oregon State University Ecampus. Along with every episode, we post show notes with links to resources mentioned in the episode, full transcript, and an instructor guide for incorporating the episode into your courses. Check out the shows website at ecampus.oregonstate.edu/podcast to find all of these resources.

On this episode, I am joined by Heather Roberts, Coordinator for Diversity, Equity and Inclusion in the College of Forestry and Information Manager for the Landscape Ecology, Modeling, Mapping and Analysis Collaborative Research Group at Oregon State University. Heather has worked as a Database Administrator, GIS Analysist and Programmer at OSU on the Landscape Ecology, Modeling, Mapping and Analysis Team since 2006. She performs a variety of tasks related to developing highly detailed models of forest vegetation across large, multi-ownership landscapes. She completed her Bachelor’s Degree at the University of Oregon, majoring in computer and information science and environmental studies. Prior to OSU, Heather worked as a Database Administrator and Field Technician at Dorena Genetic Research Center, A forest service research station that specializes in breeding tree populations with natural resistance to invasive pathogens. In 2016, heather coordinating the planning process to develop a strategic plan to enhance diversity, equity and inclusion in the college of forestry. She was appointed as the college’s first coordinator for diversity, equity and inclusion in July of 2017.

**KL:** Heather, thanks so much for joining me in the studio today.

**HR:** You’re welcome!

**KL:** So, I’m really excited to hear a little bit more about your position, because you do have a research position here at Oregon State, but you also don’t have a Ph.D. and I think this is something that people are curious about. How do you go about getting these positions? What are they? What are the kinds of things that you do? And I know that a lot of your work is really specialized, so we’re going to dive into all of that, but first, what is your position? What do you do here?

**HR:** So I actually have a split position now. Um I’ve been at OSU since 2006 as a Faculty Research Assistant, and so I joined the Landscape, Ecology, Modeling, Mapping and Analysis Team, which is a collaborative research group between the Forest Service Pacific Northwest Research Station and Oregon State University. The goal of the research team is to produce highly detailed maps of forest vegetation across large multi-ownership areas. So these maps get used in a lot of different applications, and my role specifically is to manage the plot inventory database – So that the Forest Service goes out and measures a bunch of trees on the ground to say what species they are, how big they are, they take a bunch of measurements and do this all across, well the United States, but we’re looking at Oregon, Washington, California. And so I take all of that data and put it into our database and then summarize it in a way that it can be used to these large scale models. I also do some of the GIS analysis, although I’ve been stepping back from that position lately, and I also provide user support to the researchers and land managers who use our maps to answer questions concerning carbon, biomass, volume, wildlife habitat and also looking at modeling for future scenarios.

**KL:** So, I would imagine your pathway into this position is interesting, and probably quite unique just because of the specialization that you’re engaging in within this particular work. I know we’re going to get into some specific details about your pathway later on, but I am curious because many researchers in academia come to their positions via some kind of Ph.D. program or some kind of specialized research training, and you have a different pathway. So tell us a little bit about that. How did you come to have the knowledge that you have that’s allowing you to specialize in these areas that you’re working on in this team?

**HR:** Sure. So my background – my degrees are in environmental studies and computer science, and so I was really interested in environmental studies when I first took my first environmental studies class, and then I added the computer science degree as a way to be employed. And so I was looking for a way to marry the two – look for something that was related to both fields. And originally, well I guess the first time that I integrated the two was when I did my honor’s thesis, which was creating a software development environment for creating ecological simulation models. So that was my first taste of kind of trying to marry those two disciplines. And then when I graduated from college I got a job with the forest service at a research station that looks at finding trees that have natural resistance to invasive pathogens. And my job there was to – it was split between office work, and field work, and greenhouse work. So I would manage the database for the Port Orford Cedar Root Disease Program. And so I would manage um, individual trees were marked and we would look at their resistance to disease over time. We would breed them, selectively breeding, and then look at which ones were resistant, then we would go test those out in the field. So we would plant out the resistant/non-resistant individuals in various places where we knew the disease was present and we'd go back out and monitor those to see who survived and who didn't. I also started learning GIS skills at that job, and I created some maps about the breeding zones for the Port Orford cedar. And so that was where I started to combine the database skills - programming skills that I learned from my computer science degree and applying it to forestry applications.

