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**U.S. Department of Agriculture
Forest Service
Region Five History Project**

Interview with: Charles (“Charlie”) Graham
Interviewed by: Enoch Bell
Location: ?
Date: ?
Transcribed by: Mim Eisenberg/WordCraft; February 2007

[Begin CD Track 1.]

[Transcriber’s note: The volume is very low, and Mr. Graham’s voice, especially, sounds muddy.]

UNIDENTIFIED WOMAN: You were home in August of ’66.

ENOCH BELL: Hmm?

WOMAN: I think you came home about August of ’66.

GRAHAM: Yes. You were already home.

WOMAN: Yes, they got me out of the—

GRAHAM: [Laughs.]

CHARLES GRAHAM: You didn’t like school.

GRAHAM: They’d come out of school after [unintelligible]. She came to [unintelligible], and I had a hundred-dollar bill ditched away, so we had a little bit of money, and there was a bunch of girls [unintelligible] Russia, so she tied in with them, and she went to Moscow. We put her on a bus. She went to—where was it? Up on the Caspian Sea, [unintelligible] or something.

WOMAN: [unintelligible].

GRAHAM: That old bus—there was a schoolteacher and two other girls from [unintelligible], or three.

WOMAN: About three, but that's my career and not yours. [Laughter.]

GRAHAM: But anyway, I put her on that bus, and when they pulled out, well—there wasn't any tread on one of the wheels [sic; tires]; it was just running on the fabric, and she had to drive about sixty miles on that bus to catch a ferry going up to Moscow to get on the train.

BELL: So you came back here and worked with Bentley, then, on the Agent Orange project?

GRAHAM: I had written to Jay and wanted to come back, and they often said, "Put [Mel?] on Jay's project," the [unintelligible] project, and Jay was doing reseeding, and we were doing a lot of that Agent Orange and other sprays, and that's when I wrote that research note there on that sprayer. Anyway, we would develop [unintelligible] going to—Jay had made a trip to Puerto Rico, which tied in with ARS and [Fred Shirley?]. They did some chemical spraying in the—

BELL: So it was different kinds of sprays—

GRAHAM: Yes.

BELL: —that they were using.

GRAHAM: Yes. But they had use a pole sprayer down there. They had used a boom [unintelligible] sprayer so they could get it up high and simulate air—

BELL: A helicopter.

GRAHAM: —spraying.

BELL: Yes.

GRAHAM: But I'd had some experience with [Low Jacks?], and they never put on a very uniform spray job. You'd get big droplets going out, then small droplets, and so Jay and I decided we wanted a boom sprayer. And I designed that boom sprayer. I designed the thing,

and I came down here to [Lock's?] Welding in Fresno. I'd known—was acquainted with Harry Lock, and I had [unintelligible]. Anyway, we designed a [tripod?] [unintelligible] so you could put this boom up there. We had a circular [unintelligible] of [unintelligible] a twenty-five-foot boom, and only ten feet on the outer of it was all it sprayed. Anyway, we—I don't know if you've ever seen this [unintelligible].

BELL: I have, actually.

GRAHAM: [Laughs.] Anyway, it turned out pretty good. We were able to simulate aircraft spraying, and we took that thing and shipped it to Hawaii and Southern California and other places and put it on seven other plots, something like that. Then later on, all these plots—we had to evaluate them, and we come up with this other research [unintelligible], and I was, like, the experienced man that was estimating the effect. A lot of them—we took—in Mt. Shasta we worked out some of the [unintelligible], but a lot of the times you'd like to estimate the effects when you couldn't actually take [geo-moisture?] samples. Jay and—we worked out a deal where I can go around and look at them and scrape the bark and stuff, and I could come up with an idea about—I was the experienced estimator. [Laughter.]

But Jay and I—we did a lot of estimating in the range here. We used to do reconnaissance, and he'd go one round and we'd get together, and we'd try to estimate density or something like that, and we'd walk for a mile around, and we'd come back, and [one of the estimators?] the [unintelligible] and the composition of the different plants. Jay and I—we'd take a tour, then we'd come together and write down what our estimates—we would be within five percentage points every time. We just [unintelligible]. I guess because we were both from Kansas. [Laughter.] But we just thought alike.

