

Interview with Sherri Johnson, by Max Geier, 1:00 pm, Monday November 24, 1997 at the Corvallis Forestry Sciences Laboratory/Transcribed by Lisa Fleming and Keesje Hoekstra.

Sherri Johnson gained a great deal of experience in research on impacts of hurricanes on streams in the Luquillo Experimental Forest and LTER site in Puerto Rico during her graduate work at the University of Oklahoma. So, she was well prepared when she arrived at the Andrews Forest shortly after the February 1996 flood to undertake studies of flood effects on stream and riparian systems. After several years in a post-doc position, she became a Forest Service scientist with lead responsibility for the Andrews Forest and a leadership position in the LTER program and in the LTER network as a whole.

Max Geier: The way I start these things is first to have you talk a little bit about yourself and background, and then we'll move through the interview and you'll talk more about what sorts of activities you do. To start off, if I recall this right, you mentioned that you started as a post-doc with the Andrews about a year-and-a-half ago after completing your Ph.D. at Oklahoma?

Sherri Johnson: Yeah.

Geier: And you were in Puerto Rico in-between. Is that right?

Johnson: Well, I was involved in Puerto Rico at the Luquillo [Experimental Forest and LTER site] site all during my graduate work.

Geier: Okay. Maybe you could talk about the origins of your involvement in this line of work, and your personal background?

Johnson: I was in business for quite a few years in Montana, went back to school to finish my undergraduate degree, and realized I liked water and ecology and geology. I ended up looking at graduate programs because I realized I could get paid for going to graduate school, (chuckle) as opposed to working.

Geier: Sure.

Johnson: I had to choose between a couple of different areas, and ended up in a zoology department doing stream ecology, as opposed to other ways I could have gone in water research.

Geier: So, your undergraduate work was where?

Johnson: U of M.

Geier: U of M?

Johnson: Missoula [University of Montana]

Geier: Missoula?

Johnson: Yes, and then I went to Oklahoma. I intended just to get a master's degree, and got talked into staying for a Ph.D.

Geier: Okay. Who were your mentors or role models?

Johnson: Alan Covich was my major professor, who is a P. I. at Luquillo. That is how I got involved in Luquillo.

Geier: Okay.

Johnson: He was down there on his sabbatical when I first arrived and they just had the hurricane. So, I got pulled into doing service follow-up work. All I did was sideline. And so he was my major professor for both my master's and Ph.D.

Geier: Okay.

Johnson: And he's a department chair now. He left and went to become the department chair for [or the period of] my Ph.D.

Geier: Okay. Where'd he go?

Johnson: Colorado State.

Geier: Okay.

Johnson: In the Fish and Wildlife department.

Geier: When we were talking before about Colorado State, I wasn't sure what the connection there was.

Johnson: Yeah.

Geier: Then, at the undergraduate level, was there someone that steered you along the way?

Johnson: Probably, Andy Sheldon. He's a fisheries guy. But I also worked with a retired geologist named Al Engle, E-N-G-L-E, who was retired up in Montana.

Geier: And your interest in forest research in the Northwest originates from your involvement with the LTER program at the Luquillo site?

Johnson: I was involved with forest issues in Montana as a conservation person. That's just as a volunteer. I'd worked for the Forest Service there as a seasonal, and saw what went on. So, I had that strong background of being involved, but not having the science component to add to it, so I was real interested to add the science. It only ends up muddling everything, you know. The outside person can say, "Oh, it's black and white," you have all these issues, and then, the more you learn, the grayer it gets.

Geier: Was there a particular issue in Montana that caught your attention and drew you into this?

Johnson: The streams there are pretty heavily hit. They dry up in the summer.

Geier: Okay.

Johnson: It gets to be a big issue. They always think fisheries versus forestry versus irrigation versus not much water in the first place, making a real issue.

Geier: You said you were drawn up to Montana from Kansas?

Johnson: Years ago.

Geier: For different reasons.

Johnson: Yeah, just traveling.

Geier: Okay.

Johnson: Back in the old days. (Laughs)

Geier: Like a lot of westerners, you've been to a lot of places it sounds like. (Laughs) Would you talk to me about your level of experience or previous experience with the LTER program in Puerto Rico? And you said you've interviewed with Hubbard Brook also?

Johnson: Uh-huh (affirmative), with Gene Likens.

Geier: What was your initial impression of the H.J. Andrews in relation to that experience?

Johnson: I first started interacting with the HJA people at Puerto Rico. Fred Swanson was an outside reviewer at some of the Andrews' review meetings. [Swanson was in Puerto Rico to help write two Luquillo LTER proposals] So, I met him then, and interacted again with him at the 1990 All-Scientists LTER Meeting. My major professor was very good about including me in these different science levels and at different meetings, so I started attending the All-Scientists Meeting in '90 and then again in '93. By the time I met Fred again at the All-Scientists Meeting in '90, I had heard a little bit about the Andrews and was intrigued, because it was a research site in the Northwest. And I'd heard some about Oregon State [University] having a strong

fisheries program. So, to see some of the ideas that were coming out of the Andrews, and as I'd took classes, I realized a lot of research had happened up at the Andrews that was reflected in the literature we were studying. So, I had a real positive impression of it. But I also interacted with Fred, and saw how he had a more gestalt feeling about landscapes and streams and was real drawn to that, rather than just trying to study streams in isolation.

Geier: Would you say you had a general understanding or general exposure to some of the work that was done on streams down there, but that it was also personal interactions with Fred?

Johnson: Yeah. Then, I interacted with Gordon [Grant] quite a bit at several other LTER meetings, the '93 meeting, as well as an inter-site hydrology meeting I just picked, and Gordon organized. I was an LTER representative to look at hydrologic modeling and work with sites. That was in '94. In '93, I also ended up sharing a room at the All-Scientists Meeting with Julia [Jones], so I got to know her through that. I hadn't met her before. She was fairly new here.

Geier: I was going to say, she came up in other discussions.

Johnson: Yeah. So, it was kind of interesting, but also, as much as anything, when you're looking at stream literature and forest-stream interactions, the Andrews is the place that a lot of that initial research has come about, and some of the very leading-edge research.

Geier: I think you mentioned, quickly, but maybe you could mention some of the things you were working on in those studies at Puerto Rico.

Johnson: Okay. In Puerto Rico, I got pulled into it right after the hurricane. My major professor was on sabbatical, the hurricane came, our sampling regime was to increase dramatically to try and follow the effects of the hurricane, and so I was basically pulled in as an extra hand. We would come for a bit in Puerto Rico from Oklahoma, as I was still based in Oklahoma. They were looking at the effects of the disturbance on the stream community. The disturbance being the hurricane, but also all the debris that came into the stream from the treetops. And then, whether there was wash-out of the stream communities. Interestingly, by following disturbances and ending up here [Andrews Forest] after the floods and working on that disturbance, too, I'm kind of a disturbance chaser, I guess. I always seem to arrive there right after the disturbances.

Geier: You got here right after the floods [Feb 1996]?

Johnson: Uh-huh.

Geier: Okay.

Johnson: In June, after the [1996] floods, and then ended up doing a channel study to look at the effects of the flood and stuff.

Geier: Great.

