

RECORDED INTERVIEW OF ELAINE FURBISH

CONDUCTED BY KAREN BREWSTER

IN SKAGWAY, ALASKA

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ORAL HISTORY 2017-01-86

KLONDIKE GOLD RUSH NATIONAL HISTORICAL PARK ORAL HISTORY  
PROJECT/OBSERVING CHANGE IN ALASKA'S NATIONAL PARKS

TRANSCRIBED BY RUTH SENSENIG

[00:00:00]KAREN BREWSTER: This is Karen Brewster. Today is October 6, 2018, and I'm here in Skagway, Alaska, with Elaine Furbish. And we are doing this interview at the Peniel Mission.

ELAINE FURBISH: Peniel.

KAREN BREWSTER: Peniel. I can't say it right.

ELAINE FURBISH: Just think of denial.

KAREN BREWSTER: Ok. Peniel. Um, Mission. For the Klondike Gold Rush Historical Park Oral History Project. And then, we'll also be talking about climate change as we go along. So thank you, Elaine, for taking time on this Saturday morning.

ELAINE FURBISH: Thank you. I'm glad to be here.

[00:00:34]KAREN BREWSTER: Um, so just to get us started, can you tell us a little bit about yourself?

ELAINE FURBISH: Uh.

KAREN BREWSTER: Where you're from originally, how you ended up here?

ELAINE FURBISH: Um, sure. I'm um, originally from the South, so you might hear a little "y'all" slip out every now and then. But I've been in Skagway since, uh -- I'll preface the whole rest of this with, I'm not the greatest person with dates.

KAREN BREWSTER: That's ok. We can --

ELAINE FURBISH: But I'm pretty sure --

KAREN BREWSTER: Go with general decades, that's ok.

ELAINE FURBISH: Oh, and you have Karl's list, so he will have it documented.

KAREN BREWSTER: Yeah. Right.

ELAINE FURBISH: I'll say it was the spring of '99.

KAREN BREWSTER: Ok.

ELAINE FURBISH: Is when I hit the ground here.

[00:01:11]KAREN BREWSTER: Ok. Well, yes, I know that you were natural resources manager, starting in '99. I do know that.

ELAINE FURBISH: That makes sense.

KAREN BREWSTER: So there you go.

ELAINE FURBISH: Came up with my partner, husband, um, from Florida. Prior to Florida, we were working at Denali for a few years, so we were somewhat exposed to Alaska already.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Um, and uh, got the job as the, uh, I believe it was called a natural resource specialist at the time, but again, that detail is, I'm sure, in the records.

KAREN BREWSTER: Right.

[00:01:46]ELAINE FURBISH: Um, I was the second one for the park. Uh, the fellow before me, I believe, was named Damian-something (Sedney). I never met him. There was a time period lapse between the end of his time and the beginning of my time.

KAREN BREWSTER: Ok.

ELAINE FURBISH: And in the interim, there was a, uh, I believe -- what was her position?

Again, Karl. Karl is like the gold mine.

KAREN BREWSTER: Yeah, but if you can remember names, that --

ELAINE FURBISH: Gold mine of --

KAREN BREWSTER: Yeah.

[00:02:16]ELAINE FURBISH: So her name was Claudia Rector. And she, essentially I think, was like a, maybe a biotech or something. But she kinda held some projects together, uh, perhaps even initiated. It's unclear to me what Damian initiated, and what she initiated. But I'm pretty sure one of the major things was a lichen air quality study.

KAREN BREWSTER: Ok.

ELAINE FURBISH: And she definitely was involved with making those contacts, getting it up and running, and collecting the first year of data. And so, when I came, I collected the second year of data, following those protocols, and we produced a report off of it. And it turned out to be maybe one of the more valuable things that the park has kept up with. So let me think, uh.

[00:03:05]KAREN BREWSTER: So let me just step back, so you grew up in where?

ELAINE FURBISH: Georgia.

KAREN BREWSTER: Georgia, ok. And then, what's your educational background? You're a biologist?

ELAINE FURBISH: Ah, ok. I have a bachelor's in plant pathology and a master's in marine estuarine and environmental sciences. So I was very heavily into the plant habitat realm of ecology. Um, and, of course, as soon as you start working for the Park Service, you need to broaden out from your academic training.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: But so many things are habitat-based. You know, all the animals, uh, distribution is linked to their habitat, so.

KAREN BREWSTER: Yes. I'm doing a project with an ecologist, and I'm constantly reminded that it's all about habitat. It's not just about the animals.

ELAINE FURBISH: Yeah. Yeah. [00:04:02]So um, Klondike was great. My partner and I were both long-term parkies. Worked in many different parks. Met in a park. Um, and had been doing the Park Service shuffle. And had -- I just got tired of -- we're like, we're not moving every three, four, five years anymore. Let's find a place to settle down. And Skagway is it.

[00:04:29]KAREN BREWSTER: Skagway is it. What ended up attracting you to enter into employment with the Park Service in the first place?

ELAINE FURBISH: Ah, ok. Well, I -- after getting my bachelor's, I was more agriculture-oriented at that time, having studied plant pathology. Um, tried to get a job. This would've been like in the early, mid-80's. Got some lucrative offers from pesticide manufacturers to try to push their pesticides, but that wasn't where I was at. And ended up just, you know, trying to find a job. Got a job as a research technician with the university unit that was working in a national park. So that got me exposed to that, and then that kept developing more and more involvement with the parks.

[00:05:22]KAREN BREWSTER: And which park was that?

ELAINE FURBISH: Uh, the first one I worked in was Cumberland Island National Seashore, off the coast of Georgia.

KAREN BREWSTER: Ok. So did you go to the University of Georgia?

ELAINE FURBISH: I started at the University of Georgia for my bachelor's, and I finished it at Cornell in upstate New York.

KAREN BREWSTER: Ok.

ELAINE FURBISH: Yeah.

[00:05:38]KAREN BREWSTER: So that park uni -- you're talking about, was that a cooperative studies unit?

ELAINE FURBISH: Yeah. Um-hm. Um-hm. At the University of Georgia, they have a big ecology program there. Dr. Odum was one of the early pioneers, and yeah. So they have a strong program there. And I was sent down to Cumberland Island to look at the impacts that the exotic horses there were having upon the plant communities.

KAREN BREWSTER: Ah. And then your master's is from?

ELAINE FURBISH: University of Maryland.

KAREN BREWSTER: Ok.

ELAINE FURBISH: Yeah. I was working at Assateague Island at that point.

KAREN BREWSTER: Oh, cool.

ELAINE FURBISH: Yeah. Horses keep calling me.

[00:06:15]KAREN BREWSTER: Right. So tell me what it was like when you first started here at Klondike Park?

ELAINE FURBISH: Well, it was a little, um, a little strange because they had had their first resource -- natural resource person -- Everything I say now is hearsay, but apparently, there were some problems, and the person perhaps had some sort of personal problems, but then it affected his work environment. So things were not very organized. And uh, there was, I guess, leftover tension that, you know, I felt and took me a while to understand. [00:07:00]Um, on the other hand, you know, it was a very young program. Um, and sort of aside from a couple of things that had been initiated, kind of wide open to look at. I was very comfortable in the park setting of a small park with an administrative boundary containing very little actual Park Service federal ownership property. The park I came from immediately prior to Klondike was Timucuan in Florida. Almost exactly the same situation. So you have this mosaic of federal ownership, different agencies, state ownership, different organizations within the state. Private ownership, um, you know, just -- just -- it's not like a traditional Yellowstone, where, like, you have a park boundary and you own everything inside of it.

[00:07:52]KAREN BREWSTER: Yeah, it sounds like it would be very complicated from the management side of things, to have all those different land owners.

ELAINE FURBISH: It's a different perspective, for sure. Yeah. Um, so -- so yeah. You know, it was an opportunity, and dove right in. And uh, let's see.

[00:08:12]KAREN BREWSTER: So what kind of projects does a natural resources program do? You mentioned the lichen air quality study.

ELAINE FURBISH: Yeah. That was already initiated, and contacts were made with a lichenologist down in Oregon who was very supportive. What was her name? Uh, Linda Geiser, maybe? Another thing, you know, I'm not the greatest with names. But these things can be pinned down if they need to be.

KAREN BREWSTER: Right.

ELAINE FURBISH: Um, uh, let's see. There was a mountain goat project initiated by a guy named Kyle. Again, someone I never met. Um, and it was -- it was even less developed. It was basically, you know, try to go to some high elevation overlooks and see what you can see. That sort of petered out because it did not seem to be a priority. Uh, hm.

[00:09:11]KAREN BREWSTER: So did these types of projects, does a scientist from outside, like a university or something, come to the park and say I want to do a study in your park? Or you as the natural resources manager say, "Oh, you know, I think it would be interesting if we looked at the mountain goat population. Let's go find somebody to do it."

ELAINE FURBISH: Right. I'm sure that there was more of the informal aspect to it at that time. And um, prior to my getting there, they did have a resources review, where they brought in outside people. That created a document that I can't remember the title of, which gave recommendations for actions and studies. And I feel confident that the lichen air quality, the mountain goat, I'm struggling to remember, there were a couple of other things, grew out of that.

[00:10:06]But uh, in its infancy, especially without a natural resource specialist or manager on board, it was probably at the whim of both interest within the park as well as being able to garner interest from an outside researcher. And um, practicality, if you don't have much in the way of staff.

KAREN BREWSTER: Well, that was my next question is --

ELAINE FURBISH: Yeah. Yeah.

KAREN BREWSTER: Was there staff here to actually be out doing your own projects?

ELAINE FURBISH: Right.

KAREN BREWSTER: Or you become more of the project manager, and somebody else is out collecting the data?

ELAINE FURBISH: When I -- when I first got here, uh, it was just me, and it was just me that first summer. Um, at that time the park organization was a chief ranger, who had supervision of the natural resources program, the cultural resources program, which included the historian, Karl.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Um, and the curatorial --

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: -- program. And the law enforcement and trail rangers.

KAREN BREWSTER: Right.

[00:11:23]ELAINE FURBISH: They had recently, I understand, split off interpretation. And that person had their own chief. Um, so we had a lot of -- we were essentially, you know, a division. All of that is a division, and so the sharing of resources and the response to budget constraints would -- crossed those program areas.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: But there were -- there were four permanent positions. I was the natural resource manager. Karl, the historian. Um, Tim Steidel's fixing to retire right now.