So [unintelligible] Jay would think—he was a good writer. I’m a lousy writer. I’ve never liked to write, but I would collect data, and Jay would [unintelligible]. Like that darned [unintelligible] sprayer, all that stuff. I’d build it, and then get the job done, and then collect the information. Jay would usually end up writing it. [Laughs.] I was such a poor writer. I’d write something and take it in to Jay, and he’d look at it and he’d groan, [unintelligible] pull out his blank sheet of paper and start writing.

BELL: Start over again. [Laughter.]

WOMAN: [unintelligible] what you wanted to say. [Laughs.]

BELL: Oh, dear. So how long did that project go on, the spraying projects?

GRAHAM: Nineteen seventy I think it pretty much ended up, and [Richard] “Dick” [Hubbard?] came to Fresno as the project manager. We had our offices in the government building on [unintelligible] Street.

BELL: So when did that move take place?

GRAHAM: That was in 1970, July of ’70.

UNIDENTIFIED MAN: I came down here in July of ’70, and you were already in there. You’d been in there a while.

BELL: So maybe a year before?

MAN: Yes.

GRAHAM: I think I came in July of ’72.

MAN: You were here when I got here, because I was the last one of Hubbard’s people to show up.

GRAHAM: [unintelligible]. Hubbard had worked originally at [unintelligible] [Mountain?] cooperatively with Desmond, was it? You were in cooperation with—because you gave [Art Jones?] that [unintelligible].

MAN: That was—

GRAHAM: Dick [cross-talk; unintelligible].

MAN: —the [browse?] restoration project, which was completely funded by Fish and Game. That started in about—

GRAHAM: Dick worked on [unintelligible] when he first came out here from Utah.

MAN: Yes, separate from [Nord?]. Nord was working on the ecology of bitterbrush, and Hubbard was working on the reestablishment of degraded bitterbrush ranges.

GRAHAM: Yes. While I was going to [unintelligible], I'd worked for Gus [someone?]. Gus had had these bitterbrush seeds in cold storage, because for bitterbrush to germinate, it seemed to have to go through this—

MAN: The freeze—

GRAHAM: —cold period, and he had a bunch of Petri dishes with seeds in cold storage in there, and I used to have to take care of those, go over there and measure the [unintelligible] and stuff on that bitterbrush.

BELL: Eventually stopped that because we broke the dormancy with [unintelligible].

GRAHAM: Yes.

BELL: And then [unintelligible] became a no-no, so then the interest in reestablishing bitterbrush was lost.

MAN: [Laughs.]

[cross-talk; unintelligible]

MAN: So 1970 you were [cross-talk; unintelligible].

GRAHAM: [unintelligible] down here on Hubbard's project.

BELL: And what were you working on then?

GRAHAM: I don't even remember what I was working on.

BELL: One thing was the Panoche [pronounced Peh-NO-chee] Hills erosion.

GRAHAM: [Peter] "Pete" [Hilton?] [left?] about that time, and I don't know where Panoche Hills—Pete had a bunch of microclimate studies going on over there with Fish and Game—or Bureau of Land Management.

BELL: Yes, Bureau of Land Management. Thirty thousand acres of [unintelligible].

GRAHAM: They weren't very much interested in microclimate, but I went and took that over, and eventually—I wanted to do some reseeding, and the motorcycle fellows [unintelligible]—they wanted to reestablish that because, you know, Panoche Hills—the average rainfall over there is about two inches a year.

MAN: Wow.

GRAHAM: And the motorcycle guys would get in there on that BLM land and ride on [cross-talk; unintelligible].

MAN: Chew it up, huh?

GRAHAM: They would see a grass and say, "Gee, there's not a motorcycle trail up there."

Zoom! Up the hill they'd go. And some of those—they were just bare, eroded. They wanted to reseed all those, and I—well, I think [unintelligible] had some reseeding [unintelligible] there.

Harold [Heady?] had some stuff, and [Michael] "Mike" [Straub?] was working over there some, too.

MAN: You were working for Jay then?

GRAHAM: He was working for—Straub was working with Harold Heady when he was finished up school. I think he was a student or a graduate student.

MAN: Then Fish and Game got involved with the ball and chain [cross-talk; unintelligible].

GRAHAM: Yes, they were [crushing?] brush, so—that was over around Hollister.

MAN: Well, they had it there at Panoche, too.

