Oral History Interview of
Ron Sosebee

Interviewed by: Andy Wilkinson
June 28, 2016
Lubbock, Texas

Part of the:
Agriculture Interviews

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Preferred Citation for this Document:

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Recording Notes:

Original Format: Born Digital Audio
Digitization Details: N/A
Audio Metadata: 96 kHz/ 24 bit WAV file
Further Access Restrictions: N/A
Related Interviews: Sosebee was also interviewed on August 1, 2016.

Transcription Notes:

Interviewer: Andy Wilkinson
Audio Editor: N/A
Transcription: Laura Warner
Editor(s): Kayci Rush

Transcript Overview:

This interview features Ron Sosebee, who discusses his family and background, what got him interested in agriculture, and rangeland management, and how he pursued agriculture as a career.

Length of Interview: 01:53:20

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Keywords
Agriculture, Conservation, Land Management

Andy Wilkinson (AW):
--if I may, because sometimes we say something smart before I think. [laughter] I'll preface it by saying this is the twenty-eighth of June, 2016. Andy Wilkinson here with Ron Sosebee. Do you say "soh-suh-bee" or "sohz-bee"?

Ron Sosebee (RS):
Well it depends on who I'm talking to. If somebody is trying to spell it I say "soh-suh-bee" or my dad would always pronounce it "sohz-bee".

AW:
Yeah, that's what I grew up hearing but thought I'd check.

RS:
Did you know some of the Sosebee's out around Ropesville?

AW:
Boy, that is familiar. What did they do? Are they farming?

RS:
Well one of the boys was actually a policeman here in town.

AW:
Oh yeah!

RS:
Troy.

AW:
Troy. Because my first job other than chopping cotton or working at the Piggly-Wiggly was I was in police work for twelve years. I started out here. So.

RS:
Yeah, okay. Then he had some sisters who have subsequently published a cookbook. Their great granddad and my great granddad, as I understand the story, rode double on a mule from Georgia.

AW:
Wow.

RS:
My great granddad stopped at Noodle and theirs came on down here somewhere. [laughter]

AW:
Well that's interesting. I've done a few interviews at Ropes about the Ropesville Project, and the Sosebee name comes up with that. So, cool.

RS:
Yeah. Well that's where Troy, and his sisters and their families lived.

AW:
Yeah. Troy is how old? What's his age? What was it?

RS:
Oh, you know I don't know. I think he's at least my age. Older, I think. He's retired. He has since moved to Abilene, as I understand it. I think his sisters may still live out at Ropesville. I'm pretty sure they're older.

AW:
Yeah. Well it was so long ago that I was in that line of work that everybody I knew is already retired. [laughter]

RS:
Yeah, well that's me with universities.

AW:
Yeah, well the alternative is not any good. Better to watch people retire than not. What I'd like to do today is just start with a general chronological/biographical sort of thing. But I hope—either today or next time we visit—that we get into a lot more detail about your work.

RS:
Okay.

AW:
But this is a good preference—preface—for all that. Just one little—not a ground rule—but a thing we don't go back and edit these. We don't change them. So if you want me to stop the recording for a minute while you think about a response or something you don't want to talk about, just tell me and we'll do that.

RS:
Oh, okay.

AW:
Otherwise, as you imagine, we don't like to manipulate our data.

RS:
Right. Right. Right.

AW:
So tell me, let's start at the beginning, birthday. What?

RS:
I was born on July 2nd, 1942 in Abilene, Texas.

AW:
So you're about to have a birthday. Good for you.

RS:
Yeah. Coming up shortly.

AW:
Mine was Sunday.

RS:
Oh, is that right? Well happy birthday—belated.

AW:
Thank you. And happy early birthday, too.

RS:
[laughs] Thank you.

AW:
Were you raised in Abilene?

RS:
No, I was raised in Anson. We had a family farm about a mile or so out of town—east of town. We farmed everything from cotton, wheat to grain sorghum. We'd occasionally patched small patches of peas and corn, just for household use. We nearly always planted some kind of feed for our cattle. Of course then we had a native pastures and cows, and horses, and a few sheep, and hogs, chickens. We had a little bit of everything.

AW:
Yeah, you did. So your cash crops were mostly—not cotton, but other things? Grains and sorghum?

RS:
Well cotton was for a while, and grain sorghum and wheat were our cash crops. After a while my dad leased out our cotton ground, and then when I was a—I guess I was in high school. I don't remember the exact year. '57, I think—we took the cotton ground back and farmed that. Maybe have actually been closer to my senior year. He wanted to know if I would help him farm that, which I did. We hand pulled cotton. We chopped cotton. We didn't have any modern equipment.

AW:
Yeah. I did enough chopping and pulled bowls to realize that I was not cut out to be a cotton farmer.

RS:
Me neither. I did not like any part of that. My sisters were better at that than I was, because they would actually pick the cotton out of the bowl. Of course they've gotten a little higher.

AW:
Yeah, there was a distinction whether you were pulling bowls or picking cotton.

RS:
Exactly.

AW:
And I know picking cotton was more of a southern—because that was typically a long staple cotton, right?

RS:
Yes.

AW:
At least what we were growing in the fifties out here was a shorter staple, and I don't know how in the world you'd have picked that stuff. [laughter]

RS:
Well they just pulled it out of the bowl.

AW:
Wow.

RS:
Of course they got paid a little more than I did because their cotton was clean and mine, of course, wasn't.

AW:
Yeah, and you didn't have the weight of the bowl or any of the other sort of thing. Well if you went back to cotton later in the fifties and that was kind of at the end of the drought of the fifties, was it not?

RS:
Yes. Yeah.

AW:
Were you irrigated?

RS:
No. We were all dry land farming. No. We went through the fifties in the drought. It was plenty dry, and we experienced a lot of—I'm going to say—adversities there. We survived on the farm. I'm not sure exactly how, but we always had feed for our cattle. There was a time—we must have been in, oh, grade school. One of our friends had a sow that a had pigs—five pigs—and she died, and so the guy who owned the sow gave the pigs to my dad for us kids to raise, and we did. Then I also had a serious guilt that I had won in an essay contest when I was in 4-H. I think I was about the fourth grade. Well this is now coming into the fifties. There was a time we had a hundred shoats on our place and we could not give them away.

AW:
Wow. Couldn't give them away?

RS:
No. And finally there was a guy from Post came down with a pickup. I don't know what he paid for them. My dad might have given them to him. I don't know. But he finally hauled all of them off except for my duroc that I had won. We actually hauled water during the fifties from town for them to wallow in. [laughter] Yeah.

AW:
That's a devoted pig farmer, I'll tell you.

RS:
Well we would have gotten out of the business had we been able to do that.

AW:
I would just guess, though, that—you're talking about how you survived it—you used to have a lot more diversified than a lot of people who were going through that. I remember we had on our farm a garden and we had some chickens, and we had a hog or two but we didn't have cattle, we didn't have that sort of thing. It seemed to me like the drought was worse on the people who had—were much more concentrated in what they were doing.

RS:
Right. We were diversified, and I had hogs. Two or three of my high school years I raised hogs and showed hogs and we would butcher hogs. We even had the little flock of sheep that my dad did not like mutton, but we did slaughter some of them and had mutton for to eat. Of course we always had milk penned calf to feed and butcher. There was a guy out of town a ways that advertised one day. He had twenty-five hens. And for a dollar a piece—and I'm in, I guess, early high school. So I thought, "I'll buy those hens and I'll sell the eggs." My dad almost had a coronary. He just could not hardly believe that I was—we had had chickens many years before. But I bought them. I sold eggs and I always had a little bit of spending money. But our diversification included buying chicks and raising pullets. We butchered—shoot—I don't know how many every year. Had a locker plant freezer that we took them to. We didn't have a freezer at our house.

AW:
But you had one in Anson?

RS:
We had one in town. It was a locker plant, and we'd take those up there. Of course the butcher would butcher our animals when we'd take them and keep all of them there in the locker plant. There was a lot of people who had gardens—large gardens or fields with peas and beans and corn and stuff. My mother and a lot of her friends would get together and gather up all these vegetables. They'd have a work day and can all of these. So we always had plenty to eat.

AW:
That's a lot of work. You're going through high school. So what drove you—propelled you—into a career in the scholarship of farming? [laughter]

RS:
Well I guess I was just cut out to be an agriculturalist, because that was always my ambition.

AW:
Even from childhood?

RS:
Oh yeah. From childhood.

AW:
Really?

RS:
Yeah, I was—Now I wasn't too interested in farming cotton. The sooner I could get out of cotton the better I liked it.

AW:
Yeah, I would have thought the same about chickens. We had chickens, too, and I wasn't very fond of them either.

RS:
Well actually I didn't mind the chickens too bad. Now this was in the fifties. I could sell eggs for fifty cents a dozen, and I did pretty well.

AW:
That's a lot of money in the fifties.

