

Smithsonian Folklife Festival Interview

Fred Hall

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Portland, Oregon

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Interviewer: Don Gedney

Don Gedney: Fred, can you give me your name, address and...

Fred Hall: Yes, I'm Fred C. Hall. I live in Portland, Oregon on a floating home.

DG: Fred, can you talk a little bit about your background? Like why you became an ecologist, forester, and so on?

FH: Well, that's a long story, but I was interested in forestry - became interested back in the Lake States where my parents had some land. We used to spend summers up there in the forest, and from that I became interested in forestry. Wisconsin at the time did not have a forestry school so I had to go to do forestry in Indiana. And then I came out west with an interest in animals and got a master's degree in range management with a minor in Douglas-fir silviculture. From there I joined the Forest Service and within a couple of years I was stationed at the La Grande lab doing research on livestock range condition guides. Most of that was in forested rangeland, so I got interested in that and discovered that soils were extremely important. So I got a PhD in plant ecology with a minor in soils from Oregon State. From that I did the first plant community classification done in the Forest Service. That was done in the Blue Mountains. As a result of that we developed the Area Ecology Program dividing Oregon and Washington National Forest System land into six -uh, seven areas. We staffed each area with a PhD level ecologist assisted by a research master's degree associate. As a result we have classified all the forest land on the 22 to 24 million acres in Oregon and Washington, encompassing about fifteen different publications. So I have [laughs] developed an interest in plant ecology, an interest in forestry, and interest in the interaction between trees and what I call ground vegetation, or grasses, forbs, and shrubs under the trees.

DG: Okay.

FH: Among my work assignments has been "range condition". That is, what effect livestock and big game have on grasses, forbs, and shrubs. As a result of this interest I have come to appreciate three kinds of non-native vegetation. One is an exotic, which simply wasn't here before. The exotic does not necessarily connote bad or good. For example, after severe overgrazing of rangelands we have seeded crested wheatgrass, an exotic. We've seeded it intentionally to

prevent erosion. On the other hand, we have what might be termed a noxious weed, a grass, which is...oh, come on, Fred.

FH: Another grass that is an exotic, but we don't like, we call it a noxious weed, is medusa head rye. Nothing will eat it. It was imported in the wool of sheep almost a hundred years ago. It will invade and just about dominate poor condition rangelands that have reasonable soils.

And then we have another situation: that's a noxious weed, and "noxious" means it has been classified according to the state and federal government as being undesirable. It is illegal for people to cultivate it. They have to control it if they possibly can. Scotch broom is another one. There are several like that.

So, we have exotics which do not live here, we have noxious plants which we don't like, and we have invasive species. Now, invasive can mean a native species that has invaded an area where we don't want it. [Laughs] For example, a lot of people don't like juniper. Juniper is invading places that have been traditional livestock grazing areas – elk and deer winter ranges. It is a native species, but in many cases we don't like it because it competes so severely with other native species. It will seriously reduce sagebrush - a winter forage, bitterbrush - a prime winter forage, and the native bunch grasses, reducing them very significantly. So we have these three kinds of vegetation that we deal with in one way or another.

DG: Fred, if we were just going to concentrate on invasive species, what would be the most important invasive species that have created problems in the Northwest?

FH: That's a good question. When we talk about "invasive", we presume that any exotic or non-native species has invaded. The reason I wanted to set "invasive" apart a little bit is that some of our native species do things we don't want them to do. Some of the worst – well, probably the best known exotic invasive species has been cheatgrass, introduced in this country in the Pacific Northwest about 1880, 1890, with sheep that came over from Russia. The seeds were in their wool. Now, this is an exotic. A lot of people don't like it. It is not classified as a noxious weed. However, we have to look at other attributes of it. For example, its primary invasion is in rangeland that has been so severely overgrazed that virtually nothing else is there. Cheatgrass has taken over and has in fact prevented serious wind erosion – sometimes water erosion. It can be grazed by deer and elk during the winter because it is a winter annual. It can be grazed by sheep during the winter and is often grazed by sheep and cattle in early spring. Just as soon as the seed heads appear it is no longer palatable. Then it sits there about six to ten inches off the ground, reducing wind erosion on that soil. So, it is an exotic, it is invasive, and it is not all terribly bad.

DG: What is the worst aspect of it?

FH: The worst aspect of it is that we do not have effective ways of reintroducing our native bunch grasses into it. Small trials have been successful but we have not been able to do large scale conversions.