Johnson: But that work was interesting because it was, probably, an early tie to the effects of forests with the streams. Worked some on woody debris dynamics and the breakdown of the debris dams that came into the stream. We looked at the population abundances of fresh water shrimp along an elevational gradient from the headwaters down about a kilometer. So, that research is part of the long-term research that goes on, but we were specifically interested in comparing some of Alan's [Covich] before the hurricane data, to after the hurricane. As I was involved with Puerto Rico more, I ended up doing some work with the Forest Service down there in the International Institute of Tropical Forestry.

Geier: Okay.

Johnson: Which is the component similar to PNW as part of U.S. Forest Service research. Some issues had come up about instream flows and [water] extraction. They were going to be taking quite a bit of water. The public authority was going to put in a proposal to take quite a bit of water from one of the streams. One of the last free-flowing streams draining the forest, and because we had the long-term data on the shrimp, we were trying to use some of our long-term data [to give input on] management [of streamflow]. That research has come along and we've made recommendations, and there will be a Forest Service publication coming out of it.

Geier: So, there was a strong applied aspect.

Johnson: Right.

Geier: Aside from your major professor, who were some of the people you collaborated with down there?

Johnson: In Puerto Rico?

Geier: Right.

Johnson: Rex Cachina is the hydrologist, the U.S. Forest Service hydrologist down there, and those are the main folks. It's like any LTER site where there is a whole big group.

Geier: Yeah, sure. I was curious if you might have any impressions on the relative degree of interaction of scientists and staff with students or post-docs.

Johnson: Puerto Rico is a little hard, because it has 22 investigators from 19 different universities, only one of which is local. So, almost everybody is from the mainland. Everybody is coming and going, actually overlapping down there, so it's sometimes hard to arrange. They do have an annual meeting where everybody tries to show up, but because of the logistics it's a lot harder to communicate, a lot harder to keep projects, continuity in projects, going. The staff has a little bit more turnover, being a Hispanic country [U.S. territory]. Not having quite so

many scientists-in-residence, it becomes a lot harder to get projects going and then kind of having to keep them going, and having [to deal with] absenteeism. Like, people can do [at the Andrews], if it's only an hour drive and you can check on them once a week.

Geier: So, there were problems with projects starting and then stopping?

Johnson: Yeah, continuity of projects. People tend not to try and do those long-term projects, follow-through projects. You go in and sample for a week and leave, kind of bounce back. People come and go quite a bit. The field station is much smaller, so in some ways it's a little more intimate, and you interact with a lot more people. But in some ways it's a hindrance, too, because it's kind of small and it gets overwhelmed. But it is interesting, and you end up in the kitchen sharing one stove with a variety of other scientists and student researchers and staff and technicians. So, the communication is a lot more open because the way people are running into each other right in the middle of when they're trying to get their research done.

Geier: I was wondering in terms of the site itself. At the Andrews, my impression was that there's a flurry of activities around the summer and fall. I was curious if Puerto Rico, if that would be more continuous during the year?

Johnson: It's really crazy there in the summer because so many students are down there, and technicians are down there working on projects. The breaks tend to be a lot busier too. People tend to arrive after Christmas, before school starts, as well as Spring Break. Those are times that you kind of get that you don't want to be down there because it's so hectic. Otherwise, it is a tropical site so it's not quite the seasonal dynamics we see here, but because so many people are tied into universities, you don't see a whole lot of activity in the fall and other times within the spring. One guy that's involved in the stream group is taking sabbaticals down there. People tend to do that kind of research more, or not teach for a quarter and be down there. But it really thins out. There's been quite a few times at that field station that I've been the only person there. And it's a Forest Service Station, the whole forest itself, the Caribbean National Forest, is probably only as big as the HJA Experimental Forest.

Geier: Oh.

Johnson: Yeah, a lot more urban pressure.

Geier: How would you characterize the site in relation to the Andrews?

Johnson: The H.J. Andrews these days is much more lush. The facilities are much nicer and they're maintained. There's just more space being there in the flat. Puerto Rico has kind of very marginal facilities, and they're in the process of growing, so they're probably like the Andrews was before all the dorms were built.

Geier: Sounds like if you went back to the Andrews site in the trailer days, it'd be pretty much the same?

Johnson: Yeah, but I wasn't there for the trailer days.

Geier: You might have mentioned this previously, I'm not sure. Had you previously been out to the Northwest before you came out here to work?

Johnson: I'd traveled through. And living in Montana, we'd occasionally come over to Oregon.

Geier: Okay. Can you recall your first impressions of the landscape? Of the forest?

Johnson: The Andrews?

Geier: Yeah, the forest, in relation to your expectations.

Johnson: I remember thinking how plush the site was. I went up initially on a tour when I came out to interview for the post-doc I was on. We teased about it being a "trial by rain," because it was one of those horrendous spring rainstorms. The whole idea of working in such a wet area was real different to me. I'd thought of the Andrews probably more in terms of montane forests, than quite so wet. So that was interesting. And the facilities, the greenness. My first tour up there was just a month or two after the floods. So, we were down looking at those dynamics.

Geier: Sounds like you did some traveling around the Northwest before you came out here. How would you compare the H.J. Andrews with other sites around the Northwest? Other forests?

Johnson: Well, I guess the only other experimental forest I could compare it to would be something like the Lubrecht [Experimental] Forest in Montana.

Geier: Which?

Johnson: Lubrecht Experimental Forest. It's run by the university [U. of Montana]. I've been in a variety of Forest Service situations and camps, but the Andrews seems very integrated. Or I see it being very integrated with the university as well as in its research, with the traditional forest management folks, the Willamette National Forest. I'm real impressed with interactions that go on between the researchers and the National Forest folks. What's the proper way to call them?

Geier: Forest managers?

Johnson: Yeah, forest management. Willamette folks are much more interactive people, like John Cissel. I think that kind of a position is really unusual, but it's becoming more common. Hubbard Brook has an outreach person, Coweeta now has an outreach person. David Post helped organize an inter-site hydrology meeting we had at the Andrews last week on Thursday

and Friday. So again, I was interacting with some of the Forest Service folks, some of the Puerto Rico folks were there, some of the Coweeta folks, Hubbard Brook, a couple of these sites. It was interesting to talk about facilities and the amount of research going on. The Andrews is an older site than I've been at before.

Geier: In terms of research?

Johnson: Yeah, in terms of length of research. And you're so familiar with the literature that's come out of the Andrews before I arrived. But it was fun to actually see some of the "River Continuum" sites, the clear-cut, whatever's there on Mack Creek, where some of the early studies of effects of clear cuts on fish.

Geier: Uh-huh (affirmative).

Johnson: Things like that.

Geier: Did you have a sense of the research community already established before?

Johnson: Oh yeah.

Geier: How?

Johnson: Especially with the big names that have come through here.

Geier: You mentioned Fred Swanson. Were there other people that you knew about?

Johnson: Well, I knew Jim Sedell's name, and Ken Cummins has come through here. I don't know Ken very well, but it's a name you know quite a bit within stream ecology. And then just a whole number of people that have come through here on post-docs and graduate students.

Geier: You were talking briefly about some other experimental forests, and I thought maybe you could explain how you might characterize your understanding of the proper role of experimental forests at the time you came out here.

Johnson: At the time I came?