KAREN BREWSTER: Yes.

ELAINE FURBISH: And -- but he was the trail ranger at that time.

KAREN BREWSTER: Right.

ELAINE FURBISH: He's now the chief ranger. And uh, the curator, Debbie Sanders. And then there were various, you know, like, part time archeologists, field techs, that kind of stuff, that could come and go. Um, they tapped into the SCA program, too.

KAREN BREWSTER: The Student Conservation Association.

ELAINE FURBISH: Yeah. Yeah. So there was that.

KAREN BREWSTER: So they would come as summer seasonals?

ELAINE FURBISH: Um-hm. Yeah. [00:12:29]So when I -- when I got here, um, the -- the division chief, Reed McCluskey, had -- he -- I got here right at the start of the season, and so, really, there was -- the time to hire summer seasonals was past.

KAREN BREWSTER: Right.

ELAINE FURBISH: You know, and he mentioned that, you know, things were kinda in flux, and kinda gave me the choice, how much do you want to pursue these things. And I looked at what was going and thought that, you know, that lichen study, one year in. One more year of data collection, and then a preliminary report to be written. So it seemed worth investing in. Um, since I didn't have any staff, I did what any red-blooded natural resource manager would do. It's like, I got my husband to come help me. And so, we got the data collection done, and -- but then the next couple of summers, um, things were more organized. We had things more identified. [00:13:29]The Park Service at that time had PMIS. What a great acronym.

KAREN BREWSTER: Yes, it's like their grant --

ELAINE FURBISH: Yeah.

KAREN BREWSTER: -- project database system.

ELAINE FURBISH: Yeah.

KAREN BREWSTER: Do you know what it stands for?

ELAINE FURBISH: Project management --

KAREN BREWSTER: Information system? I don't know.

ELAINE FURBISH: We always -- we always made jokes about, you know, PMS is a headache. So is this. Um, the concept was lovely. Try to project out five years ahead. Try to write at least a few paragraphs on every natural resource project you think you might be interested in doing if the funding could be found. Um, the execution was a little cumbersome, with, you know, difficulty entering data in a database, to, you know, um, yeah. It just -- it's one of those things that sounded great, but I don't know what came of it. I don't think it lasted very long.

[00:14:32]KAREN BREWSTER: Well, I mean also, how easy or difficult is it to project out what you want to do in five years? Maybe with natural resources, it's easier.

ELAINE FURBISH: Well, if you're starting with essentially a blank slate, it was pretty easy to come up with lots of, like, the basic things. We don't know anything about x.

KAREN BREWSTER: Oh, yeah. There were no baseline studies.

ELAINE FURBISH: Yeah. Yeah, so. And also at about the same time, that we got the inventory and monitoring inter-park system was really getting strong, so we got support through the

Southeast group, which was Glacier Bay, Sitka, and us, I believe. Of course, you know, two tiny little parks.

KAREN BREWSTER: Right.

ELAINE FURBISH: And big old Glacier Bay.

KAREN BREWSTER: Right.

ELAINE FURBISH: So um, they were able to give us a lot of input and support that way. Um, so -- so yeah. [00:15:19]So, you know, over that first winter, I was able to get some projects up and going. I was able to hire a couple of seasonals. Got an SCA (Student Conservation Association) the next summer. You know, we started doing more stuff. And it was -- it was kinda running along that way, I would say, with typically four -- four positions of summer help. Maybe two or three of them paid positions. And broadened the scope of the types of projects and programs going on.

[00:15:51]KAREN BREWSTER: Do you remember what some of those first projects were?

ELAINE FURBISH: Um, let's see. It was a long time ago.

KAREN BREWSTER: I know.

ELAINE FURBISH: Although, I will -- I will say that as far as documentation goes, one of my pet peeves was documentation. And I would put out something I called a bimonthly report, which was sent over to the archives. Um, so it's like, twice a month, we would sort of summarize, what have we been up to.

KAREN BREWSTER: Oh, good.

ELAINE FURBISH: I -- I -- having worked in a lot of different parks, and even in the nat -- many natural parks, where they had been cruising along without any natural resource management, and -- and encountered an awful lot of, "Why do we need you? What are you doing anyway?"

KAREN BREWSTER: Yeah.

ELAINE FURBISH: And I got in the habit of doing those bimonthly reports. Like, we really are working.

[00:16:48]KAREN BREWSTER: Well, and I was thinking here -- I was thinking why didn't they have all that baseline information? The park's been here since the late '70's. But it was a historical park, and they were doing artifacts and the buildings --

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: -- and the natural resources were probably not anything they thought was needed?

ELAINE FURBISH: Yeah, and it's a natural thing, especially when you're getting up and running. But uh, once they were fully established, had done, you know, the lion's work of the historic building restorations and everything, and things were kind of humming along. Humming along, not coming along. By the time they said, "Oh well, we have natural resources, too."

[00:17:29]And, you know, when I was here there were many, many, many meetings where it came up again. "We're a historical park. Why do we need natural resources?" Um, the example I would always try to bring up was the one that was at Denali, which is a huge, huge natural resources park. And those meetings, we would have, "Why do we need cultural resources? We're a big natural park."

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: For the same reason. You have significant cultural resources; you need to take care of them. You have significant natural resources. It's very appropriate. But I don't know that that bias will ever go away in both directions.

KAREN BREWSTER: Right.

ELAINE FURBISH: The big natural parks to culture, and the big cultural parks to natural. [00:18:15]But the more we looked into it -- and back to that lichens air quality thing, based on talking to the lichenologist who was contacted to help with that, and a -- and a visit that she -- she came up, and we wandered around for a while. Went up towards the pass, before the White -- White Pass Unit. I don't know that we actually got down to the unit, but we got nearby, and she started -- you know how -- you know how the scientists are. She started oohing and aahing, and "Oh my gosh. Look at this. Look at this. The biodiversity is amazing." And so we put in the PMIS system, "examine the biodiversity of the lichens." [00:18:57]And I think right after I left that the person who came after me, Meg Hahr, I think she got that accomplished. And established that this is one of the little biodiversity hotspots of Alaska, as far as that's concerned. And there's evidence also with the -- you know, the vascular plants and um, you know, this is -- this has very significant natural resources here. And it's a very worthwhile place for both study and monitoring. Scientific study and monitoring. [00:19:33]So, you know, I -- as far as the region-wide efforts go, and as far as the scientific perspective, you know, trying to attract researchers here and all, uh, I think that over the intervening years that plenty of evidence has been assembled and established to say, yes, we have very significant natural resources.

[00:19:58]KAREN BREWSTER: And you -- so you were in the job until 2001?

ELAINE FURBISH: Yeah, like uh, that one's easier to remember because we all -- you know, I got -- we're old enough -- I got two of them. I got the Kennedy assassination, and I got 9/11, so I reference things to them. Um, it was after 9/11, so it was in the -- sometime in late 2001 is when I decided to leave. So is that what you want to talk about, too?

KAREN BREWSTER: Well, we can. I was just thinking, what your tenure at the --

ELAINE FURBISH: At the park.

KAREN BREWSTER: -- at the park. But if you want to --

ELAINE FURBISH: Yeah, so what is that? That's about just shy of three years.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Yeah.

[00:20:38]KAREN BREWSTER: Yeah. So it's like, why did you not stay longer, I guess, would be the question?

ELAINE FURBISH: Yeah. Yeah. As a -- as a long-term parkie, um, the -- they hired the first -- they reorganized again, and instead of everything being under the chief ranger position, they decided to have a resources chief, and they hired that person. And her name is Theresa Thibault. And she came on, I think it was that summer, um, and after a fairly short time, month and a half or so, we realized we were having -- going to have a personality conflict. And, um, various, huh, it was a difficult time. Various steps were taken. Um, I even went to the superintendent once and said, "Can we get some counseling, you know? We need to develop a working relationship." But that -- that didn't happen. Um, I tried to get some advice from some people. [00:21:50]Um, I came to the conclusion that our personality conflict was such that it would cause more damage for me to try to stay than to go ahead and let somebody else try to do it. And since my -- my partner and I had made the decision to stay here and not move to another park.

KAREN BREWSTER: Right.

ELAINE FURBISH: Which is what people would normally do.

KAREN BREWSTER: Right.

ELAINE FURBISH: Um, I just resigned. Yeah. [00:22:19]So after that, I tried to be supportive, but not be disruptive. And so, the next person who came, Meg, real smart, sweet woman. Uh, since I was involved with the new bird club --

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: -- um, we had some contact. I was trying to be careful to keep my distance, but I'm trying to remember what the incident was. I think it was like a bird to be put in a freezer to be sent to the museum at UAF.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And -- and I was like, I did that. You know, because she was busy with something. And then, it got back that Elaine was in the park. And then, she got called into the office and told, you know, that was unacceptable. And it caused problems for her. Ok, fine. I'll just back right off. No problem.

KAREN BREWSTER: Yeah.

[00:23:17]ELAINE FURBISH: So I -- so there -- yeah, I didn't have too much involvement, but we would, you know, especially with birds, we would talk about things, and she was wonderful being involved with the bird club. Um, and uh, I would say that now, with Annie, and Jamie who just left, that things have become greatly relaxed, and that we've been working together more intimately on things.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And the bird club is pretty well established now, so more opportunities for interaction there.

[00:23:56]KAREN BREWSTER: Yeah, that's what I was wondering with the bird club, is how much partnering with the Park Service? 'Cause when did you found -- you started the bird club when?

ELAINE FURBISH: I didn't start the bird club.

KAREN BREWSTER: Oh.

ELAINE FURBISH: So when I got here, the curator, Debbie Sanders, and Joanne Beierly, whom you met yesterday, and it might have been Deb Boettcher. She was kind of coming and going then because she had a place in Fairbanks. Maybe one other -- the very -- as a very informal thing, those people in the summertime especially were getting together, like, once a week on their lunch breaks, you know, to talk about birds. And that was the start of the bird club.

KAREN BREWSTER: Ok.

ELAINE FURBISH: And then, as -- as things progressed and more people got interested, we uh, we started not being just sort of a little Park Service thing, more of a community thing.

[00:24:52]Um, we've never been formal. We are not -- we have no legal status.

KAREN BREWSTER: You're not an official non-profit organization?

ELAINE FURBISH: Right. Right. We're just like a bunch of people interested in birds. And um, without planning to, I sort of drifted into the organizational role because I organize things. Um, I'm not the best birder in town by a long shot, but I'm the one who organizes information.