RS:
That was good money in the fifties, yeah. So I did that. It got to be kind of tedious taking care of all these animals every morning and every evening. But that was just my lifestyle. That's what I always wanted to do. Of course I was always in 4-H going through up until I got into high school. They had an unwritten rule, but it was more vocal than not that they really did not want you in 4-H and FFA at the same time. They didn't want the competition between the 4-H leader and the FFA—VoAg **[Vocational Agriculture]** teachers. I really intended to stay in 4-H. I really liked our county agent. He was a super nice guy. Bill Limberg was his name. Just thought the world of him. Got into high school and of course I took vocational Ag and I had two Ag teachers and I thought just as much of them as I did Mr. Limberg. In fact one of them was a Tech grad. Gotten his degree with Professor Leech. Just thought the world of both of them. We had a—our class, for whatever reason, the class of 1960 was, I want to say "special". In some ways it was. We did things differently than almost every class before us or even after us.

AW:
Yeah. How did that happen? How did that come about?

RS:
Well I'm not real sure.

AW:
And what were the differences when you'd see?

RS:
Well when we were—We had Mr. Doger who was our first teacher for the first two years, and then Mr.—his name escapes from me right now. Larry is his first name—for our third year of vocational Ag. Mr. Doger and a home Ec. teacher decided, "What if we just swap off? You take these girls and we'll take these guys for six weeks? We'll go through home Ec., to cooking"—we didn't do any sewing—"cooking and whatever." So we did. I don't know if they ever did that again. They might have. We got into our third year of Dooly—Larry Dooly was his name. A wonderful guy. As Mr. Doger was. I think he asked us, "What do you guys want to do? Get out of this class this year?" For whatever reason, I don't know, we said, "Well we would like to do some range management, and plants, and we would like to do some business." So we did a plant collection, which nobody else had ever done. Well now they do because they're big into range judging contests and so forth. But for many, many, many years after we were out that was not part of the program. We did a business section where my granddad owned an abstract business. One of the other guys in my class's granddad owned an abstract business right next door, as a matter of fact. And we went to the courthouse and we went through some deeds. We went to the abstract offices and they showed us what they did. We talked about some economics. I probably don't remember too much about it, but I do remember one thing Mr. Dooly told us. He said, "I forewarned you that the thing that probably breaks up most families upon the death of the parents is money." Well that has been true. I mean you just look around and that happens over and over and over again. So we did those things. Of course we always had judging teams. We did parliamentary procedure and we did different judging teams every year. I guess the year I was a senior, one of our friends had a dairy cow. Well none of the rest of us knew anything about a dairy cow, except we had dairy cows that we had to milk. That's about all we knew about them. But he wanted to be in a dairy contest and so we said, "Okay, we'll join the team with you. We'll come up here and do the area contest, and whatever." And we did. So we did—

AW:
What is a dairy cow contest? I mean?

RS:
Oh, you've got to look at confirmation and—

AW:
So it's just like having a show animal of any kind, but it happens to be a dairy cow?

RS:
That's right. And I still don't know anything about dairy cows. [laughter] I detest milking. I had two show calves growing up, and the one of them we raised. So it was a milk penned calf that I had—my first one—which wasn't terribly expensive. The next one was expensive for that time for us. Not anything compared to what you'd pay for a calf nowadays, but my dad and a county agent came all the way up to around Clayton somewhere and picked up a—

AW:
Clayton?

RS:
Yeah.

AW:
That's a long way from Anson.

RS:
Yes it was, a matter of fact. Picked up a Hereford calf. Well we had a cross bred cow that had a calf about the same time, so we tried to get her to take this calf and nurse it longer. Of course that didn't work, so we had to tie her up and hobble her so that she would let this calf nurse, and that still was against her will. And then we had others cows that we had to—who would not take their calf and their udders got way too big and so we had to tie them up and milk them out. My dad didn't want to milk them any more than I did, but he said, "If you will do this I will give her to you." So I did. So I detest milking to this day.

AW:
I said we didn't have any cows, and I'm glad. [laughter] Because I'm sure I would have wound up with that job, too.

RS:
Well we never had more than two. My dad did all the milking. It was about the time that I got old enough to actually help in milking, my youngest sister was born. Raw milk made my mother sick, and so that took care of our milk cows. Which was alright with me. [laughter]

AW:
Yeah. When you were milking it was mainly for your consumption? You didn't sell it?

RS:
No, right. It was just for us. We didn't sell anything. And we would make butter, of course.

AW:
Earlier you said you raised feed for your cattle? What were you feeding those cattle?

RS:
Way back then we fed what we called "hi-gear". Hegira, I guess, is the more correct pronunciation.

AW:
I always heard it called "hi-gear", so.

RS:
Well we bundled it up. People don't even know what bundle-feed is today. And of course we would shock it, and then we'd haul it in and stack in and then feed it there at the house. Later we planted hay grazer of some kind. Sudan, sorghum almum, whatever happened to be popular at the time. Then we would bail that in small square bails. Over time we switched to all hay grazer and put that in big round bales. Fed that. That's kind of the thing to do, even today, is plant wheat in Jones County and hay grazer. And in my opinion neither one of them pay.

AW:
How did they do in the fifties in the drought?

RS:
You know better than we've done since.

AW:
Really?

RS:
We didn't—the rainfall that we got was, as I recall, came at somewhat the right time. Since then, and since my dad has died I've gotten out of all of that feed raising business, but until he died we always raised some kind of hay grazer. We would graze that some of the time and we would hay part of it. There were times when we could not do either—and this is in the nineties, in the late eighties—and my dad would always say, "Even in the fifties we could always bale hay." I don't remember a time when we did not bale hay.

AW:
Really? So the timing of the moisture is every bit as important as—

RS:
Yeah, exactly.

AW:
—as how much?

RS:
Right. So even though it was a drought we were always able to raise some kind of feed, bundle, our hay bales and feed our cattle.

AW:
You talked about influences from your teachers and from the county agent. What about your father? What was his approach to farming?

RS:
Oh, my dad loved farming. My dad was an athlete. So way back when he actually went to Abilene Christian University on a football and a track scholarship, and was a four year letterman in both sports. That's back when most people didn't have scholarships to go to college and yet he did. They didn't pay full tuition or anything I don't think, but anyway. When he got out he actually worked for International Harvester for a while, but then came back to the farm. About the time my oldest sister was born—which she's three years younger than I am—he actually got into coaching. He really likes coaching—or did—and he also was a very good coach. I don't think he ever had a losing season.

AW:
Wow. Was he coaching football? Or whatever?

RS:
Well yeah. Back then you coached everything. Primarily football, but after a while he got out of high school, went to junior high. And of course in junior high you coach everything. In high school, even though he wasn't—after he got out of coaching he helped with the high school football program, but he also helped with some other things. When I was a senior he actually coached tennis!

AW:
Really?

RS:
Yeah. So my friends and I, we played tennis after football season was over with. He actually coached tennis that year. So he coached pretty much everything.

AW:
So he taught and farmed?

RS:
Yes.

AW:
That's a big load.

RS:
Well initially he just farmed. Then he got into teaching, coaching, and farming.

AW:
Had you grown up in Anson or that area, also? Is that where he's from?

RS:
Yes. Yeah. In fact my granddad—my grandparents—lived there almost forever.

AW:
So that's the grandparents you're talking about that came out on the mule?

RS:
Yes. Well his dad—my granddad's dad. But—no, my dad grew up there. In fact my grandparents lived in one house. Right next door to them lived his brother—my great uncle—and his family. My dad's brother and his family lived right behind them. Ultimately my folks moved to town, moved right down the street. My sister got a letter one time from one of her friends—and she's twelve years younger than I am—and folks didn't move to town until we moved here in 1971. But she got a letter addressed to her just to "The Sosebee Street." [laughter]

AW:
Yeah, I guess that's a pretty good mark to put on a place.

RS:
Well nobody didn't answer when everybody knows everybody, or did know everybody back then, and where everybody lived. There was a lot more interaction.

AW:
[Whispers] Do you need to visit with them?

RS:
I don't think so. We'd talk about this from time to time. Some of my very best high school friends have moved back there once they retired. Their families and my family have been family friends forever and ever and ever. My dad and one of my best friend's uncle were best friends.

And his mother and my dad had gone to school together, although his mother is older than my dad. We used to get up in the evening and weren't doing anything and say, "Let's go to Sot [?] [00:25:04] and Johnny's and play cards." I mean, my folks would. And they had a daughter and a son that were our age, and one of my best friends in high school—well all through school. And we'd just go up there. If they weren't doing anything we'd stay and play cards. They would play cards. We'd do whatever. Or they might just show up at our house. We don't do that anymore. But that was not at all uncommon back in the fifties. They all lived in town and we would go to town to see whomever.

AW:
What was Anson like in the fifties, in terms of—?

RS:
It was a bustling town. I probably can't remember all this for sure, but we had something like five grocery stores.

AW:
Wow, that's a lot.