Geier: First of all, your conceptions at that time of what you expected an experimental forest to accomplish, and then, how the HJA fit that model, or didn't.

Johnson: Well, I think it fits pretty well. It seems like one of the more interactive forests that I've seen. Not that I have that broad an experience with them. We're looking at how are we managing our forests, and taking those results back to the managers and saying, "Yes, this is, and no, this isn't working," and being a place where adaptive management is being experimented with on a small scale before it's taken into the larger arena.

Geier: Could you describe what your professional priority here is? How do you characterize your research goals here as far as what you're trying to accomplish as a scientist?

Johnson: I'm here on an NSF post-doctoral fellowship. So, I'm actually being paid by NSF and routed specifically to work at the Andrews. And I think that in their guidelines NSF encourages you to work at an LTER site because of the broad nature and the exposure that the post-docs would get. My personal goals are to be in a very dynamic research group. I had felt fairly isolated in graduate school, being in Oklahoma and trying to do collaborative research. I was in a department where there weren't really other people working on what I was working on. I was working across departments quite a bit, but there wasn't any kind of a model for transmuting those things. People just kind of thought I was strange. (Chuckle) The site I was working on was an agricultural research site, which is kind of an agricultural model of an experiment forest. So, we had people from a couple different universities, and maybe different departments within those universities, working together. It was hard to get it rolling and keep it rolling and keep the communication. I was really looking forward to coming to a place where I would have lots of interaction. Being here at the Andrews, I feel like, instead of I'm the only person doing what I'm doing, I'm one of many. So, it's kind of a different challenge of creating your own identity within this group of many, rather than just being the only one and trying to do what you do.

Geier: Would you say that's a more supportive environment for this kind of work?

Johnson: Yeah. It's more supportive, and it's a lot more intellectually stimulating, because there are so many other people doing things you feed off of. You're kind of weaving in and out of what you're doing. My proposed project here, is specifically to look at the effect of stream temperatures, so it's a fairly basic research question about what are the processes and mechanisms driving stream temperatures. But it also has a real applied side, especially in Oregon these days, which I didn't realize was quite such a hot issue until I arrived and started working on it. The State of Oregon is listing its 303(d) streams [streams not complying with Clean Water Act water quality standards], and it's a really controversial issue. So, my research is kind of on the edge of that, but much more in the basic arena. Also, while I was waiting to start accumulating some data, I got real involved doing follow up work, and will end up continuing on with that for a little while after my post-doc is over. We were looking at geomorphic changes, so we'll do a co-op agreement with the Forest Service to arrive at those results when my post-doc is done. That's been interesting because I'm not trained as a geomorphologist, so that's a new training for me to be doing this work and to be involved in issues at the regional Forest Service level, rather than just an individual forest.

Geier: What you're saying is that was kind of a fortuitous spinoff in your other work. One clarification, I think you might have mentioned it, but who encouraged you or sponsored you to write the NSF fellowship? Someone at the Andrews?

Johnson: Oh, I hit up Julia [Jones]. But, people here are so busy, it's hard. I'd actually talked to Stan [Gregory] at one point about doing a post-doc with him, and he would say, "Yeah, it's a nice idea," but following through was hard. I hit up Julia when I met her at the '93 meeting, and shared a room. I asked if she needed a post-doc, knowing I wanted to work out here, and I said, "I'm just kind of looking around for opportunities that might bring me out here after my graduate work was done," then kind of let that slide. She [Jones] said, "Oh, I'm not ready for a post-doc," as she was busy with this and that. I saw her again at a meeting, an ESA meeting, about a year-and-a-half later, and thought I'd mention it again. She said, "Well, let's talk about it." So, I followed up and ran some ideas by her, wrote some things and sent them out to her, and submitted it that way. We threw some ideas around of what she might be interested in. Because I was interested in learning more of her techniques on spatial analysis, trying to take stream research to more of a landscape-scale, rather than just the reach-scale most stream research focuses on. I had that interest. They'd been working on landscape issues in Oklahoma, and landscape ecology in general, so it was interested in getting some of those technical skills.

Geier: So, you just started out with some kind of informal inquiries [areas of interest].

Johnson: And then, talked to Gordon [Grant], some of his publications which I read. But, both of them were also very busy. I made initial contact with some of the more prominent scientists here, but following through with them is hard, unless they had a specific project they needed somebody for. So, I was kind of putting it out that I was going to be looking, and if they had a specific project come up, I'd be interested in talking to them about it. But nothing was really coming up, and so, it took my own initiative to write a proposal and get funding.

Geier: It was some kind of a fortuitous circumstance on one hand, and persistence on the other.

Johnson: Yes. Persistence plays a big role in working with a group like this, because they are so busy.

Geier: I was wondering if you could characterize your thinking about research on the site at the Andrews, your level of involvement with the people there on-site, and how important is the kind of research that they do?

Johnson: The researchers on-site, or the post-docs?

Geier: Post-docs or the scientists.

Johnson: The research support staff is really good at the Andrews, and very helpful. Greg [Downing] and Don [Henshaw] and Fred and all those folks, help quite a bit. Both in terms of trying to do some of the historic work I'm doing with the Andrews with the stream temperature data records, from historical studies to the present. For other researchers, I'm not sure I interact with them as much at the Andrews as I do here on campus. Folks like the geomorphologists and the hydro group, what we call it, and graduate students through

geosciences, that are all working on physical processes of streams, as well as the stream team tying into biological work they're doing. I had been more formally-trained as a biologist than a geomorphologist, but being here in this building and initially doing some geomorphology, I kind of get thrown into those camps a little bit more. And then that thing of Stan Gregory going on sabbatical, so an opportunity came up for me to get some teaching experience by filling in for him when he goes off on sabbatical.

Geier: Was that a goal when you came here, to get into teaching?

Johnson: I'm not sure it's a goal, but it's an important experience to get someplace along the way. Maybe, if I wasn't going to train, but do it in this situation which meant more formally approaches and trying to create a summer class or a short-term class or somehow to get some more teaching experience, especially if you want to do any kind of academic job. For what comes next, I need to have that in my records, in my skills bag.

Geier: You're kind of anticipating my next question here. I was going to ask what your overall career goals are, where do you see yourself going in the future?

Johnson: I really like the research aspects. Traditional teaching hasn't called to me before, but it will be interesting to get that experience and see how much I like it this next couple of quarters. My ideal job would probably be to become a research scientist.

Geier: With an agency?

Johnson: With an agency, probably. I realize there's bureaucratic problems with any group. But to do something like that, or where there is very personalized teaching. I like working with small groups of people and being an educator in that sense. The traditional lecture is not maybe the most efficient way to be learning. I end up working with a lot of students, but I work with them much more hands-on. Whether it be other people's students that hit me up as a post-doc here, and an unemployed bunch of students last fall for this geomorphology work, or people that aren't really students anymore, but maybe just finished their undergraduate program and are kind of in transition looking for their next project.

Geier: You hired folks before?

Johnson: Yeah, I've hired an assortment of folks and students in different roles as young technicians. And I like working with people on that level. A lot of it is you can't always have exactly the job you want. If you want to go for specific jobs, then you can't choose your region.

Geier: Do you tend to work with someone like that on a day-to-day basis, with the other scientists, other people in the group?