**KL:** So I would imagine that many people who are listening to this are thinking, “This is pretty specialized.” You know, like in terms of what you're bringing to this, and obviously valuable to the research team, but you're not necessarily in a leadership role with this research team and you are more in an assistant role of what you're providing. I’m wondering if we can distinguish that a little bit more for the people who are listening and who are maybe thinking, you know, it sounds like you are conducting research, I mean, and indeed you are. You are part of this team. What are some of the differences between the role that you are having and the role of other people who might be leaving the lab or who are in more leadership positions on the research team?

**HR:** Okay, well my role is not to decide what to do in terms of what are the research questions that we're going to ask, although I would say that over the years as I've been at OSU longer, and I've become more familiar with the vegetation modeling that we do, I am helping to develop those questions with the lead researchers. So the people who lead my projects, they're the ones that are deciding kind of, what is the next step? And how do we advance the research? How do we - what are the questions that need to be asked? And then my role is to say, “Okay, so we've decided that we need to create these models. We're going to try all these different. Permutations of the models to see which gives us the best accuracy” and then my role is to figure out how to implement that. So how to get the data in a format that can go into these models, to run all the models, manage all the data and the metadata so - to describe how we ran the models, what actually went into them, and what they can be used for.

**KL:** So your role to me, as you describe it, sounds crucial and foundational to the work that's happening on this research team and I think that many of the people listening may not realize that research teams are made up of folks who are not all PhDs. And I think because we have many fields that are kind of overly abundant with PhDs, you know, postdoc positions other people who don't have, you know, spaces to go - that there are also these support positions that are incredibly crucial and that have very specific skill sets that lead into contributions to these teams. I'm curious to know if you have ever thought if you want to continue what to get another degree or to move into a position where you would have more control maybe over the questions that are being asked on these teams, has that ever been attractive to you? Or do you kind of - you're happy where you are, you think that this is the contribution you want to make?

**HR:** Well it's funny you ask that, because when I started out, and you asked me about my position, I mentioned I have a split position, but I only told you about the one half of it. And so I have thought about going on for advanced degree many times over the years, and I always decided that I would do it when it was necessary to advance my career. So if I could stay employed in a job doing something that was related to my field that I enjoyed, then I would do that, and as soon as I got to a point where that was no longer possible, That's when I would go back for another degree. And my -my position with the landscape ecology team, I have done a lot of on-the-job training, so I didn't feel like I needed an advanced degree for that. The work that I'm doing now, which is the other part of my position, which I just started in July of 2017, is to coordinate the College of Forestry effort to enhance diversity, equity and inclusion, and that is an area where I am taking a leadership role. And what I had discovered when I looked into what do I want to do next, a lot of the, especially master's degrees, looked very specialized to me. Like you’re really taking a microscope and looking at something really closely and that didn't really appeal to me. I realized that I like to kind of step back and look at the big picture and see how all the pieces are fitting together, and I'm really interested in how to bring about organizational change, how to narrow gaps between values and behaviors in individuals and organizations, and how to support everybody who is in the organization regardless of what position, what role they’re in, their gender, their age. Erase any of those factors. And so that's when I moved into this new position, but when I was looking into what I wanted to do, I looked into going for another degree. And the reason that I chose not to do that was basically because I already had built up a bunch of relationships where I am. I had worked for years to gain more recognition and support for the faculty who are on soft money research positions, and who are long-term. It is a career for them. And so it was actually, it felt like a more natural fit to continue on. I felt like I would be giving up something if I quit my job and went back to school, where I could continue to work in this new field if I stayed where I was and looked for new opportunities as they arose.

**KL:** Well, I feel like we were just scratching the surface. We're going to take a brief break and then come back and hear a little bit more from Heather about some of her work with data documentation and database administration. Back in a moment.