RS:
Yes. And I worked. At a time we even had six. A couple of them weren't as big as the others, but I wound up—going through high school—I worked in a grocery store on Saturday. Well from the time I was fourteen. I worked at—actually during those years—three different stores. We had two dry goods stores. I don't know how many filing stations we had. At least five or six. We had three gyms. Of course Anson is a county seat. Courthouse is there. There were, I guess four or five churches, at least. It was segregated back then. The school for the blacks were separate from the rest of us. Probably the best educated person in town was the principal and the male teacher. He had a Ph.D.

AW:
Of the—

RS:
The black school.

AW:
Really?

RS:
Yes. And a fine guy. He and his wife both taught there.

AW:
Was there a very large African American population?

RS:
Oh, fair. Yeah. Fair amount. We didn't have any integration in schools until after I was out. We had some Hispanics, but not very many at that, and most of them would drop out by the time they got to high school. Just didn't go to high school at all. We had very little integration. I think that's just the way it was.

AW:
Yeah. No, same with us growing up here. In fact most of the Hispanics we knew were migrant. We didn't have that many permanent residents.

RS:
We had quite a few permanent residents, but we also had every fall, a lot of bracero's who came and picked cotton. And every Saturday afternoon—every Saturday afternoon—they'd be in the store buying up a bill of goods. And of course they always bought big twenty-five pound bags of flower and large bags of beans, and lots of salt pork. Didn't have a lot of frivolities, but they bought stuff like that. Last them for the week. And of course they made good money picking cotton, and sent most of it back home. Of course when cotton season picking was over, they would go back to Mexico. But every fall there would be—and the gyms actually provided housing for them. For those that didn't have housing on the farms where they worked. So it was a good deal. And they were all really good people. We never had any trouble out of the migrant workers.

AW:
Well when you graduated high school did you go straight to college?

RS:
I went to straight to college. Of course my family had grown up with Abilene Christian. My granddad was on the board. As I said my dad played football over there. His brother was three years older and he'd gone there. My dad met my mother there. As it turns out, my granddad was one of nine—actually eleven—boys, but only nine of them survived. Some of my dad's cousins had all gone through ACC at that time. Now ACU. And so it was just a tradition that the Sosebee's were going to Abilene Christian. And so, yeah, I started there. I was going to be an Ag major. I was going to teach high school Ag. That's what I thought of my county agent and Ag teachers. I knew, I was going to follow their path. But it didn't take me long to figure out that that's not really what I wanted to do. [laughter]

AW:
Teach, you mean?

RS:
Teach Ag, yeah.

AW:
And how is that? What about it? What changed?

RS:
Oh, I don't know. I really don't. Except that it just got to where it didn't feel to me. I had—two of the profs at ASU —and they didn't have a lot of profs in Ag. They had a range management prof, a soils prof, and two animal science profs. Of course animal science has always been the dominant major. I really fell in the love with the range prof and the soils prof. And so that's where I—the direction—I went. So I decided I was going to go into range, and then I was going to work for the SCS at that time.

AW:
Did you participate in their summer program? SCS program?

RS:
No. However, I did one summer work for the Bureau of Land Management in western Colorado.

AW:
Really?

RS:
Yeah. In 1963. There were three of us, actually, in the range program at ACU that we went to Colorado. Two of were working out of Montrose and one was working out of Grand Junction. I found that to be a wonderful experience. I really liked western Colorado. Of course the desert has to grow on you. I really have always liked it. But my uncle said, "What in the world are you doing? Where are you going?" It's kind of a "end of the world" type thing. But I did not work for the SCS. When I got to be near graduation I decided, "No, I don't really want to do that." I'd applied and everything, and probably even had a job, but I decided I didn't want to work for the SCS. A good many of our classmates did go to work for the SCS. That was just kind of standard. I decided I would go to graduate school. As it turns out, the Good Lord directed my path, without any doubt, because one of my best friends in college had already taken an assistantship at New Mexico State. Well, school is out, and he's already out there. And all of the sudden he decides, "I don't want to get a master's in range." And so his advisor said, "Do you have any friends who might?" And he said, "Yeah, I do." So he calls me. You know, here it is. School's already out. I

don't have a job. I don't have anything. He calls up and says, "Would you like to go to New Mexico State and work on a master's?" I said, "Sure." So I did. [laughter] this was—

AW:
This 1964?

RS:
1964. June of '64. And I worked for Dr. Herbal, who is actually a USDA-ARS employee. I had a wonderful experience. I really don't know that I could have done any better anywhere else. He was a great guy and a great mentor. In fact I've had great mentors all along. Dr. Churchill at ACU, Dr. Justice ACU, Dr. Herbal at New Mexico State. I got to work on the Jornada Experimental Range, which I thought was absolutely a wonderful experience.

AW:
Now, say that again?

RS:
"Hor-nah-duh."

AW:
H-o-r-n-a-d-a?

RS:
No it's J-o-r.

AW:
J-o-r?

RS:
"Journey of the dead."

AW:
And where was that?

RS:
It's northeast of Las Cruces. Well and actually now, Las Cruces goes way out past there.

AW:
Is that perhaps where that experimental station is? Still i?. Sort of the city has grown up around it in Las Cruces?

RS:
No. Now the university has all kinds of—

AW:
That's what I'm thinking of.

RS:
--corrals and pens.

AW:
That's over on the northeast section of the one I'm thinking of?

RS:
No, no, no. Actually it's all right there on the southwest side of town where the university is. They've got all kinds of experiments. Now they've got research stations everywhere. Town has not grown up to this. This is like seventeen miles off the highway.

AW:
Okay, no, no. The place I'm thinking of is right—the town has grown up right around it but it's on the northeast side. A friend took me by there and I wasn't quite sure how it was affiliated.

RS:
And I don't really know too much about the agronomic side of the programs. The department is an animal and range sciences department. Always has—well when I was there—

AW:
Now is it separate from agriculture, then?

RS:
It was all in the college of Ag and home economics. But when I was there it was the department of animal science, range science, and wildlife. Wildlife is now a separate department, but animal and range science is still a department. Animal science was still the dominant major, and the chairman has always been an animal scientist. And still is an animal scientist. College Ranch joins the Jornada and it's also out in the northeast of the city. They're all east of the river. But there's still trails—old Spanish trails—going up along the river there just beyond the boundary of both the college ranch and the Jornada. Actually on the college ranch there's Doña Ana Mountains. The University Ranch is there. And then Jornada is north of that. Jornada actually goes all the way up to NASA [**National Aeronautics and Space Administration**], the top of the mountain. And then NASA actually gets some of their water from the Jornada. There is a well up there. And originally they were going to do the moon shot from NASA, but they have

humongous research installations on NASA. And I don't know what it is they do, but there is a really fine well on the Jornada—on the far east side—that if they had a meltdown at NASA, the water from that well—

AW:
That's what they'd use?

RS:
That's what they would use.

AW:
Now that's interesting. Very.

RS:
And of course White Sands is right across the mountain on the missile range.

AW:
That well is interesting to me, because I don't think about that county as having that kind of water. What is it? I guess it's probably a very deep well.

RS:
I'm sure. All of those wells are very deep. In fact we had windmills all over the Jornada Experimental Range. They had a few stock tanks, but the philosophy then was they were very shallow. They didn't hold much water for very long. I'm thinking some of those wells were six hundred and nine hundred feet deep.

AW:
Wow. And they were windmill wells? Those must have been some big fans.

RS:
They were. Now later on they would put electric pumps or whatever on them, but when you had to pull a well it was a major chore to pull a well. But the Jornada was—total was two hundred thousand acres. At the time I was there we only had access to a hundred thousand. The other hundred thousand was leased to NASA. So a lot of that I didn't know anything about, until years after I got out of school and came here. I would actually take my class over there on field trip and Dr. Herbal would show us around. At that time we could actually get up on the—what's under lease to NASA—when I was there. I'd met my wife at that time.

AW:
At New Mexico?

RS:
Just dated—no, at ACU, and then we got married the first year we were doing in Las Cruces. She actually taught out of White Sands.

AW:
What was Las Cruces like in the sixties?

RS:
Not much of a town. Twenty thousand people. Old Mesilla, which was out of town, at that time. Now there's no separation between the two. Oregon, which is a little community up on the side of the mountain, was way out of town. And now there's no separation between the two. Las Cruces is built way up to the east and way to the south. Campus was not terribly large at the time. In fact when we first got—my friend and I—first got there—He actually decided to go and get a master's in Ag ed. And so he and I lived together for about the first month or so until he got married. He met his wife at ACU, but she lived in Pearland. We lived in the dorm initially and that was on the far east side of the campus. Well now the dorm's right in the middle of campus. They built everything. The golf course was way out of town at the time. They built all kinds of buildings out to the east, and campus has expanded. There was—I really don't know how many students there were, but nowhere near like to now. And after we left, about the time I finished, they were building new sites, buildings. Of course all the people in Chemistry and Physics and Math were encouraged to work jointly with White Sands. And the engineers. So they really only had to be on campus four days a week. They had consultants out there. The right hand didn't know what the left hand was doing, literally, at White Sands. Of course we later found out that that's where they developed the Patriot Missile. And I don't know what all they've done. They've got installations everywhere. White Sands ranges all the way from Fort Bliss to Sandia and Albuquerque.