KAREN BREWSTER: Um-hm.



ELAINE FURBISH: So people tend to think -- you probably had somebody tell you, "Oh yeah, Elaine. She runs the bird club. Or she's the president." And it's not. It's just that I'm the one who organizes things.

KAREN BREWSTER: Right.

ELAINE FURBISH: Yeah. Yeah. [00:25:34]So I -- I would struggle to say at what point did it even become -- was it maybe about 2002? 2002 is when we started doing the Christmas bird count. That's probably about the time it really coalesced into a community-based group. Yeah.

KAREN BREWSTER: Yeah, and so then, yeah. Was -- [00:26:05]you mentioned that monitoring program that the Park Service -- starting environmental monitoring. Did they collaborate with the birders in sort of like a citizen science project?

ELAINE FURBISH: Not -- not really. The first big one that was created by Meg, uh, was the coastal waterbird survey. At the time she created it, it may have been known as the shorebird survey, but now it's called the coastal waterbird survey. Um, and -- and she had -- she had some good technicians, especially this one guy. What was his name? I want to say Wayne, maybe. Nah. Anyway, she had -- she was able to hire some biotechs who were very good birders. And um, I'm not sure exactly who they worked with to come up with their protocol, but they came up with a protocol and started doing this program. [00:27:04]Um, as I already mentioned, there was some tension, and in order to keep Meg's life very calm, um, we didn't try to be too involved with that. But then, as it developed, and especially if there are, um, staffing problems, like there have been times when they have not been able to hire a summer seasonal with birding experience.

KAREN BREWSTER: Oh.

ELAINE FURBISH: And then, so if this person is asked to try to do this -- you know, so as much as we could, people would volunteer to help out. And as things -- relationships have thawed, things -- that just continues more and more. And it's become routine for some -- some people in the bird club, me included, to help out with that survey every year.

[00:27:57]KAREN BREWSTER: So that's a continuing annual survey, that shorebird -- ?

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: And is that done in the spring?

ELAINE FURBISH: It's done in the spring, the summer, and the fall.

KAREN BREWSTER: Oh.

ELAINE FURBISH: It's designed to catch the migration, the spring and fall migrations, and to document, you know. The ones that are around in the summer are usually the breeders, so.

[00:28:16]And I believe it's part of the item based -- you know, the whole effort to say, all right - - Park Service really lacks baseline. And you always have the problem of shifting baselines. If, you know, a resource is under impact for decades, and then you just start monitoring it here and call that the baseline, well that is a very, very false assumption. That tends to be what happens. But it's better to start as soon as you can.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Yeah. So that whole INM program has been just great. And I believe that this was -- part of the impetus for this was to start covering your bases that way.

[00:28:58]KAREN BREWSTER: Yeah. So besides the shorebird monitoring, were they monitoring other things? Or are they monitoring other things? That are they continuing to look at the lichen or the plants or --

ELAINE FURBISH: Oh, yeah. They've got a few.

KAREN BREWSTER: The bears, I don't know.

ELAINE FURBISH: They've got a great program now. Um, as far as just the birds, even when I was there, the um, there are these big programs, and you may have heard of them, breeding bird surveys. Um, it's -- it's the United States and Canada. It's huge. Um, I'm sure there are routes in Fairbanks.

KAREN BREWSTER: Oh, I'm sure.

[00:29:35]ELAINE FURBISH: So -- so at that point, the breeding bird survey, somebody was showing up in Skagway at the right time. You're supposed to do it at a certain time in the breeding cycle, and doing this breeding bird survey. Um, and the park didn't even know anything about it. So one of the things that we did was try to get the park more involved with that. And now, the park actually kind of coordinates the data collection for that. Since it is a continent-wide program, they're not involved with, you know, the data management or the -- the analysis and reporting everything.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: But they make sure that that route is covered. [00:30:18]Um, by the same token, the Alaska Landbird Monitoring Survey is a statewide effort. In a similar vein, they make sure that that data gets collected. It's as simple as, you know, like um, giving housing to an accomplished expert birder who can do that work.

KAREN BREWSTER: Right.

ELAINE FURBISH: Um, they -- they've done some great work with bat monitoring. Dave Schirokauer had -- got a lot of stuff going. Um, the amphibians, which is -- is the toads here. The -- a number of plant things. You know, I think we did the first exotic species -- invasive exotic plant species was a little report that we put out when I was there. And then it became the basis for comparison with more. [00:31:18]Um, at the time I was there, the GIS program was very, very young, and it was folded under natural resources. And I'll try not to be too technical, but, you know, like the -- the GPS satellite constellation was incomplete and was hard to even use the GPS unit to get a reliable fix on a location back then. I mean, it was very, very young. And so, it has been quite developed, and I understand it's still part of natural resources. But, you know, um, I'm not the person to give you the best information about where it stands or where it stood at any time during that --

KAREN BREWSTER: No. I was thinking more about during your tenure, what kinds of things -

ELAINE FURBISH: Oh, during my tenure? Oh well, then take all that away, 'cause that's what other people.

KAREN BREWSTER: No, no. no. That's ok. No, it was a combin -- that -- no, you're right. We were talking about monitoring and continuing things. But yeah, now let's go back to your tenure.

ELAINE FURBISH: So when I was there.

KAREN BREWSTER: The things you did.

ELAINE FURBISH: Yeah. Yeah, or arranged to have done.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Um, yeah. Getting GIS out, testing the -- the rather primitive GPS technological units. I mean, this was back before Al Gore turned off the scrambling. You know, it was like --

KAREN BREWSTER: I know, you think 1999 doesn't seem that long ago.

ELAINE FURBISH: Yeah.

KAREN BREWSTER: That I didn't realize that the GPS was still in its infancy back then.

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: For public use.

ELAINE FURBISH: Yeah. Yeah. [00:32:48]Um, gosh. I should've broughten -- brought some - - so I -- as I said, I tried to be very careful about documentation and writing up reports, even if it was just a little, you know, activity happened on this --

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: -- in this program, even if -- it wasn't like, you know, a thing with data, analysis, results, conclusions. And more like just, we collected some data that we hope --

KAREN BREWSTER: This month, we went out on the tr -- Chilkoot Trail and collected plants, or --

ELAINE FURBISH: Yeah, well, those were the bimonthly reports were --

KAREN BREWSTER: Right.

ELAINE FURBISH: -- the activities. And then, in addition, I would try to do end-of-season reports on the various projects and programs coming on. Um, hm. I'm drawing a total blank now.

KAREN BREWSTER: On any of the projects that you --

ELAINE FURBISH: Yeah, I know.

[00:33:43]KAREN BREWSTER: You must have some that was like particularly fun or a favorite of yours that would stand -- come to mind first? You had plant background. What were you doing with plants?

ELAINE FURBISH: Well, we did -- we did a wetlands mapping project. We did the invasive species. Uh, see, I'm going to get mixed up with all the -- writing all those PMIS things about what I wanted to do. We were very interested in fire history, but I don't think we ever quite got something funded to look at that. Uh, hydromorphology. The Taiya River, was, you know, of great interest. And well, you know, it's a meandering glacial river, and there were going to be issues in understanding the hydrology and geomorphology of it was something high. I don't -- I think I -- I made a tiny bit of progress, at least got some USGS researchers kind of aware of, but I don't think we ever got a project going. Maybe Meg did?

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: 'Cause I know there's some information out there now.

[00:35:01]KAREN BREWSTER: Glaciers? Any glacier studies?

ELAINE FURBISH: Well, you know, the Norse -- up the Norse -- so the Taiya River really should be called the Norse River. Hydrologically, that's --

KAREN BREWSTER: That's where it comes from?

ELAINE FURBISH: Yeah. And up there is, uh -- there's some interesting glacier configurations. Um, I would look -- look at maybe the latter part of Meg's tenure and Dave Schirokauer's. Um, 'cause I feel pretty confident they were able to take that issue and get something done with it.

KAREN BREWSTER: Um-hm. [00:35:37]But the fact that you were there at the beginning and had to think of these projects.

ELAINE FURBISH: Yeah, I was more in the identification.

KAREN BREWSTER: Yeah, so yeah, think -- just remembering back, what were your ideas? What projects did you want to do? So you said, you know, fire history, the hydromorphology.

ELAINE FURBISH: Right. Right.

KAREN BREWSTER: Other -- other things?

ELAINE FURBISH: Yeah. Oh, you name your -- your biological taxon, and it was like we need to know something about this. The fish and all. Um, the hooligan, aha. Well, they got that, finally, done.

KAREN BREWSTER: The hooligan?

ELAINE FURBISH: They're -- they got that ongoing study now with the hooligan.

[00:36:11]KAREN BREWSTER: I'm assuming bears --

ELAINE FURBISH: Bears.

KAREN BREWSTER: -- were a popular thing to --

ELAINE FURBISH: Yeah, that's right. I can remember -- I tried to do what I could without being able to actually do a project. So we -- we attempted to get the trail rangers and trail maintenance people, offered them, you know, if you would like to make observations, then this is the kind of stuff that would be very helpful. So with the bears, it's like, you know, there -- there are scratch trees, and -- and potentially places where tufts of hair can be left. And, of course, poop, not to mention just, you know, encounters.

KAREN BREWSTER: Right.

ELAINE FURBISH: So we tried to sort of pull that together in an organized manner to -- to start. And I was talking with some bear biologists about doing DNA studies. [00:36:58]So the basic problem on the trail is, you have within a week, five sightings of a black bear, right? Did they see five different bears, or one bear five times?

KAREN BREWSTER: Right.

ELAINE FURBISH: You know, just very basic stuff at that level.

KAREN BREWSTER: Right.

ELAINE FURBISH: Um.

KAREN BREWSTER: But I was thinking, you're -- at least getting the ranger observations, and you know, encounter information, would at least give you an idea from one year to the next if there were more or less.

ELAINE FURBISH: Um-hm. Right.

KAREN BREWSTER: If that might tell you something about the size of the bear population, I don't know.

ELAINE FURBISH: Yeah. It -- it would be -- that's where we would need to get a wildlife biologist specialist and then see what we could do. And get advice on, you know -- if we really want to get a handle on these population levels, we might need to do something other than just what is opportunistic that we can do along the Chilkoot Trail.

KAREN BREWSTER: Right.