DG: Is it plus or minus in terms of fire?

FH: Oh, it's very flammable. That's a good point, thank you for that. It is considerably more flammable than the native bunch grasses. It will burn easily. In the past, in Oregon, for example, there used to be, as near as we can tell, a twenty to forty year return cycle of fire in big sagebrush wheatgrass and fescue communities. When those are converted to cheatgrass, the cheatgrass will burn without the sagebrush and juniper, and we have gone from a twenty to forty year fire cycle to a five to ten year fire cycle. Which keeps out the juniper, which keeps out the sagebrush, which keeps out the bitterbrush, and which keeps out the big bunch grasses like the blue bunch wheat and Idaho fescue.

DG: Sounds good to me.

FH: ...have gone to Russia and come back, and have not been successful getting rid of it. In short, that's where it's at.

DG: Is it a problem over there?

FH: Well, I presume it's a problem.

DG: Okay.

FH: But I also presume it's been more than a hundred years since it's been dominant. It's possible the native species it displaced are extirpated, period. I don't know that.

DG: Okay. With complete sentences: What would be the next invasive species that's noxious, I mean, that's a pest?

FH: Thank you [laughs]! I got you trained! Noxious, a pest, that's a good point, because in some places, for instance, scotch broom is not classified as a noxious weed. For example, along the roadsides here in Oregon: if it was classified as a noxious weed the state highway department would be obligated by state law to get rid of it. Well, it has beautiful flowers. That's the reason it was imported to this country was as a floral decoration.

DG: Really? In nursery stock?

FH: In nursery stock, imported from Scotland, yes. Then it escaped. It escaped first and most easily on road cuts and fields because there's nothing there to stop it. It's also a nitrogen fixer – it's a legume. It is beautiful. However when it gets off the roadsides and into forest lands that we're interested in growing trees on, it can become so dense that it seriously retards tree regeneration. Not many creatures eat it. Lastly and probably most important, it is very flammable. It will burn hot. For example, a plant three feet high, at about 60 percent canopy cover will burn with a flame length of about ten feet. That will burn the needles off any ten-foot tree and kill it instantly. It will burn half the crown off a twenty-foot tree and scorch the rest,

probably killing it. So scotch broom is a nasty creature in some locations and a rather attractive creature in other locations even though the general consensus is that we don't want it around.

DG: Is there any way it can be controlled?

FH: Yes. It can be controlled. It depends on what kind of county laws there are or what kind of state laws there are in regard to use of chemicals. For instance 2, 4-D and some of the combinations is very effective in killing it. Not so effective is having people go out and pull the plants up by hand, because it does have runners and it will sprout from the runners. So pulling it by hand is not an effective means. And we can't graze it to death because we don't want big animals out there on our highways [laughs]!

DG: Okay. With complete sentences: let's talk about gorse.

FH: Gorse is another interesting plant. It is exotic, introduced from Europe. In Europe it is used and controlled as a pasture fence. It is very thorny; critters don't like to walk through it. Sheep cannot get through it because of their wool; they get hung up on the wool. It was apparently brought into this country for the same purpose of making hedgerows around pastures and farmland. It does not do well under tree canopy cover, but it does very nicely thank you in clear cuts, abandoned pastures, and things like that. It is thorny, and if you get a 60 percent canopy cover of that, you are going to have to wear very heavy Levis to walk through it so that you're not scratched to death.

DG: So, does it stand, gorse? For a long time? Does it prevent regeneration?

FH: As far as we know, yes.

DG: Make a sentence out of that.

FH: Gorse – there are enough pastures, particularly in the coast range where it was first introduced, that it has prevented tree regeneration. You cannot graze livestock in it. Elk and deer don't like to graze in it because it will grow dense enough that you cannot walk through it without getting cut. That is the main reason why it's a tough character. Of course that's the reason it was used as hedgerow.

DG: Okay, let's talk about ivy.

FH: Another escaped plant that we have, particularly in Oregon and Washington is ivy, commonly referred to as "English Ivy". As a matter of fact I am on the mailing list of the "Kill Ivy League".

DG: As an aside: is ivy an invasive plant?

FH: Ivy is an invasive plant. It is escaped from cultivation. Now, it's not the common ivy you have around your house. This is a different one, and I can't be specific just how different.

DG: Where did it come from?