Johnson: I probably go both ways. I do that quite a bit with other scientists. Dan and Judy [Li or Meyer?] and Gordon [Grant] primarily, and Julia [Jones] and Fred [Swanson] also.

Organizationally, because I'm used to having employees, it's pretty easy to have students and get them going on projects. They're not actually my students, but I have student workers. I'm involved with data management levels or having them do this or do that, so I connect kind of both ways. I see myself very much as an in-between person.

Geier: I wanted to ask you about your relationship between your career goals and where you see your research going. I think we touched on this just a minute ago when we were talking a little bit about regional location versus targeted jobs. What are some other specific research goals or an agenda that you want to try to accomplish in the future?

Johnson: I think my main interest is integrating studies, a broader understanding of interdisciplinary studies of streams and organisms. I don't think I could compromise that for the type of job I would want to do, but there are lots of different ways to do that within jobs. In terms of regional work, especially being a person who likes to work at the big scale, I see so many studies that go on at such a fine scale, the results aren't really applicable to anywhere else.

I see it being really important to do regional studies and be able to talk about the bigger processes and mechanisms. So, it's not just a case study of this and a case study of that. I think our science is changing quite a bit in how we can do it and how we need to get our research out to the public.

Geier: One of the questions I've been trying to grapple with here is what people identify as their target audience. Who are they writing for? Who are they doing research for? What's the purpose of the group, basically?

Johnson: A lot of it depends on your job description. And what you have to pay the piper for, depending on who you're working for and depending on how you're being evaluated. So, I get pulled between needing to get results out to the primary, scientific literature, because that's how I will be evaluated for any kind of further jobs. My publication record is everything in science these days, as well as you could do all these other things, too. But your publication record is your main credibility. But that's not necessarily getting out to the general public. I was just at a meeting this morning with the stream team group, talking about making some changes. We really need to work with these different departments and kind of use Oak Creek as a model. And wanting to do those kinds of things, but yet if I get distracted with that [could be a distraction]. I haven't had funding to do it. I have interests but I also have to watch out to keep my funding together, especially if I'm going to do the soft money game for a while. I tend to get involved in environmental issues, local ecological groups and education projects, wherever I am, the Willamette River Education Project and those kinds of local things, because I feel that's important. But, you have to be really careful about keeping your credibility up at the same time.

Geier: So, your number one goal audience is professional. Is that what you're saying? Publications, and then your other additional concerns you try to work in.

Johnson: Right.

Geier: You mentioned the Oak Creek issue. Any other local community issues that you've been involved with here lately?

Johnson: Well, I've gotten pulled in looking at stream temperatures. I've given a couple of talks this year already to a local agency group of industry folks about stream temperature, as well as a water quality group about stream temperature. I've talked quite a bit in different venues, having done this with geomorphic channel work to different agency groups of managers about floods and related issues, whether it be tours up at the Andrews, or whether we're actually going to other forests and talking about the research we're doing here on floods. And kind of what we're beginning to feel are the drivers and the most important factors that are influences of the flood, and what that did to stream habitats. I'm involved with some local issues, and I'm involved with some forest issues. I'm involved with some agricultural issues, although not quite as much, but stream temperature is becoming much more of an agricultural issue.

Geier: Looking back on it, can you think of any of those kinds of involvements that you might chalk up to personal success of something, how you accomplish something?

Johnson: I tend not to think I'm really making that much of an impact.

Geier: So, it's mainly informational roles that you're talking about, participating in the process?

Johnson: Yes. Right.

Geier: As opposed to affecting management?

Johnson: Yeah, I'm much more of a process person.

Geier: What are your perceptions of the community at Blue River, the McKenzie Valley, as it relates to your community of scientists? How would you characterize the interactions?

Johnson: I haven't interacted that much outside the Blue River Ranger Station, and the folks that live up there and work at the station. I haven't really interacted that much with the McKenzie River Valley. I know there's the McKenzie Watershed Council, which are involved citizens trying to drive the process, but I personally haven't gotten a hold of any of that yet. So, it seems we see the fishing industry being pretty active up there.

Geier: In terms of going down to do your work, do you kind of stay on site for long periods of time, or do you go drive down there and drive down?

Johnson: Last fall, when I was doing the channel work, I was down there five days a week and would come home on weekends. We were rushing to get the streams inventoried before the next high-water event, so we started in September, knew the rains were going to start at some

point, and wondered how much could we get done before the rain? So, I was pretty much living down there. And I'd kind of come and go through the summer, and then not be down there much in the winter, but then, again, this spring and summer, I was down there off and on. Usually, I'd drive down and spend one to two nights, and then come back.

Geier: You usually spent that time on site then?

Johnson: At the headquarter site? Yeah.

Geier: It's probably a naive question, given the kind of time you're talking about. Did you have time for recreational activities while you were down there?

Johnson: Sometimes I do. But in some ways, the research I do is, is almost like recreational, I mean it's not recreating, but it fills a lot of those needs that recreation does in terms of walking and taking hikes in the woods, dinking around in the streams and seeing new sites, and traveling through other areas. That's why I like it. It's the ideal job for me, being able to be out and enjoy those things. And on hot days I'll quit early and go jump in the reservoir, things like that. But I haven't been based there that much, so I get restless and start going other places from there.

Geier: It doesn't sound like you're go down to the community of Blue River much for leisure-time activities.

Johnson: No, I haven't checked out the restaurants, and I'm not really invested down there.

Geier: I wonder if you could talk a little bit about your perceptions of the Blue River Ranger District. You've touched on this, your interactions with the national forest and staff out there. Would you characterize that as important to your research, the kind of research that you do?

Johnson: They interact more through the monthly meetings and up at the station than I had expected them to, based on my working at, say, Luquillo. It's maybe because of time pressures and lack of continuity down there, it's a little bit harder to make connections with management folks at Luquillo. Here, the folks at Blue River are very interested, they're very interactive. I wouldn't say that it's necessarily critical to my research, but it's an important outlet for my results. I do make a conscious effort to connect with them, and let them know what I'm doing and what the issues are. Whether it be their hydrologist, who's kind of doing similar studies, and talking with her, or when I was doing site selection for geomorphology work, I spent quite a bit of time down there with the folks looking at their maps and using them as a resource.

Geier: Who's the hydrologist there that you interacted with?

Johnson: It had been Michelle McSwain, but she's moved now. And their GIS person was very helpful in terms of trying to look at access to streams and being new in the area. I wasn't sure

how much we had here through people like George Lienkaemper, who's very valuable, but also just the local folks. So, we've worked quite a bit with them.

Geier: Do you recall who the GIS person was?

Johnson: No, I don't.

Geier: That's okay.

Johnson: And then people like the forest hydrologist, Deigh Bates.

Geier: Deigh?

Johnson: Deigh, D-e-i-g-h- B-a-t-e-s, Forest Hydrologist for the Willamette Forest. He's very interactive and has helped fund some of the sensors I bought, has been interested and really encourages interaction with research folks. I also interacted with them quite a bit last summer, arranging for aerial photography to try and look at the effects of the flood. The forest [Will. NF] wasn't going to get it done, and we were pushing to get it done for the Andrews, or I was pushing to get it done for the Andrews, so that we'd have a record. Because after the '64 floods, it was a couple of years before some of this stuff was done, and even if we saw no immediate use for it, it was something I was pushing for. So, I interacted quite a bit with different folks, and tried to do it through the forest [Willamette NF]. It wasn't going to happen, so I tried to do it.