# Segment 2:

**KL:** Heather, one piece of your role is designing and implementing systems for documentation of data. And I love to hear, what does that mean exactly for people who are hearing that and going, “What does that entail”?

**HR:** Well designing and implementing systems for documentation of data is really about - I guess it's two-fold. So, the first part is to make sure that the people who are using the data are using it appropriately. That they understand the strengths and limitations of the data sets, so that's one part is just making sure that everybody knows what the data is capable of doing, and what it's supposed to do and, how to use it. The second part is really about the process of creating the data. So, how did we get from whatever the input was to the finished product? So that if people need to replicate it, they can. And so that we know when we try to do it, you know, years later - what we actually did to get to that point.

**KL:** So let me dig into this a little bit more. When you're thinking about that documentation, is this notations in the data itself? Is it like a manual that comes along with the data set? You know, like what exactly does this look like? And may be built into that too, who are the audiences that you're creating this for? Is it just your research team, or is it kind of broader audiences?

**HR:** Right, so there are internal and external audiences. So the internal audience is my research team, and for that we have different systems of documentation within the SQL database itself where we can -where I manage all of the plot data. I have a program that runs on that it takes all of the tables, and views, and procedures and it documents them. Uh I also have, within the database itself, I have what are called metadata tables. And so in those metadata tables it describes for each field and each table of the database, what that field, is a description of the field, what are the units, whether or not that field - it has coded values, and if it has coded values that links to another table that has all of the codes with the values and the descriptions of those codes. So that's the internal documentation for the database. We also have a Wiki for our research team, and so we record a lot of the processing steps there for the Wiki. So I'll record processing steps for what happens when I get the data from the forest service and what I do to get it in a format that's usable in our models. We also document what we do to the spatial layers that go into our models. So we also use satellite imagery and other GIS layers that need to be processed to get ready for model input. So all of that is documented on our, Wiki and those are the pieces of documentation that are specific to my research team. The external documentation, well now that I think about it, some of it is an internal and external. So all of the documentation about the fields, and the codes, and the database is also available to the external users, although it's just a subset. It's the fields that they use. And then we also give out a document that when people download our models from our website, it comes with a document that describes the uses of the models as well as limitations. It also has the models itself - themselves have metadata attached to them. So that's one way we communicate with the external audiences. The user's manual is honestly something that's been on the agenda for a long time and has never quite materialized, so we have more of like a little handbook that we that we send out that's not a full-blown user’s manual [That's something!]. Yes.

**KL:** I'm curious, what - how this is connected to or how it overlaps with the database administration. Because you are the database administrator for your team, and there may be people who don't quite understand what that means either. So, what does that role entail? What are the responsibilities of that database administration?

**HR:** So for the database administration, what I do is I manage new data coming in. So whenever the Forest Service goes out and collects new plot data, I'll get that data and input it into our database. Now one of the things that used to be a big issue, which isn't anymore, was that we had a lot of different sampling protocols. Um so we were using plots from the Forest Service from several different projects from the Bureau of Land Management, and they weren't all measured exactly the same way, but in order to use them all in one model we had to make sure that they were consistent enough and get the data in a format that was usable. So that used to be actually a really big part of my job, but now that the Forest Inventory and Analysis Program has gone to this new design and they've resampled at that design, we have stopped using the older plots. And so now we just have one, so that that's simplifies it a great deal. Part of the database administration is documenting whenever changes are made. Sometimes we might find errors, and so I want to make sure that we're documenting what changed, when it changed, why it changed - those kind of things. I regularly run - I have a test database and a production database, and so whenever I'm writing new code, or I want to make any changes I do everything in the test database. And then I can test out and make sure that everything is working before I then transfer all those changes into the production database. So keeping those databases synchronized is part of the data administration. Backing up the data would be another part, but since my data is on a server that supported by the college actually don't do that part.