ELAINE FURBISH: But there wasn't funding to go there, and uh, if I remember right, we developed a -- we really, really encouraged the bear information so that it wasn't just the trail rangers saying at the end, "Oh yeah, I remember this. I remember that." Trying to document it. [00:38:13]And then, more broadly having sort of just an environmental, um, reporting system where park staff and hikers, let the hikers in on it, too. And it's not a requirement, just if you are interested, and you see something you think is interesting, here's a little card to fill out, and then

start a database on it. I don't know what happened with that. It may -- may have petered out. Um, but especially in this day and age, with more and more emphasis on citizen science, and more and more people aware of the concept of citizen science, and the fact that hikers often are a little more in tune with those. You know, I think there is quite an opportunity there. [00:39:03]But back to -- back to the, like, the year 2000. What were we doing? There had to be more. I'm just like, totally blanking out.

KAREN BREWSTER: Um.

ELAINE FURBISH: So.

KAREN BREWSTER: Well, it does sound like a lot to be managing and kind of -- not that they were all happening, but as you say, this idea -- it sounds like a lot of administrative aspects to the job. That you didn't necessarily get to go out in the field yourself very much. Is that accurate? No?

ELAINE FURBISH: Mm, I got out a fair amount. I tried to make sure I could get out. I had -- it was at Assateague Island where I started more into administration, supervision, management, versus getting to spend all day out, and it was a difficult transition. So I was already kinda used to that. I was already used to having permanent employees and seasonal employees and volunteers to supervise. Um, so that -- those things weren't a challenge here by then.

[00:40:10]KAREN BREWSTER: But you did still try and get out yourself in the field?

ELAINE FURBISH: Yeah. It doesn't not -- I strongly feel like it's not a good idea to have a natural resource manager who's not been personally exposed to the resources. It's the same, I'm sure, with cultural aspects, archeological aspects. Um, but yeah, you know. Maybe once or twice, I'd be able to get out on the trail.

KAREN BREWSTER: A season?

ELAINE FURBISH: Yeah. Yeah. Not like -- not like those fun college kids, biotechs, out there all the time. Yeah. Yeah. That's, I think, a transition that everybody in resource management has to deal with.

[00:40:51]KAREN BREWSTER: Yeah, because a lot of the reason you go into those fields is because you do want to be in the outdoors.

ELAINE FURBISH: Oh, yeah. It's great. But if you want to be more than a biotech, and you feel like you can contribute, that's the transition you have to make.

[00:41:08]KAREN BREWSTER: Um-hm. And do you feel like you contributed here?

ELAINE FURBISH: I think so. Yeah. Even in that brief time.

KAREN BREWSTER: Yeah. In what way?

ELAINE FURBISH: Things got more organized. Um, for all the problems with that PMIS system, I left them with, you know, a suite of um, projects to -- that would potentially get funding and could be sort of picked up and run with. I think we -- did we at that time? Yeah, I must have, 'cause I remember working with Karl on it. I think we did a -- a update to the resource management program plan. Uh, yeah, and produced -- certainly got the GIS system up and running for all the primitive technology that was there at the time. Um, got -- got some reports out. Yeah, I think -- I think it made a little bit of a nudge in the right direction.

KAREN BREWSTER: Um-hm. Sort of set the path for the future that now people are continuing?

ELAINE FURBISH: Yeah, I mean, enough time has gone by that with that lichen air quality study, the recommendation was, do it again in ten years. And ten years happened, and that's

when Schirokauer was in, and he made it happen. He did that next one. And so, if it happens again ten years after that, you start having a pretty nice data set.

[00:42:36]KAREN BREWSTER: Yeah. Well, that's a good example that -- I was going to ask you about some of the findings from some of these projects. So, on that lichen study, what have been the findings?

ELAINE FURBISH: I can tell you that for the study that I did, I made an effort to do more than simply say, this is what we found at Klondike. And I was able to tap into a Tongass Forest database and a Pacific Northwest database and compare our results to those metrics. And I'm trying to, uh, struggle, if I had the report. I'm pretty sure that the Pacific Northwest database had established, sort of, standards, you know, of indications of levels of pollution and stuff. Maybe -- unless it's clear about the Tongass -- but the long and short of it, all this musings that I'm trying to do with my poor old brain, I do remember vividly that for a number of heavy metals, the Klondike samplings came out far above either of those other two databases. So that was enough to get some attention.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And I'm sure that helped get the support for doing the ten-year later.

KAREN BREWSTER: Um-hm.

[00:43:58]ELAINE FURBISH: And, um, it's been awhile. I got a draft of that, and it's been awhile since I read it. But I think Dave found that there were still indications, and -- but that, as far as lichen, the tool of lichens as the indicator, the levels were drifting down.

KAREN BREWSTER: Oh.

ELAINE FURBISH: Which is -- would be expected, and is good news. And he put -- started getting more emphasis on actual air sampling. Sampling the air, as opposed to using the lichen as a proxy for what has happened in the past in the air. And, uh, he was also looking at sources and got the city involved a little bit, and I think now the tribe is involved a little bit. So there's -- there has been progress. [00:44:57]You -- you haven't been here on a summer day with the cruise ships. We get inversions, just like you guys do in the winter.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And it can be pretty intense.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: So it's definitely a pertinent issue to the park and to the community.

KAREN BREWSTER: And have -- as, now you being a citizen scientist more --

ELAINE FURBISH: Yeah.

KAREN BREWSTER: -- have you noticed any impacts from that pollution other than, obviously, the air quality? But like, on the trees or the plants or humans?

ELAINE FURBISH: No. There would not, I believe -- absent the levels of pollution from, say, you know, like 18th century England, you know, where you've probably heard that study where the moths changed because of the air pollution.

KAREN BREWSTER: Oh.

ELAINE FURBISH: Oh, very briefly. Very briefly. That was the era of, you know, spewing coal --

KAREN BREWSTER: Yeah. That was -- yeah.

ELAINE FURBISH: -- particulates in the air. And there was -- there's a moth species there that has at least two different colors. One is like, almost all dark colored. The other is this speckled

whitish thing. Well, in a healthy environment, the trees all have lichens and bark mosaics, and that mosaic colored one would predominate. But then during that period with the coal air pollution, almost all of them turned to the dark, consistent form.

KAREN BREWSTER: Wow.

[00:46:23]ELAINE FURBISH: One of the very, very early, "Oh, look at, we can monitor the environment, and -- " And -- and so it wasn't the type of pollution or the level that those broad species -- within species, morphology changes would happen. Or that actual species composition dominance would change.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Um, but it was more the -- the stuff that had been absorbed by the tissues.

KAREN BREWSTER: Oh, ok.

ELAINE FURBISH: That would -- that would show up. [00:46:59]Now when -- I think it was, Meg, got the lichen biodiversity thing done, and there's -- we only looked at three lichens for that air pollution thing. Well, if you're looking at a broad swath of all the lichens in the area, there could be -- have been in that mix, some that were very sensitive to certain types of pollution where you might expect that this population would be severely affected. I don't know. I haven't been involved. It's not something that you would notice as, you know, strolling around on your hikes.

KAREN BREWSTER: Right.

ELAINE FURBISH: Yeah.

[00:47:38]KAREN BREWSTER: And lichens are studied because they are filtering the air? They rely -- maybe you can explain a little bit about why you look at lichen to study air quality.

ELAINE FURBISH: Yeah, they're great. So -- so especially the ones that aren't growing on the ground. The ones that are growing, like, on trees, they're essentially getting all their nutrients from the air and rainfall. And then they're very long-lived, and they grow slowly, so you end up with a history of -- not like tree rings, where you can say exactly what happened when.

KAREN BREWSTER: Right.

ELAINE FURBISH: But you know that over the past whatever, few decades, that these plants -- well, I shouldn't say plants. These lichens. Have been exposed to air and rainfall that had high levels of cadmium. 'Cause here it is, high levels of cadmium, right there in the tissues.

[00:48:33]KAREN BREWSTER: So you're basically doing chemical analysis to see what those various things were?

ELAINE FURBISH: Yeah.

KAREN BREWSTER: Ok.

ELAINE FURBISH: Yeah.

KAREN BREWSTER: Cool.

[00:48:41]ELAINE FURBISH: So -- so, yeah, things that you notice, like right now, which -- Oh, well, I'm going to drift into climate change.

KAREN BREWSTER: No, that's good. That's where we're going.

ELAINE FURBISH: Are you sure?

KAREN BREWSTER: Yep.

ELAINE FURBISH: Ok. So -- so, like, just walking around right now. And I'm sure if you talked to, like, the gardeners.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And, you know, anybody who's paying attention to the trees and shrubs and plants is like, "Oh, my goodness." The levels of pest damage are changing dramatically. The preponderance of different kinds of insects are changing very noticeably. The physical things, like our poor little glacier that's about gone. But if you talk to Andy Beierly, did that come up?

KAREN BREWSTER: Yes. Yeah, of course.

ELAINE FURBISH: Because he's got pictures.

KAREN BREWSTER: Yes. I'm trying to get him to pull those pictures together.

ELAINE FURBISH: Yeah.

KAREN BREWSTER: 'Cause it's an amazing thing that he's done.

ELAINE FURBISH: It's extreme, yeah.

KAREN BREWSTER: Yeah.

[00:49:43]ELAINE FURBISH: And what -- yeah. Um, but yeah, for even the casual observer, there are changes happening in the biota that seem -- seem linked to climate change. Especially since we're all, like, went around all summer going, "God! I can't believe how hot it is!" I mean, and that was when it was like, 78 degrees.

KAREN BREWSTER: Yeah. Well, yeah, you said that this summer was hotter and drier.

ELAINE FURBISH: Yeah. And -- and we do know that that isn't just our subjective experience 'cause, you know, we hear it on the radio and the TV.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: With the National Weather Service saying, "Yep. You're right. It's hotter and drier." Yeah.

[00:50:27]KAREN BREWSTER: And so, maybe that's -- is it too soon to say whether there's a change in the biota because of that?

ELAINE FURBISH: Um, it is unless somebody has done the sort of inventory and monitoring program where you could examine those changes. So right now, I'm speaking as a lay person --

KAREN BREWSTER: Right.

ELAINE FURBISH: -- who's just looking at things. But you would need to have done a, you know, a distribution and abundance that is at least a species level.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: I don't -- I'm not sure if that has been done or not.