Geier: That's fairly expensive, it sounds like?

Johnson: Uh-huh.

Geier: At least initially?

Johnson: I'm pretty much a networker. So, those things come naturally, and trying to get something done, you just sort of keep going until you find somebody that knows what you're talking about and can help you. And they ended up helping with the aerial imagery, [it's] just [a matter of figuring out] who to [ask for help] and what [to ask for].

Geier: And if I heard you right, it sounds like that was when you first came here and you were not quite as involved in -- ?

Johnson: Uh-huh.

Geier: -- other responsibilities here yet, so you became more aware of people like George Lienkaemper?

Johnson: Uh-huh.

Geier: So, you shifted more in that direction?

Johnson: No. I still use these other folks quite a bit. I mean, George [Lienkaemper] is pretty focused on other jobs, and George is very helpful for certain layers, but some of those layers that I'm looking for, people haven't asked him for yet. So, then I go back to the Forest [Andrews] and kind of arrange for them to get some of these layers. Especially because I not only worked within the Andrews, but within this bigger area. I ended up working all the way down the McKenzie River. Our study ended up dealing with quite a bit of private land. By working through a couple of ranger districts and private land [folks], we could get the resources. And they're also doing the same thing up on Fish Creek in the Clackamas District.

Geier: So, you're finding yourself drawn more to the regional aspect. While you were developing networks around campus, I'm curious how you might characterize the research climate at Oregon State University compared to some of the other places you've gone, like University of Montana and Oklahoma. I gather at Oklahoma you weren't real excited about the opportunities for collaborative research?

Johnson: People were much more disciplinary-based there. Here, I find things being much more interactive and interdisciplinary. I'm amazed at the number of people in soft money at this university, kind of like Colorado State, but we have the Forest Science Department, which has so many people that they're calling faculty, but yet, they're not paying them. (Chuckle) They're responsible for their own budgets; to me, that's unusual. It's kind of typical of the West in terms of budgetary constraints, versus places that have a little more money. Oklahoma had quite a bit more money. Actually, I applied to come here, or was accepted to come here for my Ph.D. work, and that was about the time that Proposition 5 [tax limitation measure] went through.

Geier: Yeah. That was good timing.

Johnson: So, I bailed out and stayed where there was money for education. Oregon is fairly typical of the western states [U.S.] in terms of the state support they can give towards research and education. It's nothing compared to the Midwest. Yet, people still want to be here enough and they count on that, so they [western U.S. universities/OSU] kind of take advantage of it. But I find the researchers are much more interdisciplinary. The departments are set up a little oddly to me. But people are working across the departmental lines so much.

Geier: If I understood you right, you're suggesting that's because of the higher number of research post-docs, rather than regular faculty, or soft money appointments? Correct?

Johnson: Soft money. Because some people here are on soft money, and make careers out of it. That's just unheard of in other places. You don't see people staying on soft money very long in Oklahoma.

Geier: So, your perception is those people would tend to be more interdisciplinary, is that what you're saying?

Johnson: I'm not sure it's those people. I think it's just the nature of the environment, or the community and the research environment that makes people so much more interdisciplinary. You realize you really can't work on things in isolation. And partly, that places like Oregon State are more leading edge in some of these ideas. So, these ideas will become more common elsewhere, eventually, but people in the West or Northwest, are all here is to kind of push the envelope of how we deal with things.

Geier: So, you're saying that's a characteristic of the campus?

Johnson: Uh --

Geier: Or just the community?

Johnson: I'd say most of the Northwest. The liberal aspects of being in the Northwest, I think, tends to encourage that. But, the fact of having the interaction between state and federal agencies with the campus right here, makes an interesting dynamic. That happens on most campuses at some level, but how much they take advantage of it and how much people, personally, tap in is a whole other matter. I'm one of those that tends to tap into those things anyway, but here there is just way more than I could ever tap into.

Geier: So, you're kind of predisposed to seeking it out, but here you find that it's a lot easier to seek it out or something?

Johnson: Oh yeah.

Geier: What would you identify as your focus outside of the Andrews group?

Johnson: Outside of the Andrews?

Geier: Yeah, beyond the Andrews group.

Johnson: Here at Oregon State, you mean?

Geier: Yeah, or more generally.

Johnson: Well, there's still some colleagues from Oklahoma, folks I worked with there.

Geier: Grad students or faculty?

Johnson: Faculty.

Geier: Okay.

Johnson: You always make new ties through your major professor in that research group. I still have manuscripts that need to get finished, and with Puerto Rico folks, I'm involved on a cross-site study of LTER streams. And so, kind of through that community.

Geier: Who's working on the stream study with you?

Johnson: Stan and Linda [Ashkenas] are the folks here at the Andrews. I'm officially involved in it down in Puerto Rico, and in the nine other sites around the country where they're doing it. We're all doing the exact same thing, and there's a post-doc that travels [among sites]. And then we'll be able to, hopefully, compare across all these sites with the same methodology of looking at [stream ecosystem] dynamics with nitrogen.

Geier: Are there any publications kind of outlining what you're doing on that?

Johnson: There's a website. But, the publications are starting to come out, there's a website on. It's called the LINX, L-I-N-X Project. [Lotic Inter-site Nitrogen Experiment]

Geier: Yeah, I've heard you talking about that at the Andrews.

Johnson: Actually, if you talk to Linda [Ashkenas], she was there. She was just looking at the manuscript. I could find it, but I don't have it [presently].

Geier: It would be helpful to me, though, if you might kind of briefly encapsulate kind of what the goals were of that topic.

Johnson: Of the -- ?

Geier: Of the cross-site study [LINX].

Johnson: It's called the Lotic Inter-site Nitrogen Experiment [LINX], and it takes a similar methodology of releasing and fixing nitrogen into streams across many sites, but at very, very low levels. Not as fertilizer, but at very low levels. And first doing the modeling of how you think this nitrogen will be distributed throughout your stream community, and then sampling that after the release, to see if that fits with the model. We're doing it on fairly small streams. We're looking at it through the different trophic levels, and trying to see where it goes. It is a short-term release, I think it's like a six-week release at each site. The Andrews will be doing it next summer in July and August. We're the last site. It's an interesting group. It's kind of one of those groups that's evolved out of the All-Scientists meetings. The stream group would meet at the All-Scientists meetings and it kind of evolved from there. We got together at Coweeta about two years ago to write up the proposal.

Geier: So, you had kind of gestation period before that meeting?

Johnson: Yes. The LTER stream group is very interactive, it has some very strong scientists, so definitely it's a real interesting group to be on the periphery of. By no means do I consider myself a main player in it, but they're good mentors.

Geier: Several people have mentioned that group as being particularly interactive. Do you have any ideas why?

Johnson: I don't know if it's personality, or it might somewhat be the nature of streams, studying streams, because it's really hard to study streams in isolation. They're such integrators of everything going on around them. So many people may have been pushed that way already. But, I think also, different personalities like Judy Meyer and some other folks kind of push it.

Geier: You talked a little bit about this, too, but it's focused in a little bit here on the decision-making process, and then monthly meetings and other mechanisms for managing the Andrews. How would you characterize your level of involvement in that activity?