BELL: Was [sic; Were] there other studies you were working on then for that three years before you retired, or was the Panoche Hills the main effort?

GRAHAM: [unintelligible]. I took the [unintelligible] over there. I remember I had it on that old trailer, and [unintelligible] in the back of a [power wagon?], and got there and [unintelligible] got [unintelligible], and I stopped in [unintelligible]? Someplace. [unintelligible]. I finally found out the gas line had closed up. But I eventually got the [unintelligible]. We had that [unintelligible], and the [unintelligible], and we did some reseeding on some of those [unintelligible] trails. I had a plan that I wrote up. I'm kind of a blank on [unintelligible].

I know I built some—I took some infiltration studies. They had that old gas pump, the crank gas pump that had the five-gallon cylinder in it. It used to be on the gas pump station right by the warehouse door, and then they—the last [unintelligible]. [unintelligible] I cut down all of the—I had that cylinder, and I did some infiltration studies on some of those motorcycle trails. Got in there, and I poured water into the [ring?] and measured [unintelligible]. There's a [unintelligible] it took to keep it filled up.

Then we did the reseeding, and last I remember, [Raymond] “Ray” [Randolph?] and I went over there and looked around. We finally found one bitterbrush plant growing in one old motorcycle track. [Laughs.]

BELL: And that was it, huh?

GRAHAM: We were walking down there, finding [unintelligible]. Ray said, “Gee, there’s a bitterbrush plant,” a little old bitterbrush plant about so tall [demonstrates].

BELL: Struggling along.

WOMAN: [Laughs.]

GRAHAM: But we didn’t have much reseeding over there, because—but one of the other studies that we did there were some plots there. What was the guy from Arizona? [Bull?] I think he was a professor, Tucson or Phoenix, who did his PhD thesis over there. And he had a bunch of plots over there. I got him three hundred dollars, and he came up there, and went over and looked at all of his plots. [unintelligible]—I don’t know—geology. And he had determined those on the average on [Panoche?] Hills are growing about three millimeters a year, on the average.

BELL: Oh, wow!

GRAHAM: Anyway, we did a transect over there, and remeasured all of those plots, and he had transects going down on some of those hills. [unintelligible] the [unintelligible] creep on the side of those hills was six feet or so. He had had transects from the top of the hill down, and had—I don’t know, I think he had an iron stake about every meter or so going down those hills, and when we remeasured some of those metal pins that he had put in, a meter apart, as much as two meters apart, the size of those hills [unintelligible]. Apparently they just keep creeping downhill.

BELL: Creeping down, huh?

GRAHAM: The valleys, you know, would be flat. There’d be these steep hills, and then you would have a flat place, and then sometimes, about every five years, you’d get a [unintelligible], and all the water would run off down through—[and it would cut?] another trench, and you end up with these—

BELL: [unintelligible].

GRAHAM: —stair-step trenches [on hills growing?] up, but then you'd have these steps along the base of a steep hill, and you can still see them up there.

BELL: Still see them up there. Interesting.

GRAHAM: But Bull come over, and we remeasured all of those things, and he had dug some wells around in [unintelligible] there, 900-feet-plus deep, and he put a cable down there, a [weight on dead rock?] underneath the valley floor, and they come out over a pulley, and he had put a weight on it, and the land in the valley is where they were pumping—you noticed some of the concrete irrigation ditches over there are all broken, but the land has subsided. The cable come up out of the hill, over the top and down, just from the land subsiding.

BELL: I see.

GRAHAM: If you understand what I mean. He had this cable—

BELL: So he was measuring the subsidence—

GRAHAM: [cross-talk; unintelligible] the bedrock. Over the years, apparently, that cable would come out of the ground—it was just like a water gauge on a water tank.

BELL: Yes.

GRAHAM: On that [pole?].

BELL: That's scary, because that water's gone. The old aquifers are getting depleted.

GRAHAM: But you'd seen these irrigation—and some of them are—if you go out of [unintelligible] toward Panoche there, there used to be some concrete ditches along there. The land would subside, and those ditches was all—

BELL: Would break up, huh?

GRAHAM: [cross-talk; unintelligible], just from land subsidence.

BELL: Wow.

Well, I propose that we do lunch. It's twelve thirty.

WOMAN: Recharge your aquifer.

[End of interview.]