AW:
Yeah. I know. It's amazing just driving down the interstate. You see the signs to it all the way.

RS:
But you don't see many buildings.

AW:
No.

RS:
They're all underground. Well we knew they shot off missiles when we were there, because they were always losing one and they were always over on the Jornada looking for it. Well come to find out what they were shooting off, was the experimental Patriot Missiles, that ultimately, of

course, they used in the Iraq war. Afghanistan war. Iraq, I guess. Of course we didn't know what all was happening with that. We just knew that they were looking for a missile that came down not on their property.

AW:
I've always thought that campus at New Mexico State is a really nice, pleasant campus. I don't know what it was like in the sixties.

RS:
It was way, way, way much smaller than it is today. Even then I enjoyed the campus. Interesting though, where the Ag building sits over on the west side where all the pens and everything are, and the whole campus is built on a slope. In 1941, which was the wettest year on record and still is, where the Ag building sits was six feet under water, as I understand it.

AW:
Really?

RS:
Yeah. Because all the water came down out of the Oregon Mountains and flooded the campus. In fact when they irrigated the lawns on campus they started up on the upper end and flood irrigated it. Reach this bench and it'd go down to the next bench, and down to the next bench, until it finally got down. In fact when I was there they actually had to come in and drill big, deep holes with a telephone post hole digger, and fill them with gravel to get below the caliche, or down at least to a lower depth where they could drain that water. They were saturated in the soil so the grass wouldn't die.

AW:
That's just hard to imagine.

RS:
It is, yeah. It is. But they actually had to do that.

AW:
Did you go through the Ph.D. there?

RS:
No, I had the opportunity to—Dr. Herbal. They just started offering it as I was finishing up, and he offered me an opportunity to stay. I had it in my mind—and I don't remember ever saying this, but my mother reminded me that I did say it—that Dr. Justice who was a soils prof at ACU had gotten me—

AW:
Now is that "Justice" J-u-s-t-i-c-e?

RS:
Yeah. Keith. Had gone to Utah State, and for whatever reason that appealed to me. She said that's where I was going to go. Well as it turns out that's where I did go, but I don't remember saying that.

AW:
So about 1966?

RS:
'66, yeah.

AW:
To Utah State?

RS:
To Utah State. We left in August of '66, and got to Utah State right after Labor Day.

AW:
What was Utah State known for? I just don't think about Utah State as an agriculture school. I don't know why.

RS:
It is the agricultural school.

AW:
Yeah, for Utah.

RS:
For Utah. Yeah. The University of Utah would be equivalent to Texas. Utah State would be equivalent to A&M. In fact I guess at one time it was Utah A&M. And of course BYU is the church school down in Provo. They have a really strong—really strong—agriculture and natural resources program. Always have had. At that time, probably most of all the range people out in the profession were either from A&M or Utah State.

AW:
Really? Okay.

RS:
There was only four of us graduate students in range management at New Mexico State when I was there. Two of us went on for advanced graduate degrees. One of the guys said, "I am not about to college. It's the most confusing subject that ever was." So he went to Missouri in plant physiology. Another one of our students—colleagues—went to work for the NRCS and ultimately wound up being a national range con at the end of his career. Another one of our students became a missionary to Ethiopia. Agricultural missionary. Came back here for a while, but went back. They had lost a child in Ethiopia and his wife wanted to go back there. And as far as I know they're still there. I occasionally hear from him. I used to see the friend and colleague who got his Ph.D. in plant Phys. and the student-colleague had turned out to be a really close friend of mine. National range con, died at a prematurely young age. He was older than the rest of us anyway, but he was still way too young to die. And so that was the four of us that were there. I don't know many of the people in the department anymore. The profs there were really great. Like I said, I couldn't have had a better experience for my master's.

AW:
What was your area of focus or interest at Utah State?

RS:
Well one of the reasons I wanted to go there—for whatever reason I don't know—but I did want to go in plant physiology. My goal was to get a doctorate in the plant physiology and basically combine range management and plant physiology together. And so my focus there—I just applied to the department. I had an NDEA fellowship. It was one of those National Defense Education fellowships. Had a wonderful advisor there as well, who was a pure botanist—plant physiologist. In fact an interesting guy. He tolerated me, anyway. [laughter] When he got his Ph.D., he worked at Oakridge for a while, and had an opportunity to become an extension plant physiologist. And his wife looked at us and, "No. That was way too practical for Herman." [laughter] And so that's why I said he tolerated me, because I was all the way to the practical side, where he was all the way to the very technical side. He was specialty in water relations. Actually, he gave me the freedom to do whatever I wanted to. I kept saying, "What would you like for me to work on?" Because as a general rule—I thought—that the prof had the project and you work on this project. However you design it within that project is—they never would give me a response. So finally at the end of the—they're on quarter-system. Fall quarter ended, of course, in December. Finally I decided, "Well, I'll write something up and he can either accept it or reject it and I'll start over." So I did and he accepted it and we went from there. But my goal was to look at translocation of carbohydrates in grasses.

AW:
Okay, for people listening to this fifty years from now: translocation of carbohydrates. What do you mean?

RS:
The carbohydrates that are produced in the leaves via photosynthesis and then translocated to various parts of the plant for storage or to be reused. And so that's what I worked on. As it turned out that's exactly what I—well one of the things that I've done for years since I've been here.

AW:
That's an interesting topic. What drew you to that? Especially for a guy who claims to be completely practical. [laughter]

RS:
Well I don't know if I can answer that either.

AW:
Does it have some impact on how nutritious the grass is?

RS:
It does, but it has to do with plant growth and development over the nutrition. There was a presentation while I was at New Mexico State that talked about this in plants. The carbohydrate reserves in plants. For some reason that just clicked with me. So that's what I wanted to look at. And so I had that opportunity and that was totally out of Dr. Weeby's [?][00:49:36] area, although he had worked with radioactive phosphorus, and that's what I used to trace—

AW:
To trace the movement?

RS:
--movement, yeah. But he was very helpful and very willing for me to barge of on this on my own, so I did. I worked with cool season grass. Crested wheatgrass that's been seeded all over everywhere. The northern Great Plains, intermountain area, probably hundreds of thousands of acres were seeded with crested wheatgrass. Not that it mattered, particularly, what grass I worked with, except that that happened to be the most common. And so that is what I did is worked on the carbohydrate translocation crested wheatgrass. Found that to be extremely exciting, although—maybe others are like this—I didn't know everything that I got, when I got it. [laughter] And didn't realize what I had until some years later, actually. And it turns out that it's very interesting because one of the things that we have seen here, and little brucetown [?] [00:50:51] is a classic example, in my opinion. There's actual four growth stages in perennial grasses, and I don't care whether it's cool season or warm season, sod grass or bunch grass. It greens up right after dormancy, and down here these are warm season grasses. Greens up in the springtime. In the summer it goes into reproduction. And when it goes into reproduction all the vessel leaves basically die and all the leaves left on the plant are on the flowering stem. Then

once reproduction is completed it goes back into a vegetative state, and then into dormancy. I presented a paper detailing this at the _____ [00:51:37] Conservation Initiative many years ago in Nashville, Tennessee. And one of my friends from Utah came up to me and said, "You know that works just fine for those southern Great Plain, warm season perennials, but it does not work for cool season grasses in the intermountain area." And I was much too slow to respond and didn't. I should have said, "Mike, the first perennial I ever observed this on was late 1960's on crested wheatgrass—cool season grass—grown in northern Utah." [laughter] So it does work in every perennial grass. It doesn't matter which one. Anyway when I came here, though, I had actually gone to the range meetings in Calgary, Canada in 1969. I met Dr. Schuster and Dr. Dahl, Dr. Wright, Dr. Clebeno, [?] [00:52:30] Professor Hunter. And at that time I went specifically to see what jobs might be out there. There were two jobs. One was here and one was at Vernon as an extension specialist.

AW:
Vernon, Texas?

RS:
Yeah. Well the job here was totally dependent upon the brush line item funding, which of course was still in committee, I guess, in January. But I had some really good discussions with all of these profs then, about mesquite control and what can we do to—At that time synchronize a phenology so we more easily kill it.

AW:
And by that you mean the time in the plant's cycle it's most susceptible to?

RS:
Well that and, at the time we thought well when does it—all the trees don't flower at the same time, and they might go through two or three flowering periods in one year. And so the idea was let's synchronize all of that and get it all in the same stages and then it'll be easy to kill it. But it didn't work out that way. But anyway that was my—When I actually did get this job that was my first assignment. Well as it turns out, of course the budget was not approved in the regular session that year. So I had come home to Anson for summer visit. So I just came up here on my own and visited again with Dr. Schuster and Dr. Dahl, Dr. Wright, and at that time Dr. Thomas, the dean. So I stayed in touch with them. When I defended my thesis, the very next day—literally—Joe called and said—Schuster said, "The budget hadn't been signed yet, but we have it on good authority that the governor will sign it. Are you still interested in a job?" And I said, "Absolutely." So I came down here on a prayer and a wish, because the budget was not signed. But Mr. Bill Headley was the chairman of the House Appropriations Committee, and he had included in there the brush, vegetable, and swine line item. And Ben Barnes was I guess a speaker of the house, lieutenant governor at the time.