Johnson: I guess I'd say that I'm an active supporter, or an active attendee of the different groups and the different committees. Partly being a post-doc, I have more free time than people who are, tightly-tied into full-time teaching commitments and full-time research commitments. So, I do have time to pursue that and I also have the interest, because I'm involved. Trying to try to work with the climate group and trying to work with the hydrology group, and because of my interdisciplinary work, having to tie into these groups a little bit. David Post and I have talked about that. You come in from the outside, so post-docs are kind of the ones who are not totally tied into the previous methodology, but yet you have energy for the site and kind of can help make some changes and kind of challenge some assumptions that people who are there all the time, kind of tend to get going on. So, I feel like I'm fairly involved within the LTER group. And they're also an open group to encouraging everybody. You know they're easy. You show a little bit of interest and they realize they'll get something back, and they reel you in. As Mark Harmon said when I first came out and was visiting, "You know, I've gotten this grant." I've kind of met some of the folks and have proposed it to them and I got funding. Oh good, a set of free hands." So, that's kind of how they are. They're more than willing to put that to use, and you have to be kind of careful, any person does, so they don't get too scattered by it all, because there is so much to do and so many different ways to go.

Geier: And as you pointed out earlier, the funding was attached to your grant.

Johnson: Right. You have to be careful about your social service work in terms of your primary research work.

Geier: So, if I understood this right, what you're suggesting is that this flood of post-docs that comes to this site, brings in some outside perspective and some vitality to the group that complements these long-term approaches?

Johnson: Yes. I think they really do because, if you don't have new energy coming in, things do get real static. So, between the researchers themselves teaching, and start pulling people in, there are others of us that are more persistent and are just kind of interested and get involved.

Geier: We've talked about the issue of an audience already. How might you characterize the effectiveness of the Andrews group in communicating its ideas? How effective do you think they've been in proselytizing or letting people know what they're doing and its relevance?

Johnson: I'm not sure I can evaluate that very well, because I'm looking at it more from inside looking out. So, I'm not sure how the public community thinks about it, or the management community.

Geier: I was thinking along the lines of the last question I asked you about your level of involvement in the management of [the Andrews program], and other goals that you see the group should be moving towards.

Johnson: I think there are ways that we could be more efficient in getting those results out and following up on that. But, it's not a project I've personally taken on to that next level. And looking at communication within the group, communication takes time and energy, and it's one of those kinds of hard things to do. The group seems to do it pretty well, but there's ways we could be a little more efficient at it. Just even in terms of interacting with our technical support people, several of them had commented to me that they really wish there was more interaction with the scientists. Not only for their personal intellectual development, but just because they don't always feel like they've got enough guidance on the projects that they're supposed to be doing. And they tend to look to post-docs or whoever is putting in energy at that point, as a way to get some more of that information.

Geier: That's the in-between level you were talking about earlier?

Johnson: Yeah, whether it'd just be how the watersheds are gauged. We arrived here and realized these watersheds were gauged, but they hadn't been recalibrated for 20 years. You know, nobody, you kind of just get used to operating and it kind of takes an outsider's view, and then kind of trying to push that through. And, maybe the researchers that are here are so busy, that are using that data, don't realize some of the gaps that might be happening because they're not tying back in quite as much to their field people. So, some of that gets to be hard. And mostly, all these scientists are just so busy. And I guess I see that as one of my goals, to remain un-scattered and distracted by it all. To be able to say "No" to projects. I mean there are lots of interesting projects that I'm hopefully going to be able to say "Yes" to.

End of Side A, Tape 1 (1 of 1)

Start of Side B, Tape 1 (1 of 1)

Johnson: It's a challenge to find optimal effectiveness and not lose effectiveness, or they [scientists] lose some quality of life there. It may be their personal life that gets sacrificed, but they can continue with being effective scientists. It's a hard thing.

Geier: I was curious about the role you played. If technicians are coming to you and raising these problems, the question that raises in my mind is what is it about a post-doc that they see as more approachable perhaps?

Johnson: Yeah, I think accessibility. I think time. And I'm out in the field with a lot of the folks. So, it's just that daily interaction that happens, too.

Geier: Would that be an example of interaction out at the Andrews?

Johnson: Yeah, just running into each other at headquarters or something. To at least establish that approachability, even if they don't run into me quite so much then. And I think they would like to feel these other people are approachable, but they're so busy.

Geier: That's helpful. I've been trying to learn about that. Trying to see the changes over time.

Johnson: Well, several of the staff will kind of talk about it, and say, "Gosh, in the old days it seemed like they used to actually go out in the field more with scientists, and now, the staff are training the staff." And that tends to happen, but different things get lost when you have that.

Geier: As you mentioned before, that's a function of the growth of the program.

Johnson: Right. And a function of the scientists that they may be used to becoming more senior, more scattered now, and less approachable.

Geier: I was curious about the LTER site in Puerto Rico, where people that came in there in a very fragmented fashion. Would you be more likely to have direct interaction with the scientists that teach at that level, or not?

Johnson: I think there's a lot fewer technicians there, and because scientists are coming and going so much, unless they specifically hire somebody for their project, there are just a few technicians that are doing some of this long-term work. And in some ways, there's probably less interaction. Partly because of the language, the language barrier. A lot of the technicians are Spanish-speaking, and scientists, English-speakers. But also, just the fact that if the scientists are only there for a week every couple months, or once a year, they don't have much time to interact. And so, it seems like it's smaller than the Andrews. Some of the folks at some of these other sites that were at this hydrology meeting the other day, were commenting that it's really unusual to have a university and the Forest Service collaborating on an experimental forest like the Andrews, and they kind of were envious of that. Luquillo doesn't really get any money from the University of Puerto Rico. If anything, it's giving money to the University of

Puerto Rico for different things. But having some of the people employed by the university, some by the Forest Service, and everybody working together, isn't that common, as it is here.

Geier: I'm curious, you mentioned you've brought some of this perspective from Hubbard Brook. What were your goals in applying there?

Johnson: Gene Likens was advertising for a post-doc.

Geier: Okay.

Johnson: It was a post-doc in stream ecology. I wanted to work at Hubbard Brook, and it was kind of open-ended; doing some research, what do you propose, and how does that fit in with our bigger goals? I'd applied, and then, he interviewed two people. He ended up hiring a guy who'd been working at Coweeta, but in the same interim, I got back here and I'd gotten this fellowship.

Geier: So, here you are in the Northwest.

Johnson: Yeah. I wasn't excited about living in New York. I mean that would have been a major shift, you know. I wasn't sure if I was going to be able to take it working in an office.

Geier: But the trade-off is that it would be a really good career move?

Johnson: Right. The trade-off would be working with someone like Gene Likens, who is a very prominent ecologist, and working at an LTER site. And it was interesting that the two post-docs, the two people that were interviewed, both had LTER backgrounds. So, for graduate students, I see LTER as being a really helpful way to connect with a bigger scientific community than you might ordinarily would by working at a regular site. And when you come down to it, that's how a lot of jobs are decided; contacts and familiarity. A lot of students work at this LTER site and don't make that bigger picture connection.