[00:51:03]KAREN BREWSTER: Well, you mentioned the more insects and the pest damage. Do you have some examples of insects that are here now that didn't used to be here?

ELAINE FURBISH: Yeah, what people are calling woolly bears.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Um, I mean, I've only been here twenty years, and I'm going, "Man, I didn't see those for the first ten years." You know. With the birds. Well, here, the one thing we do have as a possible reference source is the bird club website.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: So as the person who organizes things in the bird club.

KAREN BREWSTER: Right.

ELAINE FURBISH: When I hear people at meetings or just talking to them, saying, "Man! There didn't used to be all these crows here." And I'd say, "Well, you think we ought to document it?" And, "Yeah, yeah." So now there's a page on the bird club website about how crows have shifted in the past few decades in Skagway. Things like that. How the exotic



Eurasian collared dove has become established in the past decade. [00:52:04]So there's that level of species change when it's -- that it -- when it's sort of in-your-face, macrobiotic kind of, doesn't require the level of information that you would need to say, um, the plant species composition in this habitat is shifting. So there's a little bit out there.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Could be more.

KAREN BREWSTER: And woolly bears, they're those fuzzy caterpillars? Is that what -- ?

ELAINE FURBISH: Yeah, they're -- they're orange and black, and -- and I'm not the greatest insect person, but I understand that technically they're a Tussock moth caterpillar.

KAREN BREWSTER: Hm.

ELAINE FURBISH: And that if you were in a different part of the country and people said woolly bear, it would be a different species.

KAREN BREWSTER: Oh, ok.

ELAINE FURBISH: That's one nice thing about the bird world is they've standardized their common names. But -- well, pretty good.

KAREN BREWSTER: Really?

ELAINE FURBISH: Yeah. In the plant world, it's like, you know, the wild west.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: And in the insect world, perhaps similar. I'm less familiar with it. Yeah.

[00:53:08]KAREN BREWSTER: Yeah. Well, you mentioned bats. I want to -- and toads. I want to go back to those.

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: 'Cause those are things we tend not to think about.

ELAINE FURBISH: Yeah.

KAREN BREWSTER: Very much.

ELAINE FURBISH: Nothing that was done along those lines when I was in my brief tenure -- Ah, except that I and M (Inventory and Monitoring) was starting, and I was part of a work group that said, "Well, we're Southeast Alaska. Man, if there's anywhere where there's more than, you know, one toad, this is the place, and we should at least make an effort to be open to gathering information on that." And we came up with -- I started this little field flip book.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Saying that these are what we think could be out there, and here's a picture and a description. If you see it, you know. But the one that's here for sure, I'm not sure who started it, was probably either Meg or Dave, but somebody started monitoring for it. And, especially, you know, where are they reproducing. And I believe that's been going on pretty strong at least, I'm going to say, at least four or five years.

[00:54:24]KAREN BREWSTER: 'Cause I think of toads, amphibians, aren't they sort of, canary in the coal mine for climate change in some places?

ELAINE FURBISH: In some places, mmm, yeah. And there's that whole fungus problem. And I'm sure that they've been open to looking for signs of that here. But the -- the -- when you don't have much species diversity, maybe you don't have any species diversity, you can't look at shifts in species composition when you don't know too much about population dynamics. You can't look at that. But what they have been collecting, at least in the area that they've had access to, which basically is the Dyea, lower area of Dyea, they'll have now, again, shifting baselines.

They'll have at least an idea of what conditions were like starting a few years back to compare to.

KAREN BREWSTER: Um-hm.

[00:55:25]ELAINE FURBISH: Um. Yeah, um, if new species show up, and they have documented -- it's always much harder to document not-presence of something.

KAREN BREWSTER: Right.

ELAINE FURBISH: You know, maybe you just didn't look in the right place. But, I mean, even as far back as when I was here and encouraging trail rangers and trail maintenance people, you know, to -- if you see something that looks like a salamander, tell us. You know, if you see -- see anything up on the trail that looks like a toad or a frog. But something -- anything sort of systematic, other than that examination of the toads in Dyea, um, I am not aware of that, if it exists.

KAREN BREWSTER: Um-hm.

[00:56:18]ELAINE FURBISH: But if it warms up real fast, and all of a sudden they see, again, in-your-face changes of like, in Skagway and Dyea, people in their gardens start saying, "Oh, we're seeing this salamander or something." Well, that'll be a big major shift.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Akin to Eurasian collared doves becoming established.

[00:56:43]KAREN BREWSTER: Are there any other new species of birds that you've seen? As you say, you know, you notice something that you haven't seen before, since you've been here?

ELAINE FURBISH: Yeah. Um, we -- one of the other things the bird club has attempted to do is to do a checklist for Skagway. And I think the park -- one of the early things Meg tried to do also was a checklist for the park. Well, it quickly became apparent to us that, you know, we -- it's essentially the same thing.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: And -- and Megan -- Meg would come to the bird club meetings, and we would try to work together, but we ended up putting out, sort of, two versions of the checklist. And I believe perhaps Jamie maybe said something about -- both of them are woefully out of date, although on the bird club website, the um -- we've attempted to at least keep track of the new sightings. But I think Jamie put in there for the park to work with the bird club together to update the checklist for both of us.

[00:57:57]KAREN BREWSTER: Well, is it also out of date that there are things that used to come that now aren't here anymore?

ELAINE FURBISH: Good question. Don't know. So if it's a checklist, you don't have information on distribution and abundance, or even presence now if that presence has been documented in the past. So you would need something more, like a coastal water bird monitoring program. You know, so they're doing good.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Um, uh, I think, yeah. [00:58:33]I don't want to make assumptions. But -- but definitely things -- the obvious -- we've been able to document the obvious things visible at the level of, you know, the -- even the casual birders who just look at their bird feeder in their back yard.

KAREN BREWSTER: Right.

ELAINE FURBISH: Yeah. Yeah. And, um, some fairly significant things. I mean, the big thing about the Eurasian collared doves is not so much that they're an exotic that showed up. Starlings have showed up. Other things have showed up. But they have made it through the winter and established breeding here. So, you know, but we've got that documented now.

[00:59:18]KAREN BREWSTER: Um-hm. And again, is the assumption because the winters are more mild and that they can survive?

ELAINE FURBISH: It's certainly a reasonable assumption. So in my brief twenty years, I can tell that the winters are milder. Then you talk to somebody like Andrew (Beierly) or some of the other older folks in town, you know, in their eighties, or even the guys that aren't that old that have been here, like, forty years or so, they'll tell ya, things -- winters, used to be very different. So, just in my brief twenty years, the first, oh, five years or so, every winter I would ski up the frozen Taiya River. I would go up to frozen Lower Dewey Lake and ice skate if conditions were right. I wouldn't dream of doing that now. You know, even if there seemed like there was safe ice. It's just different.

[01:00:14]KAREN BREWSTER: So, can you think of when that change might have happened?

ELAINE FURBISH: Well, it's one of those things like, it takes you awhile. It's not so discrete and dynamic. So you go along and say, skiing up the Taiya, frozen Taiya, you know, and then, "Well, it just didn't do it this winter. Maybe I didn't get around to it, or -- " So I don't really know what the conditions are like.

KAREN BREWSTER: Right.

ELAINE FURBISH: But, then, you know, I tried to go do it, and I was like, "Oh, no. Look at that running water, and it's too dicey, and I'm not doing it, and I don't think it's safe." Is it just one winter?

KAREN BREWSTER: Right.

ELAINE FURBISH: Is it, you know -- so maybe then it's cold again the next winter. And, but at some point, you realize, I can't do this anymore.

[01:00:55]KAREN BREWSTER: Right. What about, kinda, where the snow line is? Like where -- how far up into the mountains do you have to go to get good skiing anymore?

ELAINE FURBISH: Well, we go up to the pass, um, for that kind of skiing. But in the early years of mine, so as recently as fifteen, twenty years ago, there would be plenty of times in the winter where we could ski out Denver tracks, where we could go to Dyea and ski around there because there was enough of a snow pack, and it was of good condition. Doesn't happen so much anymore. I don't know that it's happened at all in the past couple of winters.

[01:01:42]KAREN BREWSTER: And so now you have to go up to the mountains, the pass?

ELAINE FURBISH: Well, people would always go up to the mountains for the really good skiing. You know, and that's -- if you talk to -- there's a -- there's a ski club that does Log Cabin. You've probably already heard about them.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: They -- I believe they're saying that, well, it takes longer for the conditions to develop, and it takes a little more management on their part. But I don't want to put words in their mouth.

KAREN BREWSTER: Right.

ELAINE FURBISH: I should not. But I believe I've heard things along those lines. [01:02:11]It feel -- for me, with twenty years of history, if I compare the first few years to the past few years,

I go, "Wow! There's a big difference." I'd be hard pressed to say exactly when I maybe had noticed

KAREN BREWSTER: Right.

ELAINE FURBISH: Or come to the conclusion that it's not just, you know, a little variation in the system. That it's a -- it's a change.

[01:02:33]KAREN BREWSTER: And so, what are some of the differences? It's warmer in the winters? Less snow?

ELAINE FURBISH: Um, uh, uh. So the scientist in me doesn't want to answer that question.

KAREN BREWSTER: Ok.

ELAINE FURBISH: Because like, the Weather Service certainly has information on that.

KAREN BREWSTER: Right.

ELAINE FURBISH: The park used to. That's another thing we used to do. Is there was a snow monitoring station up Klondike Highway that we would go check for snow depth and stuff like that. The records of that should be around. It is where they are now building the new bridge. Have you been -- ?

KAREN BREWSTER: I haven't been up there. On this trip.

ELAINE FURBISH: You haven't been up there. So there's a -- there's a gorge with a half-suspension bridge that needs to be replaced, and they're constructing a new bridge.

KAREN BREWSTER: Ok.

ELAINE FURBISH: Well, right at the edge of that construction area is where that snow monitoring station was, so it exists no more.

KAREN BREWSTER: Right.

ELAINE FURBISH: But then, on the other hand, now things are more automated, and there is a remote weather station at the pass that the state is running. So there's other sources of information. But um, --

[01:03:38]KAREN BREWSTER: Well, you just said, you've seen changes. So I'm like, well, what kind of changes?