AW:
Lieutenant governor, yeah.

RS:
And Mr. Headley called up and told him, said, "Now, you need to understand. This item is in there because it went basically from the committee to the governor. The house just passed it without ever reading it." What's new about that? [laughter] Anyway, the governor didn't sign the budget until, I think I might have even actually been here before he signed it. [laughter] I know I was in Lubbock. Anyway, he did sign it and I did have a job.

AW:
What month and year was that?

RS:
September of '69. Actually I started work October the 1st of '69.

AW:
So did you—when you got here I would guess you had some teaching to do, but were you doing post—

RS:
I did not have any teaching the first semester I was here. Well when we finally did get the budget—I don't know if you remember these X buildings that happened to be right over here now between this building and the library? The old army barracks buildings?

AW:
I should, because I started here in fall of '66.

RS:
Well they were here. Well that's where my office was. So we had a lab—I mean a teaching room—and then we had several offices that had been divided up for graduate students and me. And then the next room over we had actually a lab. Well the department had no labs except the plant lab in the basement of the old Ag building, so my first job was to basically put together some labs. Design them, order all the equipment, basically design how much electricity we wanted them, how much water we wanted, how much vacuum, how much compressed air. So I spent a lot of time that first year working with the contractors. Well actually the university did their own. But I knew the plumbers, I knew the electricians all by first-name basis. In fact still remember the plumber's name was Fred Stoley. Lived out in Slaton. You may have even known him.

AW:
Well I should. I grew up in Slaton. Well until we moved to Lubbock when I was a kid.

RS:
Another the electrician—one was named Lee and the other one's name—Lee Oden and the other guy? I can't remember his name. But anyway, I saw them every day, I visited with them every day. I knew them. But that was my first job. Plus at that time we were publishing—had just started. '69. '68, I guess—publishing what later became the Research Highlights. And so actually the department farmed out some monies to Midwestern, to Abilene Christian, to Angelo State, to whomever, in addition to what we had in the department. And so one of my first jobs was to basically review all of those articles that ultimately would be in that Research Highlights. Of course, at the same time we began looking for—Now we don't have hardly any graduate students. Well, all of the sudden we've got money, we've got to have graduate students, we've got to have projects, we've got to do all of this. So we immediately began to look for graduate students. Basically anybody we could find. Anybody who was—like me—who was willing to go to graduate school—didn't have anything—at the very last minute. [laughter] Dr. Schuster, Dr. Dahl, and Dr. Wright actually had taken a trip, I guess, the year before. Because the initial line items came here in '67. The major line items started in '69. But they had taken a trip to A&M, to New Mexico State, to Arizona, to Oklahoma State, to basically see, "What is it you're doing in brush control research? We don't want to duplicate what you guys are doing. There's no value in that. We want to see where are the areas that we should be working; where we could contribute, to what you're already doing." So that's kind of where we began. I don't remember if it was that first fall that I was here or the second fall that I was here. I think it was the first fall, because Dr. Dahl had just discovered that soil temperature was very important environmental factor in controlling mesquite. So we actually had a review team with Dr. Cook from Utah State, Dr. Mackerwayne [?] [01:00:41] from Woodward—one of the ARS scientists from Arizona, again, whose name escapes me. They came here and then with their consultation decided, "Well here's where we need to go." And out of that—following Dr. Dahl's original discovery of soil temperature, the dean looked at him and said, "We need to get on that right now." Then he looked at me and said, "You need to get on that and work with Dr. Dahl." Well I couldn't have had better instructions. I couldn't have had a better mentor. Dr. Fish and I were talking about this. Dr. Fish had worked for Dr. Dahl as an undergraduate. Dr. Dahl was one of those gentlemen's gentleman. Again, tolerated me as a fledgling faculty member when I didn't know squat. In fact I think many, many times—even today—where would I be if it hadn't been for Dr. Dahl? I'm not sure. I would not be here, I'm sure. He's probably the best range person I have ever known anywhere. I just thought the world of him. I think about him every day. Every day.

AW:
Spell his last name.

RS:
D-a-h-l.

AW:
That's what I thought. I wanted to make sure for our transcribers that they knew that.

RS:
Again he had a very diversified background. He was good in soils, he was good in plant physiologies, he was good in nutrition, he was good in general range management. There wasn't anything he didn't understand. And so he and I began to work together, and the first thing we did was started working on soil temperature. We tried several things we thought might work, and none of that did. We ultimately wound up—starting the spring of '70—getting contact in with an Aerial applicator, who let us follow him around to commercial jobs that he did. He was out of Vernon. He worked all of that northern Rolling Plains area. He would get us onto the ranch, and then we would actually go in and identify what then we called a "cool site" and a "warm site" and something in between. It was Dr. Dahl who had found that the warmer the soil, the greater the chance of killing mesquite. So we identified warm sites, cool sites, in-between sites. We tagged twenty five trees at each of those sites. We went through and evaluated. We had big crews. We went around and evaluated every tree. What is the phenological stage that tree is in? What is the soil temperature? What is the air temperature? What is the soil moisture? What is the wind velocity? Everything we could think of measuring. At the time the Aerial applicator actually sprayed the trees. After we finally got that started, then we began to branch out, and we wound up running three crews for the next five summers. Northern Rolling Plains, Edwards Plateau region, central New Mexico. So each one of us had a crew and we went all these different directions. We probably identified a hundred sites every one of those five years. Twenty five trees per site. So we had twenty five hundred trees every year that we—ultimately had to go back and evaluate it. Were those trees killed or not? So we were—we put in the long hours back then. Of course we were all younger. [laughter]

AW:
Sounds like a lot of miles, too.

RS:
We put a lot of miles. We did a lot of miles. I even went—I had gotten a brand new pickup when I came. Of course back then you couldn't have an air conditioner in your pickup.

AW:
Why?

RS:
University rule. Couldn't have a radio. Our fire people got a radio because they needed that for weather. Couldn't get additional fuel tanks. So I took it down and got an additional fuel tank put under, because we were driving anywhere between three hundred and six hundred miles a day.

AW:
Yeah. In places where it wasn't easy to probably get to fuel up.

RS:
Or any at all. Period. Right. We were out where there weren't filling stations, and so, yeah, we would often leave anytime between two and four in the morning to meet the Aerial applicator before daylight, and then be on the ranch by daylight. They usually shut down around noon or shortly after. We'd come home and start lining up the next day's job. So it was four or five o'clock in the afternoon before we finally got things arranged for tomorrow.

AW:
One other thing that strikes me as being an issue to deal with—thinking about the time—is—and the number of sites, trees, and all that data. You didn't have a laptop. You didn't have a tablet.

RS:
Right. No.

AW:
What was it like keeping track of all this data? I mean that—

RS:
We just made our own fill sheets. It was all handwritten, of course, and all evaluated. Then when we came back, somebody had to punch that in on cards to put it in the computer. The department actually had hired a technician to be our card puncher, and ran our programs. No, in fact we—not too many years ago got rid of thousands of cards that we'd punched with all this data in them. I mean we had I don't know how much data was there. Anyway it all worked out and that basically did form the basis for recommendations for spraying mesquite. From that we kind of went into broom snake weed control, and other perennials and weed control. Once we kind of worked that pattern—carbohydrate translocation and temperature out. In the early years, too, of course having come from Utah State and having worked with Dr. Weeby [01:07:09] and done some water relations work myself, I wanted to get into water relations research.

AW:
Okay, describe what "water relations" means?

RS:
What is the water content of the plant; transpiration pattern; when do the stomates open; when are they closed; how is all this tied to soil, water, etc?

AW:
So when you say "water relations" you're talking about how one aspect of one thing relates to the other as it affects or as it includes water?

RS:
That's right. Yeah. Mainly is how does it affect water within the plant? And so some of my early graduate students worked on water flow in mesquite from the soil, and then transpiration rates in the trees. So that was one aspect of the things we did. You know as time went on we've been more opportunistic than most places are. I guess I inherited that from Dr. Dahl. His attitude was, "I'll work on whatever I can find money to work on." So we always did a lot of brush and weed control research. We did a lot of water relations research. I've done quite a bit of plant growth and development research. Following some of the stuff that I did at Utah State that all of a sudden it began to click. So this is what I saw on my doctoral research. And then we—in 1991 and I guess the spring of 1992—I'd gone to the range meetings in Albuquerque and got a phone call one day and said, "When are coming home?" I told him about a day I'd be home. It's from the dean's office. Said, "Well George Fore"—who was with the Texas Lands Office, I think, at the time, that later folded into not Texas Lands, not the General Land Office, but ultimately folded into the Water Development Board—wanted to schedule a meeting with us. So we got together. He had gotten involved with a group out of New York City who had a contract with the city to apply New York City bio solids—sewage sludge—on range lands. As of July, 1992, edict came down from Washington: There will not be any more dumping in the ocean. So now we've got to find someplace to go with this. We've either got to pelletize it or we've got to go to land apply it. So we got together with George and we had to decide, first of all, is this going to be a safe endeavor?