Geier: I would assume in the process of going through graduate school and working with LTER programs, you've run into other graduate students who have had different experiences. I was wondering how many of these people do you keep in touch with, or is there like a floating community of graduate student-LTER people out there, who kind of still keep in touch?

Johnson: Uh-huh (affirmative).

Geier: Okay.

Johnson: It kind of varies by project and where you end up, and how much time you have. I'm not sure if I might not have ended up meeting some of those people at different scientific meetings anyway. When you go to a scientific meeting, you see people there that you probably don't see any other time during the year, and interact and connect and compare work and compare lives. Between some of these meetings - the All-Scientists meetings and the hydrology

meetings - you get to know some of the graduate students. There are quite a few of the graduate students at University of Georgia, who are maybe working at Coweeta, and some now work in Puerto Rico. You see them and interact. A graduate student in Puerto Rico sent me a manuscript for comments, because he's working on the streams there. The interesting thing about science is that it's a fairly small world. I mean, it's a big world, but you run into the same people over and over again, names and interactions, and in stream ecology specifically, you tend to interact a lot.

Geier: One of the curious things about this project, is that people I interview interact so much and in different ways.

Johnson: Oh yeah, like Hiram and Judy. Judy Li is going to be teaching the stream ecology class with me, and she's already been here as a faculty member for years. They're really good friends with my major professor, and I'd run into them at meetings before. I'd hit them up, actually about, projects right here in Corvallis in terms of graduate, or post-doctoral experience. So, it becomes a fairly small world in terms of who knows who and what. I probably encourage students to take advantage of the LTER aspect. There is a graduate network within LTER. There's a representative from each site, kind of taking things back to the bigger picture. I'm not sure, because so much goes on here and everyone is already here, that people take advantage of that quite as much as, say at Puerto Rico, where it's been much less of a community. If people are coming and going, you kind of need more of a framework for those interactions, even if it's just through e-mail or whatever.

Geier: I was curious also, because you're quite successful in post-docs here, was there a difference in the kind of interactions among graduate students versus post-doc situations for the people that you were networking with in the LTER network?

Johnson: Graduate students are classified much more in boundaries. I mean, some people don't look at graduate students and say, "Graduate students are young scientists," especially being an older student coming through the graduate process. Because I was out of school for so many years, I've been accepted a lot more as a post-doc. Not having to prove myself quite so much.

Geier: You mean accepted as a peer scientist?

Johnson: Yeah. Rather than as a graduate student, when you're kind of expected to stand in the back and not say anything more.

Geier: So, you're more likely to work with other scientists than grad students?

Johnson: Even with other scientists, partly because my age group is different. I'm generally older than other graduate students, so I often would still approach a scientist, I treated them as a peer, rather than looking at them as the professor and me as the graduate student. I'd interact with people at Luquillo that way, whoever they were, whether they were really senior

scientists or not. Partly because, once everybody got in the field, some of those boundaries fall apart. Here, I interact quite a bit with graduate students. They kind of look at me differently than I look at them. They look at me as a little bit more of a resource and someone who's on the other side of that process. I guess I still see myself almost in some ways as a graduate student, coming from the outside. I came in as a post-doc, so they haven't had that same graduate experience as me.

Geier: I imagine that might change when you go from graduate school into a post-doc?

Johnson: With my advisor or just in general?

Geier: Advisor or just in general?

Johnson: Yeah. Students hit me up more as a mentor. It was that way a little bit as a graduate student, just kind of as a senior graduate student, but not to a great extent. The students definitely hit me up and ask me questions I can't answer. (Chuckle)

Geier: You talked about this a little bit on the phone. As a graduate student, you've got to be moving on and finish the degree. What are some of the things that post-docs go on to do?

Johnson: If post-docs like what they're doing, sometimes they'll take a permanent job and start up the tenure process. Going through that whole tenure process is not real attractive, and I'm having to work so hard for the next five to seven years to get tenure at a university, that's very demanding. It's supposed to be a very productive time, and I'm not sure if that's what I'm interested in. I'm interested in being productive, but not jumping through more hoops, like you have to go through in that process.

Geier: So, the agency work is more attractive than tenure?

Johnson: Sometimes, because you don't have to go through the continuing process to prove yourself. You come in as a researcher, and you're productive without having to earn your stripes quite so much. What'll probably lead me to move, will be jobs. I'll get like Mark [Harmon], and become tired of writing soft money proposals. I've got funding for about another year-and-a-half or two years and then I'll need to come up with something. I should already be writing all these proposals and starting that process, because there's a time lag in that process. And I'm taking the attitude, well, I'll get some publications out, and then, when I do write proposals, I'll be that much stronger, and my record will be that much stronger. But it's a hard question, and I see some of the people like Steve [Wondzell] that came through as a graduate student, now here as a post-doc here on soft money. He doesn't call himself a post-doc because of the whole phraseology of being a post-doc versus being a research scientist versus being an accredited scientist, or a permanent scientist. So, he's going through the whole thing of, "What am I going to do next, jobwise?" and trying for lots of positions, and trying to see where he'll end up. He'd like to be selective, but yet, it kind of depends on how panicked he gets. I see myself probably being there in about a year, having to read and write lots of

proposals, get those out, and applying for jobs, and possibly moving to places I really don't want to live, if I want to do the kind of science I want to do. So, there's an interesting trade off.

Geier: I was curious, because the people you interact with, and probably other places than here, are in a similar situation. Do people consider the possibility of long-term, soft money like Bob Griffiths, or some of those people that have been here for, like, 25 years?

Johnson: Yeah. Until I met Bob I hadn't realized people did that. I'd met Mark through some of the meetings, I hadn't realized he was in a totally soft money position. Most people aren't willing to consider that for very long, especially with the funding these days, it's really hard to get NSF to fund a full-fledged scientist. They'll fund graduate students, they'll fund a post-doc. So, if I write proposals and want to look for full funding for myself, I need to have more senior scientists help writing it, in which case, I would be the post-doc, if I want to play this game. So, it's a post-doc title, but the post-doc is still a bit demeaning as a long-term title. It kind of means you're a neophyte. Most people that I've gone through graduate school with and that are in the job search market, get real discouraged about the prospects. Some seem to come right up and jump into their ideal position, but more and more do some pretty heavy searching, take some jobs they really aren't interested in, and then kind of keep working till they get to a point. I'm not sure how willing I am to trade off living circumstances and things like that for the sake of a job.

Geier: I'm sure that reality might affect graduate school. As you mentioned earlier, the kind of general recognition that there's a lack of funding. Also, it seems like recognition would be. So, does that tend to draw people back perhaps to college?

Johnson: Yeah, I think so.

Geier: For post-docs?

Johnson: In some ways it's nice to do your graduate work and make contacts for a post-doc. It would have been easier for me to come up with a full-time job in Oklahoma. Even though it's better sometimes to switch places. But outside your institution, you develop interactions, you develop relationships, doing your research. And so, it becomes hard to jump into a whole new area, unless you're filling some other person's pre-defined need, like a post-doc, or a job application. I think once you're there, it's a little bit easier to see projects and come up with your own funding. But, a lot of the students that do decide to go places like here are willing to do it, even though they realize they won't be funded quite as well.

Geier: And you mentioned earlier, one of the reasons for that is research potential already here and the general, would that be "public interest" in answering research questions and applied ideas, or would that be just curiosity?