ELAINE FURBISH: Well, um, my -- so my impression is that when we do get snow, it tends to be around briefly and then will thaw. So we have more freeze-thaw cycles, whereas in my earlier years, you know, the snow would come down and get packed on the roads. We'd be driving on, you know, the packed snow-ice layer for months at a time.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And now it's like, you know, maybe a week or two and then it's thawed again. The town has an ice rink by the rec center.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: That we used to strap on the ice skates. I mean, even me! Little girl from Georgia who knew nothing about it. I would go, you know, try to ice skate out there. And there was a nice warming station. I don't think they've been able to get ice on the ice rink the past few years, not even once. So you know, that level of change is happening.

[01:04:48]KAREN BREWSTER: Right. And those are good examples of, you know -- You have example indicators of something that's different.

ELAINE FURBISH: Right.

KAREN BREWSTER: Than what it was before.

[01:04:58]ELAINE FURBISH: I would wager that if you talk to the big-time gardeners, that they would have some really good information about --

KAREN BREWSTER: You're not a gardener?

ELAINE FURBISH: I'm a small-time gardener. Very, very small-time. But the ones who are very into it.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: Everything from Jewell Gardens, where it's been formal, to Kim Burnham has a Skagway organic gardening group that she organizes. She's another organizer, so she's great for that kind of stuff. They -- within that group, I am sure, have a lot of knowledge in their heads about, "Oh, yeah, you know, this season is shorter, longer, different."

KAREN BREWSTER: Yeah, because last freeze and first freeze, you know, that planting season makes a big difference for them.

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: Whether you're planting in May or June.

ELAINE FURBISH: Right. So the length, the degree days, all that. [01:06:01]The first few years I was here, my partner and I really enjoyed going over to the mouth of the Skagway River during the hooligan run and seeing it just black with -- you know, I mean -- That's when he was into fishing, and he had this, sort of, basket on the end of a long pole, and he'd just scoop up the hooligan. And then we would hear stories about people coming from Hoonah in their boats and just filling them up with hooligan. There are no hooligan in the Skagway River anymore.

KAREN BREWSTER: Hm.

ELAINE FURBISH: The park has got that hooligan monitoring thing going on in the Taiya, which is excellent.

[01:06:42]KAREN BREWSTER: Any sense of what's changed? Why they're not in the Skagway River anymore?

ELAINE FURBISH: It -- there's -- at least from my level of knowledge, there is no way I could even make any good guesses. I mean, there's so many factors going on. What's going on out there before they come in? What's the habitat doing here? We've still got the glacial rebound far exceeding sea level rise here. So every year, things are a little higher in relation to sea level.

KAREN BREWSTER: Meaning, the ground is --

ELAINE FURBISH: The ground is rising.

KAREN BREWSTER: -- the shoreline, the mainland -- Ok.

ELAINE FURBISH: Yeah. So -- so there's the -- the -- the crust of the earth is still responding to the removal of the weight of the last Ice Age.

KAREN BREWSTER: Right.

ELAINE FURBISH: So, every year, it's like, I don't know, it's close to  $\frac{3}{4}$  of an inch a year higher.

KAREN BREWSTER: Oh.

ELAINE FURBISH: You -- that adds up pretty darn fast.

KAREN BREWSTER: Right. Right.

ELAINE FURBISH: So habitats are changing fast.

KAREN BREWSTER: Right.

ELAINE FURBISH: And in a shallow river system like the Skagway, the changes could be felt more quickly than a large river system like the Taiya. [01:07:48]Um, but then what's happening out there in the fjord and in the ocean, and -- I mean, there're just so many factors.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: What's happening with, you know, water temperature, water salinity, water acidity? There's just, I --

KAREN BREWSTER: Is that being studied? Do you know?

ELAINE FURBISH: I don't know.

KAREN BREWSTER: Ok.

ELAINE FURBISH: I doubt it. I would wager that the park's project with the hooligan is maybe the only thing going on. [01:08:15]The -- as a former shrimper -- so I had a little boat for awhile, and we'd go and catch shrimp. We would ask the state over and over again, please do population studies on the shrimp, blah, blah, blah, blah. We're just -- there's not really a strong commercial fishing industry here.

KAREN BREWSTER: Right.

ELAINE FURBISH: The subsistence local stuff that goes on isn't important enough. Yeah. Yeah. There's a huge dearth of information on those sorts of aquatic resources.

[01:08:48]KAREN BREWSTER: Hm. Well, and you mentioned invasive species earlier.

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: So I want to take us back. I'm assuming we're talking plant species.

ELAINE FURBISH: Um-hm. And birds.

KAREN BREWSTER: And birds?

ELAINE FURBISH: But primarily plants at the time. Um, when I was at the park, we didn't -- we weren't able to start anything on the insects, but there's obviously changes happening there, and maybe they have some baseline data.

KAREN BREWSTER: What -- what -- can you talk about what you've noticed in terms of invasive plants? Are there -- what's come around that's different than it used to be?

ELAINE FURBISH: Yeah, well, alright, here's an obvious example is the, um, the airstrip over there used to be a little tiny gravel strip. And so when they had the big project to make it bigger and paved and put a fence around it so, you know, like it's "protected," they brought in, I guess, fill from somewhere, and it had white sweet clover in it. So that started exploding and was spreading around town. And I will give Meg Hahr credit for this, rallying people. The Park Service as the spearhead, but getting the community involved in big weed-pulls, and keeping that one from taking off. And I think she was very successful. But there's plenty of others.

[01:10:11]You could argue, and I will as a plant ecologist, that just because it's exotic, if it's not invasive and potentially community structure reorganizing that maybe it doesn't make sense to put too much effort into this thing. It depends upon what your goals are. But that sweet white clover was big and bold and obvious, and had all those characteristics. And because of the park and her efforts, it is not the problem it could have turned into.

[01:10:48]KAREN BREWSTER: Um-hm. Yeah, well, as you say, invasive becomes a problem when it's going to take over the natural plant community and wipe out the --

ELAINE FURBISH: And alter it, yeah. Yeah.

KAREN BREWSTER: So are there other ones that have come in and done that?

ELAINE FURBISH: Um, what I was trying to express just then is kinda the same thing we were talking about before. Some changes are obvious to us humans on our scale of people just sort of noticing things.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: But then there are definitely changes that happen that are difficult for us to discern if we don't look at them in a systematic way. So the white sweet clover was at that human level.

KAREN BREWSTER: Right.

ELAINE FURBISH: Easy-to-see change. [01:11:40]Um, there could be other things going on, and, um, there are definitely some candidates. But it would be at a different level, and so you would need -- if you -- you would need to show that it's happening, that it's having an impact, and exactly what kind of an impact. Usually, it's like, habitat for some desirable animal species is the key to getting any sort of buy-in that there should be some action taken.

KAREN BREWSTER: Um-hm.

[01:12:20]ELAINE FURBISH: So, you know, there's -- there -- I would venture to say -- again this -- I'm sure the park has done some work on this, at least a good dozen species. I think they started working with the tribe, the Skagway Traditional Council.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: They've been putting out sort of like an annual flyer through the post office saying, "Look out for -- at least, you know, this six or seven species."

KAREN BREWSTER: Right.

ELAINE FURBISH: "And if you see it, pull it up." But as for impacts and whether a huge effort should be made, I don't -- I'm not aware of that sort of information being looked at.

[01:12:55]KAREN BREWSTER: Well, and as you say, a gardener might find a new plant that -- in their garden as a weed, and they might find it offensive.

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: But is that enough to consider it an invasive plant?

ELAINE FURBISH: Probably not. Not on a, you know, ecosystem habitat level. Yeah, annoying gardeners is a whole different -- whole different thing. 'Cause a lot of plants that are very adapted to their environment and what would be considered native components, if they get in your garden, are a weed.

KAREN BREWSTER: Right.

ELAINE FURBISH: So, you know.

[01:13:36]KAREN BREWSTER: Right. But again, it's that same question of, well, if the temperatures are warming here, you know, it's warmer in the winter and is it drier in the summer, does that create a habitat that different plants can take hold than they used to be able to? Maybe they were brought in as a seed on the train, but they would die out. And now they're surviving.

ELAINE FURBISH: Um-hm. Excellent. You should be in the business.

KAREN BREWSTER: Are there examples of those?

ELAINE FURBISH: Probably.

KAREN BREWSTER: Oh, ok. I figured you're the plant ecologist. You would give me all these examples.

ELAINE FURBISH: Yeah, you would think. I haven't been in that business since I left the park.

KAREN BREWSTER: Yeah.

[01:14:12]ELAINE FURBISH: Yeah. So part of the reason why I got so involved with birds is the community-level interest in birds was very high.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: I don't think I would have been successful trying to get people together for a botany club.

KAREN BREWSTER: No, probably not.

[01:14:29]ELAINE FURBISH: Um, but the bird club, the organic gardening club. John McDermott has the "Skagway, Naturally!" Facebook page, and he's been very successful in getting people in the community interested in reporting just any flora, fauna, any sort of wildlife sightings that they find of interest. Or, "I see this weird plant or bug." You know, it's the Facebook thing.

KAREN BREWSTER: Right.

ELAINE FURBISH: I'm not a big Facebook person.

KAREN BREWSTER: Right.

ELAINE FURBISH: So -- but I try to do a little cross-information exchange between that group and the bird club group. [01:15:07]At some point, these citizen science things, I believe, will develop to the point where they become the primary repository of information. Are you familiar with eBird at all?

KAREN BREWSTER: Hm-um.

ELAINE FURBISH: So eBird is the Cornell Lab of Ornithology's effort to get all those thousands of birders -- when -- you know how birders can be.

KAREN BREWSTER: Yes. Yes.

ELAINE FURBISH: They can be, pretty, you know, OCD about the whole thing. Well, let's take advantage of all that. And so, they've got this eBird system where you can enter your observations and, um, and wait another ten years. [01:15:50]So -- so if the park wants to monitor something with the birds, and they send somebody out to look in a systematic way every two weeks, that's great. And that's a certain quality of data that is gold. On the other hand, if you have dozens of people who are birders every day willing to say, "This is what I saw this day." That's a different kind of data that is -- has a broader coverage, is maybe more variable in its quality, but a different kind of data that is also gold.

KAREN BREWSTER: Right.

ELAINE FURBISH: And that's the direction that that is moving. And we're already seeing it in Skagway in that in the summer months, all those cruise ship visitors. Well, there's a bunch of them that are birders.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And if you look on eBird, you see a lot of entries for Skagway in the summer.