FH: It came from, as far as I remember, Great Britain. What it does – it's a vine, it likes to climb up trees. About the time its stem is a half-inch in diameter or larger, it wraps around the tree and prevents the tree from expanding out. So it gradually chokes off the moisture from the roots going up to the top of the tree. It also chokes off the smaller limbs, which means that the ivy will eventually kill the tree. It also has tentacles that enter the bark and hold it onto the tree. Therein lies a little bit of a problem using chemicals, because if we use chemicals that will kill the ivy, we often inadvertently kill its host, the tree because some of those chemicals are transferred into the tree.

The common way to kill the ivy is to cut it. They have crews that go out and cut the ivy at the base of the tree, often cutting off a foot or two of the stem. The problem is still that the wrapped stem around the tree is not going to expand with the tree, and it is still going to give the tree circulation problems – getting water up to the top. The easiest way to deal with the ivy is when it's young – preventative, or immediately, before it gets very tall, tearing it out of the tree, basically.

Just, for example, if you go up US-26 into the West Hills here in Portland you will see ivy on both sides of that highway up as much as eighty feet. There seems to be no good consensus of where sudden oak death came from. There seems to be some consensus on how it spreads, but I haven't...

DG: There's no known knowledge about the origin of sudden oak death?

FH: No. Not that I know of.

DG: Okay. Fred, let's talk about what kind of a mall display we could have in Washington. Talk about invasive plants, invasive pathogens.

FH: I am in favor for something other than flat plastic and small print. I will not do that. My photo monitoring poster is four feet by eight feet. It is almost 3D; it has flip-ups that people can see what's happening. I am big on visual and little on verbiage.

For example, I like this example of the ivy. What I would do is cut a two- or three-foot section out of a tree with ivy around it where you can see the ripples of the tree trying to come out around the ivy – showing that the ivy is in fact choking that tree to death. I would set that on the table. Now, I want a display eight feet long and four feet high, with a table. That's where I'm coming from. That's what I like to use. Next to that I would like a photograph – four-foot-high photograph, with a person in it showing this ivy at least ten people heights above that individual. That's a quick image: "Oh my gosh, I can see how big that is." And I want it full all around the tree - in other words, two or three shoulder widths of foliage around that tree. You can get some of those right up here in the US-26 Canyon Drive. Then I would want an explanation of what this

thing does: “Can we use chemicals on it?” “Not effectively, because the vine holds onto the tree with tentacles which will introduce the chemical into the tree.” And I would like a simple explanation: For instance, this thing was probably imported because people liked it around their gardens, around their fences. And it has escaped. It was intentionally introduced; it is an exotic, and we dislike it. How can we control it? The most effective way is to get to it early, before it has wrapped itself around the tree up fifty feet. Cut it.

DG: What about the scotch broom? How can we talk about that?

FH: Scotch broom is a situation where somebody has to make an administrative decision: Are we going to have plain brown roadsides or are we going to have some green shrubs with brilliant yellow flowers along them to be attractive? Now, if we want green shrubs – scotch broom – fixing nitrogen, with brilliant yellow flowers for six weeks during the spring, then the decision has to be made: How much of that do we want? So if we want it, okay, and if we do want it, how much do we want? And when that decision is made, what is the most effective way of controlling it?

DG: So what kind of a display could we show about scotch broom?

FH: What kind of a display? If you can get it in flower, there is a chemical that can freeze it. I don't know exactly what the chemical is, but go to a florist and they can get you a chemical, they can tell you what the chemical is. I would get a branch about that long with the flowers on it, zap it with that chemical, and freeze it right there and have that on the display: “This is why scotch broom was introduced.” Then I would have a photograph of a roadside with too much scotch broom: “This is why we don't want to see too much of it.” You're damned if you do and you're damned if you don't.

DG: Could we do anything about cheatgrass for a display?

FH: Yes. With cheatgrass for a display I would get a six-inch wide by two foot long tray, dig up a bunch of cheatgrass sod, about the first of July when it's gone to seed. Set it in there and put it on the table. It'll stay that way – stay that way for a year.

DG: Sounds good to me.

FH: ...from that chair over there, you have the tree there, you have the picture here. You have the branch of scotch broom here, a picture of scotch broom on the roadside. This tub of cheatgrass, with a cheatgrass hillside picture. Three items, three pictures, and probably no more than forty words total. That big. Inch high letters.