Johnson: Why they choose to be where they are? And why people choose a topic?

Geier: Why do people find research in the Northwest, for example, to be interesting?

Johnson: I think a lot of people like the cultural environment. Other people like the physical environment, meaning not only the forest, but also access to the mountains, access to clean water, access to ocean, and also the types of communities you'll live in when you're in graduate school. And then, there's the whole interaction with the public. In Oklahoma, no one was ever interested in what I was doing in streams. People here see me down in the stream, and they go, "What are you doing down there?" You know, a whole different attitude of how people value their natural environment. And also, moving from Montana to Oklahoma, people and friends thought I was moving to the end of the earth for graduate school. "You're going where? How can you study streams in Oklahoma, there aren't any streams!" Oklahoma, actually has more miles of streams than lots of places do. But it is conservative, it is, you know, redneck. It's a long way to the mountains. The waters in streams aren't your pristine mountain bubbling brooks, things like that.

Geier: And the research probably isn't focused on the streams there?

Johnson: No. And there's not much public land, and where there's more public land, it leads to different outcomes, as there's all the resource management going occurring on the public land. And I think that's partly it's why the West is so much different than anywhere else.

Geier: That's actually probably going to be my last question, because we're almost done. You used the things from your class when you were talking here, contrasting applied research with basic science monitoring. Maybe you can zero in on that, explain how you might characterize the distinctions in your own mind.

Johnson: I see less distinction, but I came through a program that was very biased towards basic research, and poo-pooed applied research. At the University of Oklahoma, the Department of Zoology poo-pooed anyone working on the interface of applied and basic, or anyone doing purely applied research. In graduate seminars, it was like, "Oh, those federal research scientists!" It was almost like "selling out" in that kind of environment. Academia was the only way to go. But I think more and more people are realizing that you can't be isolationist anymore. And I feel like it's real important to work at that interface. You can't really do applied work, if you don't have the basic theories to underlie it. But I also feel it's real important to take research and make it more applicable to the general public, so they can understand these systems. That's part of why I'm interested in working with federal agencies. There you can do the same thing as teaching, but do some education of how these things work, and what happens if you do this to this kind of a system. I think it will be interesting to see. I think it'll really be changing these next few years, and the NSF is making people be much more responsive to the public, and to actually put your data up on the web and explain applicability. For my fellowship, I was told not to work on any applied issues, and I would not be given a fellowship to look at applied issues. They are training basic scientists, and they're still training for that old academic mold of ivory tower-ism. But, the public won't fund a "pure" ivory tower anymore. I think because I'm an older student and have been through a variety of other

circumstances, I'm much more willing to work at that interface. Or maybe have some skills to bring to that interface, is a better way to say it. I think some of the young folks that come straight through are willing to just do basic work. I see a lot of people that come straight through in science, they really don't have some of the practical skills for communicating, for running a project, for hiring people, some of those people-management skills that you need, especially with the older guard in academia. They can be real inept in the real world, because they've spent all their time focusing on this ivory tower.

Geier: Sounds like some of that political work that you're doing makes for good career building?

Johnson: Yeah, maybe good career building, but maybe it's what you do anyway. But, that's the way that I can contribute to these groups these days. Rather than being an organizer on a different level, like I used to do, I see people here being much more interactive and much less of that basic/applied schism. But in other places, it's still real strong.

Geier: If you looked at the record of research at the Andrews, how would you characterize the applied research?

Johnson: The literature I'm familiar with runs both ways. Some really good basic research has come out of the Andrews, and some real interesting applied work has come out. So, I think, especially with people like Fred [Swanson] in leadership roles, people who are very interested in seeing the "New Perspectives in Forestry" [U.S. Forest Service Program in early 1990s] ideas. So, that really heightens the applied aspects, while still having it rooted in basic science. But I think a lot of the "River Continuum" concepts that came out of the Andrews, or organic matter processing, and I'm not sure that's just the Andrews, because I see, having spent a meeting with these Coweeta guys, I see Coweeta being similar. They're looking at the effects of forest management practices on forestry techniques, but also on streams. I mean, whether it be harvesting, whether it be some of these similar issues, seem to be coming out of the experimental forest. And then these experimental forests are often LTER sites. So, the LTER aspect is a little more basic, but the experimental forest is a little more applied.

Geier: I don't want to rehash what you just talked about, but different sites get reputations for certain tendencies or proclivities. In the case of the Andrews, is that reputation more applied or more basic research?

Johnson: Well, I'm not sure I could make that distinction. I don't think it has a reputation of being in applied science. So, it's probably more basic than some. But it's up there within the leading couple of sites as doing very, very integrated work.

Geier: Would you say people at other sites see it as a program to emulate.

Johnson: Yeah. Not just on the applied front, but just in general to be at, say, the stream meetings. A year ago, when I was getting ready to move here and people were saying, "So,

what are you doing?" "Well, I'm going to go work in Oregon, work at the H.J. Andrews, be based at Oregon State." And they just say, "Oh!," and that kind of thing.

Geier: Good feeling?

Johnson: Yeah. Well, you don't want people going, "Ooh-ah," about what you do too much. You don't want to kind of rub it in their face that you have this opportunity that they don't. But yet, a lot of people do really look favorably at the research that goes on out here. And it is hard to separate the OSU stuff from the Andrews stuff, because to me, they kind of blend in together.

Geier: Yeah.

Johnson: So, I imagine there are OSU folks that don't know anything about the Andrews, aren't involved and look disparagingly on it, and kind of feel like we're a group of elitists up there. Because you kind of hear that sometimes about LTER sites.

Geier: Have you heard that about the Andrews at all?

Johnson: I hear rumblings, a little bit. And I think people are careful, not to be exclusive. But some of the other folks that we interact with here, and Fish and Wildlife don't work at the Andrews. And I think people realize that they're welcome. I think people are pretty comfortable asking. But, I've seen that happen at other sites in terms of, "Oh yeah, this is this little exclusive group up here." But I think people up at the Andrews try real hard not to be exclusive groups.

Geier: Part of my intention was to relate this to *In a Dark Wood*, which gave some of the allegations that the Andrews [was a closed group].

Johnson: Who?

Geier: *In a Dark Wood*, the author makes allegations about the Andrews as being elitist.

Johnson: Who wrote that?

Geier: Alston Chase. Art [McKee] was telling me about this project [Chase's book]. He brought that to my attention as a concern.

Johnson: Yeah. I think people are concerned enough that they address it. Working on some of this landslide stuff and flood stuff between the College of Forestry [OSU] and the Andrews, you see some tension from the engineering folks. And so, I'm sure if you listen to the corners, you hear it. But of people within the Andrews, I'd say people tend to be very inclusive. They're trying to make sure Judy Li gets involved in research up at the Andrews, and pull people in, and build on skills so it happens.

Geier: Well, I probably should let you get back to work here. This has actually been really helpful to me. If anything does occur to you, let me know. If on some reflection of some of these issues you want to develop some more, let me know. It's actually been real useful.

Johnson: Yeah, alright. I think the Andrews is a neat place. And the fact that it's coming up on its 50th [Anniversary] is pretty amazing.

Geier: Yeah, yeah.

End of Side B, Tape 1 (of 1)

End of Interview