**KL:** So you've mentioned kind of over the course of both of these segments, quite a few different data sources and also large amounts of data that you're administering. I’m wonder if you can talk about what you've learned about administering and documenting large research databases. What are the important things you need to keep in mind?

**HR:** One thing to keep in mind is that the way that you collect the data, the format that you collect the data, is not necessarily the best format for storing the data, which is also not necessarily the best format for when you use the data. So you might actually have several steps in your processing where you have the data collected in one way, and then you transform it into another format for storing it in an efficient way, and then you have another method for transforming it again to get it back out and actually do something with it another thing that I think I've learned over time is that there's kind of this balance between wanting to document things as you go and getting bogged down in the documentation, because things can change as you're going through the project. And so you really have to make sure that you don't wait until the end of the project to try to document everything, because then you're not going to be able to remember what you did, but if you're documenting every single little step it can become overly cumbersome and tedious and just want to get the work done. Especially if you have deadlines you may not have time to do that. So it's important to think about, “What are the critical steps for documentation? Such that myself or somebody else could reproduce this work later.”

**KL:** So I'm curious to what degree, you’ve mentioned kind of some on-the-job training, and especially this last example you've given about this balance of, you know, how much do you document? To what degree do you think that is trainable in a classroom setting? And to what degree do you have to kind of figure it out as you're working with the data, and you know like doing a little bit of trial and error?

**HR:** I definitely think it's a combination of both. So I think some of the trainable part is asking those questions of, what really is the most critical. That you could train somebody to think in that way, and maybe give them a list of questions to be thinking about as they go along, but a lot of it really is just practice and getting a feel for it, seeing what's happened, reflecting back on projects once they’re done, and thinking about, “How could I do this better the next time?”

**KL:** Are there things that you wish you had known about data documentation or data administration in the beginning that you've learned over time that for people who are just starting out with this, could be helpful for them?

**HR:** I guess I wish I had known that it was going to be a continually developing work-in-progress. I had this idea that I needed to figure it out before I got started, how I'm going to document it and so that I could be consistent over time, but that really was an unrealistic way to look at it because you really learn as you go along. So that would have been helpful to know when I started out.

**KL:** Alright. we're going to take another brief break when we come back. We'll here a little bit more from Heather. Back in a moment.

# Segment 3:

**KL:** Heather, you'd mentioned in segment one that you have kind of expanded role recently and moved away from some more of the technical work, which you are still doing, but now you're taking on some of this leadership capacity as well within your college, and I'm wondering if you can talk a little bit about what you along that pathway? Because it was definitely something that I think you actively pursued.

**HR:** I did actively pursue it, and I did mention earlier that when I was looking at advanced degrees they seemed very specific to me, and I never had anything that I was super passionate about that was that was really specific. And so when I decided that I wanted to look at moving my career in a different direction that was less technical and more change-oriented, more working with people, looking at how to bring about change in the direction of more health and better relationships with ourselves and others and the environment, I took Journey Into Leadership, which is a program that OSU offers for faculty and staff. And they bring in a bunch of leaders from around campus who have very different styles, and it was through that program that I began to expand my awareness of what leadership is and I started to notice leadership capability in myself, because I never really thought of myself as a leader because I wasn't somebody who liked being in front of a group of people. But I saw that there are very different styles and I decided to look at what I could do from within my current position to bring about some of the changes that I would like to see. And so I really looked at where my values overlapped with the organization's values, I looked at their vision and the vision and mission of OSU and the College of Forestry, and how I could help the organization reach its goals which were an alignment with my goals. So then it wasn't just me working individually, but really as part of a larger group. And so that's how I got started on that on that path and what I did initially was I was on a committee that supports research support faculty who are soft money researchers in the College of Forestry, and I got the opportunity to chair that committee and so that was an opportunity to develop my leadership skills, and I did that and as - during the time that I was chairing the committee, I led the development of a proposal to create a professional development fund for this group of faculty, in order to fill a gap that we saw that was there. In that some faculty didn't have opportunities to go to workshops and present at conferences. Some did and - but we're limited based on the source of funding. If it's not related to your grant, then you can't go. So if you're trying to learn an emerging technology or want to go in a different direction than what you're doing now, you really had no source. so I worked with the college leadership to figure out how we could - How they could support the research support faculty better, and we got our professional Development Fund created and developed and then from there I was - I was really liking that type of work, but it was kind of work on the side to what I'm actually getting paid to do and so I started looking into like how could I get paid to do work that is supporting more people in the organization to do their best work? because I guess that's what happened when I when I took journey into leadership, and I worked with ANOSU performance coach, and I realized that what I liked about my job is that I'm creating the foundation. If I don't manage the data well, if the data aren't accurate and ready at the time they need to be, the rest of my team can't do anything with it. So it's really a foundational role and I like being in that sort of role. And so I was looking to expand that to where I could support more people, and the college was going through this diversity, equity and inclusion planning initiative. I got involved with that and I saw that people were saying that we really need somebody who can coordinate all of these pieces. So people are doing things in one part of the college or one department or another, and somebody else - they don't know about it. How can we better work together towards these common goals? And when they talked about this coordinator position, I felt like that was exactly what I wanted to do, because I wanted to be able to see all the pieces and how they fit together when I did my professional development planning, one of the things I wanted to look for were opportunities for me to connect people and ideas in all permutations. So people to people, people to ideas, and ideas to ideas. And so this position was something that I could develop those skills, work on that for something that I was very passionate about.