AW:
Right.

RS:
As it turns out we spent a lot of time trying to figure this out. If you deal only with residential bio solids, then you don't have a problem. If you get into industrial or commercial bio solids then it's a problem. We did not have any of that. From the time that we first met George until we actually had plots on the ground, our design was three weeks.

AW:
Three weeks? [laughter]

RS:
George knew how to grease the skids in Austin, and he did.

AW:
That's amazing.

RS:
Yeah. Dr. Wester and I were all over the state, meeting with these people, those people, with George, and whomever. We were in Austin, we were in Dallas, we're into El Paso. We were somewhere every week. Anyway that turned out to be a really good project. First project was for six years. Was renewed for another five, although it didn't go that long. Original Merco people sold to some less than honorable people. I actually found out that we were out of business by when I went to some meeting from the EPA people. The EPA people said, "You're still applying solids?" I said, "Yeah. As far as I know. Why? Are we not?", "Well we understand they went broke." So I immediately get on the phone and call George Fore. I said, "What's going on?" "Well I don't know. Not anything that I know of." And we were on first name basis with the EPA people in the water division, so we knew Bob Bastian and all of the people he worked with. As it turned out we don't know what they did, except the money that New York City and EPA gave them—they did something with the money besides give it to us. Our purchasing department said, "We're not carrying them any longer." Well they still owe us three hundred and fifty thousand dollars that will never be seen. And so that pretty well ended the project. But that was an absolutely wonderful project. We had something like thirty-five graduate students that we funded on that project.

AW:
What was the name of that company?

RS:
Well it was Merco.

AW:
M-e-r-c-o. And it didn't—as far as I know—didn't stand for anything.

AW:
And it was someone else that bought that company, but the name stayed the same?

RS:
Name stayed. It was Merco-Jordan Venture. And you know the people in New York that we worked with were really good people. Really good people.

AW:
So whatever happened to the solids application?

RS:
This aspect of it quit. They apply bio solids everywhere. Eastern Colorado is bio solids everywhere. Up and down the I-35 corridor—or 45, whatever it is—between Dallas and Houston is all kinds of—not New York City bio solids—but bio solids being applied to farm land. California. The only stipulation for applying—I call it—"clean" bio solids is you can't apply during a rain event or with frozen soils or snow covered ground. And so of course we worked out of *Sierra Blanca*, which is eighty miles this side of El Paso. We didn't have to contend with those vehicles very often. We had an absolutely wonderful project. It was great. And that is a great resource. They were actually paying to apply it. Of course it went through lots of county commissioners' debates and hearings or whatever. I was talking about this just the other day. The head of the water division of the EPA at the time was a very reasonable guy. Very reasonable guy. Not what you think of EPA. There was an individual at *Sierra Blanca* who had cause to champion, and he was absolutely opposed to this. As were many of the other people in the *Sierra Blanca*. However, what they failed to stop and think about was, "I will have a job. I will have a new house. I will be able to buy a car." Anyway, this guy wanted to meet with EPA director. So I lined it up. He said, "No, why do I need to meet with?" I said, "Because he's demanding it. That's the only reason." He said, "Well I'm going to tell him that when he goes to bed tonight we're going to be applying sludge. And when he gets up in the morning we're still going to be applying sludge." [laughter]

AW:
I had a fellow tell me one time about processed or treated effluent. I loved his comment. He says, "You know we can take everything out of it except the idea." [laughter]

RS:
Exactly! The whole thing was emotional. That's all it was. It was strictly emotional. And a number of people in *Sierra Blanca* did go to work for Merco. Something like eighty people. Once they got everything—all the infrastructure—in place, they didn't bring their own employees down. They did have in the main office their employees. But the workers were local. There was something like eighty people. There were new houses built in *Sierra Blanca*. They hadn't built in thirty or forty years. People had new cars. They put in a fire station and an EMS station and *Sierra Blanca* had never seen that kind of burst of productivity. But when they went out of business, the bank folded, everything folded. It was a sad day for *Sierra Blanca*, and us. I mean, again, it was—from an educational standpoint—it was an excellent project. From our ability to train graduate students. Give them an education. It was an excellent research project. It was strictly an emotional issue for those who did not want it. I will tell you though, that the day that the first train load—they shipped everything by train—the day that the first trainload showed

up out there they were going to have a big news conference. They had a big tent and everything. But you could see the train from the office area. I couldn't begin to tell you how many armed individuals there were on that train. I mean they are armed to fight a war, because they expected all that kind of violence.

AW:
Really?

RS:
Yes. They came in. They had ammunition. They had atomic—semi-automatic weapons. They came in—everything they had heard was, "We're expecting trouble." They came in, and all the DPS officers from all of west Texas were there. The sheriffs from those three main counties were there. Highway patrol was there. Everybody was there. I wouldn't have any idea how many police officers there were.

AW:
Wow.

RS:
Yeah. And there wasn't a bit of trouble. Not one minute.

AW:
You know something similar to that happened in Junction when they were having hearings about the CREZ [**Certified Renewable Transmission Zones**] transmission lines. They were going to have a public hearing, and the Austin people from the lower Colorado River Authority were so frightened about what was going to happen if that they came out with a similar contention of guardians to protect them. What an interesting story.

RS:
Yeah, well nothing happened. I know it's really interesting. And just FYI, we're not sure some of these people weren't involved in the mafia. But neither here nor there.

AW:
Oh in Merco? The people that took over? Yeah.

RS:
In Merco. No, the original people.

AW:
Oh, the original people?

RS:
One of the original partners was from Oklahoma City. His idea was—and he was kind of the one who put this package together originally—was, "We're going to barge this down to the Brazos, and ome up ultimately through the Trinity into Oklahoma." Well I'm not sure where he's going to barge it in the Trinity.

AW:
Yeah, the Trinity. at one time that would have worked but it would have been a long time ago. [laughter]

RS:
That's right. But not in the nineties. Anyway, as it turns out, they couldn't get a permit in Oklahoma to apply it. So basically he sold out. But one of the other partners from New York City was Ralph Macchio, Sr. You know who Ralph Macchio is?

AW:
No.

RS:
The movie.

AW:
Oh the movie—

RS:
Shoot.

AW:
Not *The Godfather*, but—

RS:
No.

AW:
Oh! Yeah. The—where he's the—

RS:
Trains to—

AW:
Yeah, right.

RS:
That's Ralph Macchio, Jr.

AW:
That's the son?

RS:
That's the son.

AW:
Ah, okay.

RS:
Ralph Macchio, Sr. and his wife—Rosalie, I think it—It was either Rosemary or Rosalie. He probably understood the ecology of what would take place by applying bio soils better than any of the other partners. The other partners were in the waste disposal business—well he was too—but they were strictly waste disposal people. They didn't have a clue the ecology. But Ralph did.

AW:
This was also about the same time that there was all that publicity about garbage scows getting lost at sea. And so there was lot of negative attention toward, how do we deal with waste?

RS:
Well this was part of that same argument, because technically the law said that you had to take it out beyond twelve miles, or far enough out that you got it out into the jet stream—or the gulf stream—

AW:
Gulf stream, yeah.

RS:
—to distribute it. Well that didn't happen. They got far enough out that you couldn't see it from land and dumped it. [laughter] Well that wasn't far enough. And so congress said, "Enough is enough. No more." After July 1, 1992. And so that stopped. And so now we've got to decide what it is we're going to do with it. And that was one of the aspects of what they were looking at.

AW:
These are all related ideas to range management, which is what we were visiting about—

RS:
Right.

AW:
--a few weeks ago. But it's not quite the same thing as range management. I mean range management, I guess, is—

RS:
It is, but it's different facets of range management. The bio solids application may be the furthest fetched, although, certainly that relates to adding soil amendments to the soil. And some fertility, but my personal opinion is it probably does more for the physical structure of the soil by adding organic matter than it does by adding nutrients to the soil. Because most bio solids don't have that much nutrients anyway. But it does provide a lot of organic matter. But of course plant growth and development is directly related. Brush and weed control is directly related. Water relations is directly related. And all of this ties in together. In fact in my presentation the other day each one of these could be developed—and I've given a presentation on each one—into a topic all by itself.

AW:
Right. Then is my understanding from the symposium the other day accurate in that at least to my observer point of view that range management is a topic that establishes a relationship of all these little different parts.

RS:
That is right.

AW:
Into one way to look at the whole.

RS:
Right. It's composed of a lot of different disciplines. In fact, I'm sure you knew who Dr. Henry Shine was. Henry came over to my office when I was in the chairman's office one day, and said, "Why do your students need to take organic chemistry?" Because typically Ag students didn't do so well in organic chemistry.