KAREN BREWSTER: Oh, interesting. [01:16:52]So it sounds like you think that the Park Service is becoming more receptive to utilizing citizen science information and collaborating.

ELAINE FURBISH: I think so. Yeah. It doesn't make sense to exclude yourself from it. It also doesn't make sense to depend only on that.

KAREN BREWSTER: Right.



ELAINE FURBISH: 'Cause you would be limited in the scope of questions that you could answer.

[01:17:16]KAREN BREWSTER: But it sounds like in -- when you first started with the Park Service, and then, certainly in the Theresa (Thibault) days, there wasn't -- not that interest --

ELAINE FURBISH: Well, those citizen science things didn't exist yet.

KAREN BREWSTER: Oh, they didn't exist yet? Yeah.

ELAINE FURBISH: Yeah. So, it's a -- it's an interesting shift, and I think it will greatly help the Park Service at a park like this where there are lots of people.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Not going to help, you know, Bering Land Bridge so much.

KAREN BREWSTER: Right.

ELAINE FURBISH: Maybe a little bit.

[01:17:47]KAREN BREWSTER: Well, yeah. But I -- yeah, I think -- what do you suspect has -- is behind that shift? Like, why are people more interested?

ELAINE FURBISH: The whole confluence of Internet communications, smart phones making -- apps making things easy, um, combined with even -- the many birders who are very, very detail-oriented to the casual birders who still know enough to contribute what they see.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Yeah.

[01:18:21]KAREN BREWSTER: But I was thinking of people in Skagway, you think they're more -- they're noticing things more and more aware than they used to be, and so they're getting involved in this kind of citizen science?

ELAINE FURBISH: Oh, yeah, well, eBird's not working so good for Skagway.

KAREN BREWSTER: Right.

ELAINE FURBISH: The bird club -- the reason -- do you really want to go here? The reason being that when eBird was set up, they took on the political boundaries as their sort of base area unit. That meant counties. At the county level in most states.

KAREN BREWSTER: Right.

ELAINE FURBISH: So in Alaska it meant the borough level. And at that time, it was just like, missed it by a year or two, was when Alaska was trying to make the effort to borough-ize all the --

KAREN BREWSTER: Ok.

ELAINE FURBISH: You remember that?

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And at the time when they set it up, Skagway was without borough. And so we got lumped into a geographic area with Gustavus, Hoonah, Angoon, I think Pelican. Basically, places pretty far away and in extraordinarily different birding habitats. [01:19:35]So they -- there is no tool within eBird right now to give the Skagway birders that are in the bird club the reward for entering their data into eBird other than just what I have seen myself personally.

KAREN BREWSTER: Right.

ELAINE FURBISH: There's no -- you can't say, "What has been seen in Skagway for the past week?" What you get is, you know, pelagic birds from Hoonah.

KAREN BREWSTER: Right.

ELAINE FURBISH: So there's some issues there, but I'm sure over the next decade, you know, some of those things will be worked out.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And -- and I see the progression of those things such that it will become more and more of a source of information that the park will have at its disposal to help with understanding what's going on.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: With the environment here. Yeah.

[01:20:34]KAREN BREWSTER: The other thing I wanted to ask you quickly about was the seabird die-off.

ELAINE FURBISH: Yeah.

KAREN BREWSTER: That I have an article about, and Joanne (Beierly) mentioned it. So I guess that was in 2016?

ELAINE FURBISH: We've had a couple of them. They're documented on the webpage.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Um, but, yeah, it was a bizarre time. And it turned out to be part of this, you'd have to say, northern Pac -- western -- Well, no for us, northern, eastern Pacific-wide phenomenon that is -- the documentation for it is being coordinated in two places that I'm aware of. One is the COASST program, C-O-A-S-S-T, out of Oregon, I believe? And the other is the Alaska USGS (US Geological Survey) office in Anchorage. I think Handel. Christmas. Colleen Handel is, I believe, the contact person there. [01:21:37]So, when we start seeing an unusual bird for us, a common murre, and then plus acting weird and dying all over the place, um, you know we try to deal with it here and document it. And then we're like, well, people need to know about this, so we got in touch with both of those entities to pass it on. And since that time, uh, yeah, we -- we -- we are now integrated. We have integrated into the COASST, C-O-A-S-S-T, program with two beaches in Skagway being monitored for dead bird events through the bird club.

[01:22:22]KAREN BREWSTER: So those two that you mentioned, those are the only two in your twenty years that you remember such large bird die-offs?

ELAINE FURBISH: Yes. Yeah. And -- but see there's, ah! The wealth of information in people's brains right now. So, you know if Stan Selmer, um, Bea Lingle, you talked to the Beierlys, Betsy Albecker. She's been aware of birds. I mean, these people have so much. I mean, they got the forty or fifty or sixty-year memories to deal with.

KAREN BREWSTER: Right.

ELAINE FURBISH: And I feel like, you know, they're more important to talk to.

[01:23:00]KAREN BREWSTER: Well, I am talking to them, but I'm also talking to you, you know.

ELAINE FURBISH: Ok. Ok.

KAREN BREWSTER: One, it's a twenty-year is still a significant time. And as a scientist, you come from a slightly different perspective, so it's interesting to hear your -- your side.

ELAINE FURBISH: Ok.

KAREN BREWSTER: So you're an ecologist, scientist, but you're also somebody who's out and about, and you have observation skills, so --

ELAINE FURBISH: Ok.

KAREN BREWSTER: -- you're kind of the combo.

ELAINE FURBISH: Ok, I'm comforted to know that those names sound familiar to you.

KAREN BREWSTER: Yes. Oh, yes, yes, yes.

ELAINE FURBISH: And you're going to -- ok, great. Great.

KAREN BREWSTER: Yeah. [01:23:35]Anyway, I just -- I hadn't realized before, you know, getting into this project that that murre die-off had hit way down here. You know, I heard about it up in the Bering Sea and that part of Alaska, but --

ELAINE FURBISH: Um-hm. We'll never have the quantities that other places experience for these events. We don't have the biodiversity here or abundance. I mean, it's a dramatic difference to go to Gustavus from here and the amount of, just, life.

KAREN BREWSTER: Hm.

ELAINE FURBISH: You know, here we are, we're at the end of a long fjord, you know. But to me that makes it even more important to understand what's happening here. [01:24:21]So when you're on the fringe of habitat acceptability, changes might show up that you can discern that you won't, perhaps, see in places where there's, you know, 20,000 shorebirds coming through instead of --

KAREN BREWSTER: Right.

ELAINE FURBISH: -- you know, tens or hundreds.

KAREN BREWSTER: I didn't even know common murres came through here, so.

ELAINE FURBISH: Not usually.

KAREN BREWSTER: Not usually?

ELAINE FURBISH: Yeah. Yeah.

[01:24:44]KAREN BREWSTER: So what was going on?

ELAINE FURBISH: So this is an excellent thing. So we know from the -- the park's efforts and the bird club's efforts to start documenting and have it be something more than, "Oh, well, we've talked to two or three older people, and they say they don't remember seeing that bird hanging around." Um, to have something a little beyond that level. And, uh, because of that, we know that when those murres showed up, that at least for x number of years prior to that, no. We documented that they were not seen.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And that -- that basically is the COASST Oregon program's goal.

KAREN BREWSTER: Right.

ELAINE FURBISH: Is, you know, just to document that something isn't there. Dead birds on the beach. Even if it's for years, so that when something does happen, you can say, this is an unusual event. And if it's linked to a pollution incident, the -- and it gets into the court system.

KAREN BREWSTER: Um-hm.

[01:25:55]ELAINE FURBISH: It doesn't matter how many birders say, "I don't remember." But if you have data that says we went out and specifically looked, and here's the database. And they were not, you know -- you can't make the argument, "Well, you know, you can't say those birds died in association with our incident because you don't know. They might have been doing that before."

KAREN BREWSTER: Right.

ELAINE FURBISH: So it's a combination of all these different levels of citizen science, local and broader, park-sponsored stuff, and then participating. [01:26:28]And -- and -- and this is something that I think is important at the park level to understand that participation in state-wide

and nation-wide and continent-wide efforts as a data contributor is maybe, well certainly just as important, maybe in some ways more important than, you know, just doing park-specific projects.

KAREN BREWSTER: Um-hm. Yeah. [01:26:56]And the murre die-off, you guys took some of those and had them sampled, to see that it wasn't pollution or contamination or something?

ELAINE FURBISH: Right. We had -- and it's on the website. I think we sent two or three carcasses down through the Fish and Wildlife Service. The person in Juneau at the time, her name is Deb Rudis, also happens to be the person who has been doing the breeding bird and the Alaska land bird monitoring for us since my time. Um, she -- her job, I won't get it exactly right, but she had to do with, I think, endocrine disrupter chemicals in the environment.

[01:27:44]Anyway, she knew how to get those birds to the Fish and Wildlife Service lab that analyzes "dead stuff" to try to figure out why it died. And the only information we got back really was that they were -- the immediate cause of death was starvation. Now why are they starving?

KAREN BREWSTER: Right.

ELAINE FURBISH: I believe -- I would have to double check. I believe we did get a little trickle of information that sort of -- the big, obvious chemical contaminants and toxins that could be responsible were not found. But then there's the more subtle ones, and, you know -- And then it starts playing into the whole changes in the northern Pacific with the blob and everything else.

KAREN BREWSTER: Right.

ELAINE FURBISH: And the food they think now is going down deeper than the diving birds can dive.

KAREN BREWSTER: Oh, ok.

ELAINE FURBISH: So that whole thing is, it's a part of the picture.

KAREN BREWSTER: Right. Right. [01:28:43]Well, the blob makes me think about plastics in the ocean.

ELAINE FURBISH: Oh, different blob.

KAREN BREWSTER: I know, but so -- the way my brain's going is plastics, which it makes me think about things that wash up here --

ELAINE FURBISH: Oh.

KAREN BREWSTER: -- on the beach, and if you've noticed changes in that? Whether it's animals, you know, washing up versus plastic washing up? I don't know if you go out there and notice those things.

ELAINE FURBISH: Well, I'm one of the COASST-ers, so there's -- we do -- me and Nicole over at the Watershed Council, we're sharing the Nahku Bay beach. So one -- one of us goes out there once a month to document what's there. Joanne (Beierly) and Deb Boettcher are doing, I think, Skagway harbor. Or is it the mouth of the Skagway? They've got one they're doing here in town.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: Um, COASST also has a marine debris monitoring, but it's very intensive. I believe that maybe Deb and Joanne started doing it, but then had to let it go. There have been various clean-up days. I do not know if they're part of documentation, or if it's just, get it off the beach.