**KL:** So as you describe this it sounds very clean. Like this thing happened, and then this thing happened, and then this opportunity kind of fell in my lap, and I would imagine it's not as clean as what you're describing, but also that you were actively trying to develop yourself. You mentioned a professional development plan, so that you could be ready when these opportunities came your way. So I'm curious if you can first of all, maybe address a little bit of the messiness in this and that it's not always clear for people who are listening and who are maybe trying to do something similar to move in a different - slightly different career path than where they are now, but also to talk about maybe some of the ways that you intentionally tried to create professional development opportunities for yourself so that you were ready when things came your way.

**HR:** Right. So hindsight is always 20/20, right? So I can look back, and it does look very clean and linear, but when I was in it, it didn't feel that way at all. I kept looking for opportunities. I definitely had times where I was stressed out and worried about what I was going to do, and I doing the right thing? And should I go for another degree? Or there was a lot of uncertainty along the way. The professional development plan was a big piece of what helped me focus myself and keep going. Within my plan, I looked at what skills did I already have, what skills did I want to develop? I also looked at what relationships I wanted to either create or deepen. So by the time that I was involved in the diversity equity and inclusion initiative, I already knew the Dean, all the Associate Deans, all the department heads because I'd been involved in the college and other college initiatives, and so everybody knew who I was. I had developed those relationships, and I had looked for opportunities to develop skills that I needed so one of the things that I did was put on a workshop for research support faculty and how to create a professional development plan. So when we got our fund for professional development the dean said, “Well everybody needs to have a plan. To be able to apply for the fund, you need to have shown that you put some thought into what you want to do. So create a five-year plan.” And I had never done that before. I had really only looked ahead I year or two at the most, and so I didn't know how to how to do that. And so I worked with a group which you were in, Katie, to develop our plans, and I wanted to help other people since I knew that was something that I struggled with, and I hadn't done before so I put on a workshop to help other people develop their plans. And another thing that I did to develop my skills is, I realized that I was really into group facilitation and facilitating discussions in small group settings. And so I partnered up with another woman on campus, Claire Wu, who - We created what we call the Women's Empowerment Collaborative, which is open to all women who work at OSU. The idea behind that was I wanted to create a professional development playground for myself and for other women, who were trying- who wanted to try out something new. And so we meet once a month, and we will talk about things like developing habits, and setting goals, and getting to those goals - work-life balance. What are the things that affect women in the work place? And by doing that, I was able to develop those skills in a lower risk environment than it would have been if it was something that, you know, I was getting paid to do. It was part of my official job. That I really just wanted to have this place that’s like a sandbox where I can play around and develop those skills, and I think that's really important for a lot of people, and it's lacking. And so that was one of the things, and I think the leadership training helped me to see that. That like here's this need, I have this need, I'm probably not the only one who has this need, and this thing doesn't exist, so I'm just going to go ahead and create it.