AW:
Who does do so well in organic chemistry? [laughter]

RS:
That's right. Well see first of all they need to understand how a plant grows; they need to understand plant physiology, animal nutrition, soil physics; herbicides. I went right on down the list. "Oh," he said, "I didn't know they needed to know all that stuff. Maybe I need to adapt my class." He said, "Do you have any books?" I said, "Sure." I sent him home with about three or four books. And you know he tried to tailor his class to actually bring in examples that related to these guys. They didn't relate to developing plastics. [laughter] It had to do with plant physiologies, or herbicides, or something that meant a lot more to them. So all of these things come into play, and that's one reason that I wanted to go into plant physiology was to be a non-traditional range person. To be able to see what some of these things are. I took classes like plant pathology, and anatomy, mineral nutrition—all of which, in my opinion, have served me really very well. They have helped me in understanding the rangeland ecosystem and how plants grow better than just a traditional range management curriculum.

AW:
What is the—if this is not jumping too far ahead—what is the current state of range management research and thinking?

RS:
So what do you mean by "current state"? What direction are we going?

AW:
Yeah. What direction you're going and what's been missing, or what's lacking. Because I heard a lot of different things at that symposium. We've already talked about one and we'll discuss a little bit more when we're done with this interview, and that's the getting the story out about what people have learned and how they're applying it. But I also heard a lot about this very thing you're talking about, is people talking about integrating these different narrower focus topics into the big topic. Is more of that happening today, or is it--?

RS:
I'm not sure if there's more of it or not. That's always been kind of our approach. Again I go back to Dr. Dahl who was an opportunist and saw this big picture. If you ask almost anybody who is in the tradition of ranching what their number one problem is, they're going to tell you brush and weed control. Invasion of these species. So that, still, is a very important topic. In my opinion we know better than we do. I've often said if you can tell me how a plant grows, I will tell you how to control it. But we don't do that. I maintain today that—as I mentioned the example of the taxonomist who if you don't know a plant you don't even see it, you don't it's there. Dr. Wester was walking to class and didn't know this plant was there, and a student picked it up. "What is this?" He said, "I don't know. I never saw it." He said, "Well you walk right by it every day." Well he found out what it was. My attitude is, and I extrapolate from that, that if you

don't know how a plant grows you can't manage it. Dr. Fish and I were working with one of the fairly large ranches and designed a grazing management scheme for them that, in the fall, post-reproduction, some of the years you've got to get off this pasture, because that's when that plant stores carbohydrates for next year's growth. Now the time to graze it is over here. And we don't do that. We just kind of haphazardly move cattle wherever it is they want to move. So I'd say plant growth and development is a very important aspect.

AW:
Yeah. In fact some of the first things I remember hearing about in terms of holistic resource management in South African—not an idea, but certainly the advancement of the idea—had a lot more to do with a much, much simpler approach, which is intensive grazing and then letting it restore. But not timing it like what you're talking about. Much more about how much and how often.

RS:
Right. And all of that folds into a common package, at least in my opinion. But at some point that plant'ss got be able to rejuvenate itself. And we hear a lot—I don't know if you've read all the details and—the devil and the details in my paper—but one of the things that I referred to in there, which I didn't have time to refer to, obviously, is we say that continuous moderate grazing is just as good rotational grazing. Well that is true if you're talking about animal performance. But over the long haul that is not true if you're talking about plant performance. Because if you're continuously in the same pasture, those cows will eventually walk around until they find all those grasses that have come back up again, and that's what they eat off first, until eventually they can eliminate them. So those plants need some kind of period of rest—deferment—so that they can rejuvenate themselves, and that rejuvenation gets back to the plant growth and development stage. That post-reproduction period when that plant goes into vegetative stage the second time, producing all those vessel leaves, and people say, "Well the late fall rains don't do us any good." Well, no, they didn't do you any good for this year's growth, but next year's growth depends on that, because that's where the carbohydrates are being stored, new tillers are being recruited. That's the period that at some point, you've got to give those plants the chance to rejuvenate themselves. And that's why I say if you don't know how the plant grows you can't manage it. I'm kind of out there by myself.

AW:
No, it seems to make perfect sense. Which would also explain why when I was attending some of those first meetings about the HRM approach, why you would have one ranch that would say, "Man, we in x number of years tripled our carrying." And the next person who did essentially the same thing didn't have that result. Well no one was talking about, "When did you do that?"

RS:
Well and the other thing is nobody talks about, "At what level did you start? Where was your ranch? What condition was your ranch in when you started this program?" If you started in condition when your ranch is up here—in good condition—you're not going to see much improvement. But if you're down here in low-fair, to poor, then you don't have anywhere to go but up.

AW:
Right.

RS:
And there you see a lot of improvement. And that's not ever discussed.

AW:
Right. When you say you're kind of out there by yourself, is anyone else looking at it from this same perspective?

RS:
Not that I know of. Now Dr. Briskey and Dr. Stuth [?][00:32:33], who now is deceased but was one our former students—worked for Dr. Dahl as a matter of fact. Then he went to Oregon State and got his Ph.D. But Dr. Briskey [01:32:43], who got his Ph.D. at Colorado State—they looked at tiller recruitment, but I'm not sure that they looked at it in the same sense that we're looking at it. But they did. They spent a lot of years evaluating tiller recruitment in—

AW:
T-i-l-l?

RS:
E-r. Yeah. That's the new shoots that come up on a—

AW:
So if a person like me wanted to read up on some of this just to get a better idea, how would I describe this view of the plant growth—the stages of plant growth—and how it fits into range management? How would I describe that, just as a general set of topics?

RS:
In order to find something to read?

AW:
Yeah.

RS:
Oh. You know that would be hard to do, I think from a practical standpoint. We have a couple of books out that were published by the SRM [**Society for Range Management**]. One of them is called *Rangeland Plant Physiology* and the other was—I want to say is a sequel, but it wasn't a revision—*Plant Growth and Development*. Both of those have chapters in there by Dr. Dahl and original by Dr. Hider [01:34:09], who was one of the real premier range scientists. He's kind of the one who started this idea. I'm not sure I have extra copies. But they're obviously pretty detailed, but I'd be glad to loan those to you if you wanted to dig through that. [laughs]

AW:
Well I'm wondering how well equipped I am to do that, because if it's a really detailed—

RS:
You know I don't know the answer to that.

AW:
Yeah, I'll have to look at that. It just seems pretty interesting to me because the—

RS:
We have some from the—*Ranch Rangeland Issues,* from the Ranching Heritage Center. One of those deals primarily with plant growth and development.

AW:
I have all of those. I'll look at it. I'll fish that out.

RS:
And I have a good friend who was at that same symposium the other day, and he keeps encouraging me, "You need to sit down and write this stuff out."

AW:
I was about to ask if you were [cell phone rings]. While you're doing that I'm going to take a moment to replace a battery, if it's okay.

RS:
No, that's fine. They're just calling me to tell me my prescription is ready. [laughter]

AW:
It'll take me just a second. I'm about to run out.

RS:
That's fine. [Pause in Recording] Started from a research standpoint. I have control of my own prickly pear on my own place. And so I have that experience. And so that's what I'm right now tied up in, is trying to get that done. But that then will actually feed into a brush and weed control. And we've put together several publications, book chapters and so forth, that deal with brush and weed control, but not with relative to how plants grow. One of those two will be the next one that I do. But my point is—Tony says, "So what are you going to with it after I write it? Nobody is going to want to publish observations. It's not a research paper." So well—

AW:
Well to me the whole—it wouldn't be in that same publication market to start with. That would be the kind of thing that paying attention to the bigger issues where you tend to hear folks talk about that, or in the ecologists. People looking at sustainability but from a different point of view. Start from a different area. And something that talks about the relationship of that big topic to these very specific subtopics—very interesting subtopics—that's, to me, is what would be interesting.

RS:
Well I intend to do this. I guess whatever happens to him can happen to him. But at one time there was a museum—Texas Tech Museum—publication series. I don't know if something like that's available. I don't know.

AW:
Well of course we have the Texas Tech University Press. How much science? They're really not doing much science now, but there's bound to be somebody interested in that. But I would think also—SRM, do they do much publication now, or has this been--?

RS:
No, they kind of got out of the publication business.

AW:
Well you know in some ways the press is all depressing [?] [01:38:17]. I happen to be a series editor at Tech Press, and I write books, so I'm always concerned about this. Presses are all bemoaning the fact that people have Kindles, and they're not printing things. But the other side to that is, in some ways it's much easier to put out a book, because now you have all these print on demand services, so you don't have to have a big warehouse full of paper and all that kind of thing. So I think we're about to get into a circumstance where maybe it will be much easier to do specialty books, because you don't have to say, "Well I've got to sell five thousand of them to make it work."

RS:
Right, right, right, right. Yeah.

AW:
So I don't know. It's—

RS:
That's interesting. Interesting to hear you say that. When I get farther down the road I'll probably get back in touch with you. But I personally like real books.

AW:
I do, too.

RS:
However, for those fictional books and things that are just past-time reading, I'm perfectly happy to have those on my iPad.