[01:30:04]KAREN BREWSTER: So when you've been out on your beach, you know, that you're taking over, what have you seen out there?

ELAINE FURBISH: Lots of plastic. Yeah. But, you know, I'm somewhat jaded. So as I mentioned earlier, I started at eastern coastal parks.

KAREN BREWSTER: Right.

ELAINE FURBISH: And participated in a very involved way with documenting trash on the beaches, primarily plastics, in programs there. And by the time I got here, and it's, you know, going on -- I'm past, I'm not interested anymore in spending the time to pick up pieces of plastic and catalog them. That's a personal thing, you know.

KAREN BREWSTER: Right.

[01:30:59]ELAINE FURBISH: I am interested in advocating for changes to our trash management and our whole economic system to try to make it less pollution. So that's where I'm putting my efforts now.

KAREN BREWSTER: So are there efforts in Skagway to make some of those changes?

ELAINE FURBISH: Oh, goodness, yes. Um, the whole waste management stream right now is being reexamined, and there's a -- Kim Burnham is involved, but primarily her husband, Steve Burnham, is a prime mover in, you know, let's try to change the way this town manages our solid waste. And they've been having lots of work groups and meetings and stuff. And I've gone to a few of them, and I know I like the direction they're going, but I don't know the details. But they were looking at, you know, creating a solid waste facility, pulling out the organic stream and composting it. Right now, it's all mixed up together and taken up to our incinerator and putting all this wet, heavy organic stuff into an incinerator is maybe, you know, not the best. So it's -- there's interest in the town. There's efforts being made. Things could change.

[01:32:22]KAREN BREWSTER: Um-hm. Well, that was kinda one of my final questions is, in the community, have you noticed a change in the conversations? Are people talking more about climate change and responses to environmental issues?

ELAINE FURBISH: Everybody talks about the weather. Everybody talks about -- I mean, there's the little glacier. Our little glacier. Every day, we see it and we're like, it's tiny, it's disappearing.

KAREN BREWSTER: And that's the one up on Harding Mountain?

ELAINE FURBISH: Yeah. Yeah. Um, people will on those inversion days, they'll talk about the visible air pollution. But then you start, you know, it's like, people start having more focused interest. So the gardeners, the hikers, the birders, you know. But the winter recreation people. Everybody has their own spheres of awareness, and I would venture to say that it's coming up all over.

[01:33:28]KAREN BREWSTER: Yeah. So it is a topic of concern for people, that things are changing?

ELAINE FURBISH: It's a topic of conversation. Now, when you get down to concern, you would have to start talking to people, and I usually don't go there. I'm usually more interested with, "Oh, what'd you notice?"

KAREN BREWSTER: Right.

ELAINE FURBISH: But then, concern would be -- I'm sure there's plenty of people who think it's part of natural variation, and that there's other people who think it's signs of climate change.

There's probably a whole range of levels of concern. And I would not claim to have a finger on the pulse of what that is.

[01:34:07]KAREN BREWSTER: Right. But it's not like it's become such a level of concern, as in some communities of Alaska where, you know, our village is eroding into the river.

ELAINE FURBISH: Definitely.

KAREN BREWSTER: Or that -- you know, we have to start moving things --

ELAINE FURBISH: Definitely not.

KAREN BREWSTER: -- changing infrastructure. That -- it hasn't got to that level here?

ELAINE FURBISH: No, not likely. Not as long as our glacial rebound is quicker than sea level rise.

[01:34:32]KAREN BREWSTER: Yeah. So people talk about it, but it hasn't gotten to be a threat yet to change lifestyles?

ELAINE FURBISH: Not that kind of -- well, lifestyles are -- maybe it's affecting a little bit. I would say my lifestyle has been affected, I mean, as far as winter recreation and stuff.

Livelihoods, probably not. Far greater impacts are things like, you know, no more hatchery salmon and stuff like that. An argument could be made that there might be more opportunities for tourism. I know the cruise ships keep pushing the shoulder seasons, and if people can offer excursions and stuff, so, you know, in that sense, it might be considered a benefit.

KAREN BREWSTER: Yeah, that's right, I hadn't thought about that, a longer tourist season.

ELAINE FURBISH: Um-hm. Yeah, so I'd say, it's kind of a mixed bag. But there's not existential threats, and that's because of our glacial rebound.

KAREN BREWSTER: Um-hm.

[01:35:35]ELAINE FURBISH: The last forest fire happened just before I got here in '98, and they got on it pretty quick. The brief investigations I did of the fire ecology here, there's definitely signs of fire-adapted plants in the communities. Not fire-dependent, but fire-adapted. Being here on the ecotome between the boreal interior and having, what is it now, twenty-four inches average rain? I think when I got here, it was like, twenty-six inches, so it's kinda drifting. But the point being, the conditions probably for a long time have always been a little more conducive to having fire be part of the system.

KAREN BREWSTER: Hm.

ELAINE FURBISH: And that could be changing. And if that changed drastically, maybe that would be more of an existential threat. Not existential. It would be, you know, something that would cause extensive damage, perhaps.

KAREN BREWSTER: Right.

ELAINE FURBISH: And require response.

[01:36:41]KAREN BREWSTER: But it's interesting that there has been a history of wildfires here, but since you've been here, they haven't really been a factor.

ELAINE FURBISH: Well, that -- that -- when I hit the ground, that one --

KAREN BREWSTER: Right.

ELAINE FURBISH: -- had just happened.

KAREN BREWSTER: Right. But since then?

ELAINE FURBISH: I don't recall any significant wildfires since then.

KAREN BREWSTER: Yeah, and, as I say, you know, I think of Southeastern Alaska, it's wet. You know, you wouldn't have a history of wildfires here.

ELAINE FURBISH: Well, we're right on the edge here.

KAREN BREWSTER: But, you're right on the edge here.

ELAINE FURBISH: Right on the edge.

[01:37:10]KAREN BREWSTER: So what are some of those adaptive species? I mean, the fire-dependent are the kind like the trees that they have to have the fire to release their seeds from the cones.

ELAINE FURBISH: Right, right.

KAREN BREWSTER: Which we don't have here, I guess. But what would be an example of a fire-adaptive species?

ELAINE FURBISH: Uh, trees that do much better establishing themselves after a burn. Their seeds and saplings are significantly, substantially, more likely to survive, that sort of thing. You look at the plant community structure here, and there's just -- I mean, even Haines. What is Haines, fifteen miles away? It's just so dramatically different.

KAREN BREWSTER: Hm.

ELAINE FURBISH: And so there're these plants that can survive and thrive in drier conditions with the occasional burn. [01:38:12]I know I used to talk to Karl (Gurcke) a lot about, you know, records of fire from the gold rush on.

KAREN BREWSTER: Um-hm.

ELAINE FURBISH: And certainly there were the records of tree cutting and stuff like that. And then I started hiking around and looking for things like char layers in the ground and stuff. Found enough evidence to say, well, this is something we should look into and study. And wasn't able to get anything funded.

KAREN BREWSTER: Right.

ELAINE FURBISH: I'm not sure if anything has been funded. [01:38:41]But, you look at the mosaics of different trees, and you go, well, that easily could be -- like, that could have burned, like, a hundred years ago, and that's why we're seeing this patch of, you know, broadleaves and --

KAREN BREWSTER: Like cottonwoods or something or birch?

ELAINE FURBISH: Yeah. In the -- you know, so there's -- there's indications worth investigating.

KAREN BREWSTER: Um-hm.

[01:39:16]ELAINE FURBISH: Um, by the same token, that's like with geomorphology, when you see boulders in strange places, you know, you're like, well, that's worth investigating.

KAREN BREWSTER: Yeah.

ELAINE FURBISH: So I would say, that needs to be done. It would be valuable to have that be done and understand it more. Because if things continue to get drier and hotter, then you would expect naturally the chances of those events happening more frequently.

KAREN BREWSTER: Right.

ELAINE FURBISH: If they -- if ecologically for -- we're in this inter-glacial period, you know, if evidence can be found that ecologically they happen -- used to happen every 500 to 1000 years, and they start happening every thirty years, you know, but, or forty years, or fifty years. The problem is, fifty years is getting close to a human lifespan.

KAREN BREWSTER: Right.

ELAINE FURBISH: And you might not notice it unless you look hard.

KAREN BREWSTER: Right.

ELAINE FURBISH: So, I think, yeah, there are indications and would be valuable to investigate.

[01:40:26]KAREN BREWSTER: Yeah, and I'm just wondering, with, you know, climate change being such a global topic, does that contribute to people on the local level paying attention more, and looking and seeing those things? Not that they're seeing the change, but as you say, they're starting to -- are they starting to observe and notice more?

ELAINE FURBISH: Certainly, I'm sure many people are at the community level. I don't know. When you get into those, what are people thinking and what are their motivations, I'm just --

KAREN BREWSTER: Right. No, it was sort of an abstract question.

ELAINE FURBISH: Yeah. Oh, ok.

KAREN BREWSTER: That, you know, that's possible that because now this awareness.

ELAINE FURBISH: Um-hm.

KAREN BREWSTER: Education and awareness, then makes people start to notice things that maybe they didn't notice before.

ELAINE FURBISH: Right.

KAREN BREWSTER: And so, as you said, you know, is it something that's happened all this time and nobody noticed, or is it really a change? And that is a hard thing to determine.

ELAINE FURBISH: Right. Right.

[01:41:28]KAREN BREWSTER: Alright. Well, I really appreciate your time today. Are there any other things that you wanted to talk about that I haven't asked you about or that have come to mind along the way?

ELAINE FURBISH: Um, nothing immediately comes to mind. I would say definitely look at the bird club website.

KAREN BREWSTER: Yep.

ELAINE FURBISH: For some of this documentation. And if, you know, I can dig up some old reports if you need more information about any of those topics. And I'm just very grateful that you're talking to a lot of the older folks who aren't immediately associated with the Park Service about some of these things.

KAREN BREWSTER: Right.

ELAINE FURBISH: It's hard to find somebody in this town who hasn't had some involvement with the Park Service.

KAREN BREWSTER: Right. And some of it's good; some of it's not good. So. Well, thanks. I appreciate your time.

ELAINE FURBISH: Thank you.