**KL:** Well, we definitely have an episode on five-year planning that I will link to in the show notes for people who are interested and are intrigued as they hear you talk about your own professional development plan. And I love to hear how you just took initiative on this, Heather. And you saw a gap in your own, you know, skill set, but also in the community around you, and you created this thing. That's wonderful! Heather, I want to thank you so much for taking the time to come into the studio, share about your experiences as a research support professional who has all these incredible skills that you're bringing to research team, and also a little bit about your pathway. Thank you!

**HR:** You’re welcome. Thanks, Katie!

**KL:** And thanks also to our listeners for joining us for this week's episode of Research in Action. I'm Katie Linder, and will be back next week with another episode.

# Show notes with links to resources mentioned in the episode, a full transcript, and an instructor’s guide for incorporating the episode into your courses, can be found at the show’s website at [ecampus.oregonstate.edu/podcast](http://www.ecampus.oregonstate.edu/podcast).

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# Bonus Clip:

**KL:** In this bonus clip for episode 89 of the Research in Action podcast, Heather Roberts shares some of her favorite books for professional development, take a listen.

Heather, I know that a big part of your own professional development journey has been reading, and you've shared with me in other circumstances about these different books that you love and have found super helpful, and I would love to share some of them with our audience here as well. What are some of your favorite books that you've turned to as you're looking at your own professional development?

**HR:** I have a whole lot, and as you know I have a hard time remembering them all, but I do have one that I just finished which is called *Mastery* and it’s by Robert Greene, who also wrote the *48 Laws of Power*. And *Mastery* - It's a book that I'm going to be going back to again and again. I actually started the book in the middle which was weird for me. I usually start in the beginning, but the middle part was talking about developing social intelligence, and I felt like I needed it at that at that time. And he talks about basically the importance of being able to read people and to see beneath the surface of what's going on. To get to the deeper meanings and roots of the conversation, so I really enjoyed his book and he talks about stories from a bunch of different people throughout history who have mastered different areas such, as Mozart, and Einstein, and famous dancers. And so he really brings it in from a lot of different angles and shares what are the common threads and also the difference. So there are - he'll have a theme and then he’ll have, “Okay. Here's five different ways to look at this, and then here's the reversal. Here's like, okay well, let's flip it on its head and look at it that way.” So I found that one to be really great book. Habit development is another huge one that, I have two books and a blog to recommend on that. Charles Duhigg, *The Power of Habit,* is really great book that breaks habits down into their very simplistic form of you have a queue, you have a routine, and you have a reward. And once you know that, you can kind of tweak it. So if you have a bad habit that you want to change, the trick is identifying what the actual reward is and it might not be what you think, so you kind of have to play around with it to see what you’re actually getting out of it, and what you can do differently. Another book is Gretchen Rubin’s *Better Than Before,* and so she's looking at tweaking habits, and it's very personalized, to what your personality is and what's going to work for you. And the blog that I refer to a lot is James Clear, and so he talks a lot about habit development, and he'll make these really simple illustrations that are really helpful for thinking about habits, and I think one of his quotes is something like, “Once you know what the right things to do are, the trick is just doing them consistently.” And so that kind of leads me in reverse to the other book that I was thinking about which is*, Leadership from the Inside Out*, and that's a book that I read while I was in journey into leadership as part of that program. And that book really goes into figuring out what makes you tick, looking at what are your values and how does that relate to your career goals, and how to create a career that's more in alignment with what you want to be doing.

**KL:** Well we will link to all of these in the show notes in case anyone wants to take a look. Thanks so much for sharing, Heather.

You've just heard a bonus clip from episode 89 of the Research in Action podcast with Heather Roberts sharing some of her favorite books for professional development. Thanks for listening.

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