AW:
I don't even like that. I still like to have a—[laughter]

RS:
Well I do too, but I'm out of space. My wife is always, "You need to do something with these books." [laughter]

AW:
I'm in the same exact spot. And not only that, there's something really attractive about, on a trip, having one little thing that weighs less than a pound instead of a big stack of stuff.

RS:
Well and that's exactly the main reason we went to the iPad, is because we could take thirty five hundred books—I don't have that many—on a iPad, and you can only carry half a dozen in your suitcase. But I like to sit down with a pencil, and as a scientist I hang on every word. I'm a slow reading. I want to know exactly how these words fit together. I like to write in my books, and I like to underline.

AW:
Me too.

RS:
And I can't do that on my iPad. Well I can to some extent.

AW:
You can, but it's not the same.

RS:
No, it isn't. And I can always flip pages in a real book and find those whereas I can't do that in my iPad.

AW:
No. In fact I'm reading a really esoteric book that was recommended in—or cited in something else I was reading, and it's a French philosophers who are the worst things to read on the planet. [laughter] But one of the great things about having a regular book was I bought this used on the web. It cost me more to ship it than it did to buy the book.

RS:
I know. I've got some of those.

AW:
But I went through and erased all the other underlining. And you know by the time I started back to read it I already knew something about that book, you know? [laughter] And you don't get that when you have it on your iPad or your Kindle.

RS:
No. Exactly.

AW:
So there's a connection. It's kind of like those punch cards. I remember doing punch cards. By the time you finished with a stack of punch cards you almost understood the data yourself. You almost didn't need to run it through the computer.

RS:
Exactly. I've reached some authors who have series of books, and those I try to still get hard copies, because I like to keep those books. But not even all of those. I get some of those on iPad. But I like your idea of it might be more interest in some of these things.

AW:
Well I think so. I think the general interest. And we talked a little bit about this—you and I had coffee the other day—but I don't think people quite understand when you mention range management. They tend to think about animals.

RS:
Right.

AW:
And not about the range.

RS:
Right.

AW:
And I don't think they're thinking about how the range is related to water.

RS:
Soils.

AW:
Soils. And how those things have long term impact to a lot of other things that we're having to deal with.

RS:
Exactly. Well when we first started talking about this, and I met with the New Mexico State people in Las Cruces, I was pretty insistent that we start this symposium off with the three basic resources: soils, vegetation and water. And everything else—in my opinion—builds on that. Well most ranchers are animal people. They don't recognize the vegetation resource. That is one of the biggest hurdles that we have to try to overcome when we're talking with people. We are not cattle marketers, we are grass marketers. And as I usually say, my cows are simply my harvesting machine.

AW:
And even the ranchers that I know who recognize that, don't understand it.

RS:
No.

AW:
I mean they see that this is my resource. In fact I've even heard one or two say, "I'm selling sunlight. That's what I'm doing."

RS:
Well and that's true. That's true. That's exactly what they're doing.

AW:
But still understanding how all those things come together at that level—especially in the plant, and to me the grass, it's like where everything meets. You know? The sunlight, the water, the soil.

RS:
Exactly. And the cows just come along and actually—

AW:
Right.

RS:
That's how you market your product. No, I agree. That is a major hurdle we have as educators in the area of range, is trying to get those people out there one the land to understand that it's not the cow that is of ulterior importance. It's the—I'm going to say the range resource, which includes all of that.

AW:
Yeah, I thought it was interesting at the symposium that people mentioned Forbes, they mentioned a lot of things besides grass. I'm simple minded. I just think about grass. I don't think about the rest of it.

RS:
No, usually we don't.

AW:
But it's all connected to it.

RS:
Right. Exactly.

AW:
Well where does your work go from here? You're already talking about doing some writing. Are you still working at this stage in life with new research?

RS:
Not directly. Although I am on one of Dr. Cox's graduate student's committee. It's a huisache control project in south Texas. Actually the people who are interested in controlling it contacted me. I said, "I'm not doing the project." I've been there and done that for forty years. But Dr. Cox is new. He needs the money. And I will help him. I am on some of Dr. Villalobos's students'

committee, and a couple of his students are working on plant growth and development, exactly. Again, I'm not doing the research, but I kind of have set it up for them. I'm peripherally involved in Dr. Dabert's quail research, from the vegetation aspect, not from the bird. I don't know the first thing about quail. In fact I've probably learned more about quail in the last three years than I thought ever existed in the first place. So I don't know anything about birds. Just looking at the plants themselves. You know I basically immersed myself into research for forty to forty-five years, and I said, "Nah." You know? It's time I do something different. And Tony's probably right. I probably—not that I know anything different from anybody else—but I probably do need to put it down on paper.

AW:
Yeah. I'd say you do the integration of all those things. That's a whole thing all of its own.

RS:
If you did the integration it might be so terribly long that nobody would want to read it.

AW:
Well you have to do it in stages, you know?

RS:
Well that's what I've got to do anyways, is stages.

AW:
But it's the parts of the bicycle that are laying on the floor, and nobody says, "Well here's how we put these together." Well then you don't get your ride.

RS:
Exactly.

AW:
Well what should I have asked you about this morning that I didn't?

RS:
I don't know. I don't know how much detail you really want of—let me just say—the formative years. My college career years. We could talk forever about my career after coming here. Forty seven years now. And I will say that it's been a wonderful ride. I could not have had a better job. I don't care how prestigious the university might have been—Utah State, A&M, I don't care which one it was. For me, I could not have had a better job. It's been a good working relationship. I've been able to do the research that I wanted to do. I've been able to have graduate

students that have all been good. So however much you want to know about that information we could—

AW:
Well let's—I would—I'd like to do that. But I'd like to maybe do that in another interview. The reason is, I'd like to think about this a little bit, because I need to know a little bit more about the department and how it fits.

RS:
I brought this. I don't know if you want this. This is an abbreviated form of my—

AW:
A CV? Oh, thank you. I do.

RS:
The international involvement that we've had, and I've had.

AW:
Yeah, no, no, no. This is great. Yeah, do you mind letting me have a little time to digest, and then come back?

RS:
Sure.

AW:
Because I am interested in that.

RS:
I'm flattered by this. [laughter]

AW:
Well it's interesting stuff. And the organizational side of it I think is not looked at often enough. I think you and I may have talked at coffee the other day about looking at how the Wind Institute evolved, and how we had this brilliant meteoric rise of electrical engineering and their energy program that didn't have the same success long term as this other program. And I tend to see at least to my superficial look at this college. Is that it's been much more of like the Wind Institute people. It's grown with things integrated. And you mentioned a number of people from here that have had big impacts, largely because they could get along and think about things, and work with other people.

RS:
This is our history?

AW:
Oh really? Yeah. Now this is one you've been working on, right?

RS:
Yeah. This is up to date through last year. I need to do some revisions and additions.

AW:
Is there a way that I could—even at this stage—read a copy of this before we sit down and talk again?

RS:
Sure.

AW:
Electronic?

RS:
I'll let you take this.

AW:
Okay. I'll return it. [paper rustling] But if I could—

RS:
It might be more than you want.

AW:
No, no.

RS:
And we have that electronically as well.

AW:
Okay. So you don't mind if I put a pencil note every now and then? [laughter] No, I'll keep this separate list of those. No, I'd like to look at that and then get back together and do it again.

RS:
Sure. Not a problem.

AW:
Okay. Well I'm going to say right now thanks and we'll take this back up again. It's been very interesting.

RS:
Well I appreciate that. And again I appreciate you doing this. Like I said I'm flattered that you're willing to do it.

AW:
Well this—people don't think about the fact that not only Lubbock would not be here, but Texas Tech wouldn't be here without agriculture. [laughter]

RS:
Well, that's true. See our department actually only began and we started out here in the history, autonomously, in 1969. So we're a relatively young department, as departments go. We still wouldn't be much of a department had we not gotten the line item that provided brush and weed control. We didn't actually participate in the vegetables. That was in agronomy or in the animal science's one, but provided a focus for a number of years for us as a department to move as a unit. When that quit, then we don't have the same focus in the department anymore, simply because the demand is, "You go get money wherever you can find it." And then it's not as, "We're going to have a base funding for everybody to work around." Now even when we had the focus everybody still had some outlying projects that they had separate monies for. But we don't have the focus today that we had then because of that.

AW:
Interesting. Well I want to look at this, and I'll give you a whistle.

RS:
Okay.

AW:
Again, thanks.

RS:
You're quite welcome. It's my pleasure. I'm going to be gone from the fourteenth to the Twenty-ninth of July.

AW:
July is—I'm traveling a lot, too. August will be a lot better for—

RS:
August is much more open for me.

AW:
Okay, good.

RS:
Right now it's pretty much open. I don't know how long it's going to stay that way, but right now it's pretty—

AW:
Well when I get back and look at my calendar I may shoot you a couple of dates, and maybe we can set something. Because that'll give me plenty of time to—

RS:
Okay. Do that, and I'll get them on my calendar. And then I will just have those and I'll do my best to not schedule anything else to interfere with that schedule.

AW:
Well I'll just give you some general times and you can tell me again what looks best for you. Alright. Thanks.

[End of recording]