INTERVIEW WITH RON FURNETTON
BY GEORGE GENTRY APRIL 23, 2003
OKEFENOKEE, GA

MR. GENTRY: Boy, listen to all the birds out here! Okay Ron, let me get you to identify yourself.

MR. FURNETTON: My name is Ronald Arvin Furnetton, but everybody calls me Ron. I was born in 1938 in northwest Wisconsin. I lived in a little town called Webster. The population was about 500. I was actually born in the neighboring county where they had a hospital in Polk County, Wisconsin.

MR. GENTRY: Tell us a little background on your education and your area of expertise and that sort of thing.

MR. FURNETTON: Like everybody around my age when I got out of high school, if you couldn't go to college then you went into the Service. I was in the Navy for a few years. When I got out, I worked in electronics for a little while and decided that I didn't really like that field. I was interested in Forestry and I went to the University of Minnesota, School of Forestry. I got my degree there in Forest Resource Management. I graduated in 1968.

MR. GENTRY: Has that been your work for your whole career?

MR. FURNETTON: During the time I was in school I worked summers for the Forest Service out in Montana. When I graduated I had three different offers. One was with the Forest Service in Wisconsin, which was a temporary job. One was with the Bureau of Land Management in Oregon. Then I got an offer from USFW at St. Marks, which is just south of Tallahassee in Florida. It's St. Mark's National Wildlife Refuge. I accepted that one. I was interested in the southeast anyhow because one of my favorite subjects when I was in school was fire and fire history. We had a professor from Alabama. He was a very good professor and I learned a lot about the long leaf pine community and the natural role of fire. I was interested in fire management in this part of the country, so I jumped on the opportunity to get into this area. After I spent a little over a year at St. Mark's NWR I went up to Piedmont NWR between Macon and Atlanta. Then in 1974, I came down here to Okefenokee and I've been here until I retired in 2000.

MR. GENTRY: For the sake of the transcriptionist, tell us the date, and where we are.

MR. FURNETTON: Today is April 23, 2003. We are located at a County campground; Traders Hill Recreation Area. This is kind of a historic spot because there used to be a town right around us here. This used to be the County Seat of Charlton County. It's called Trader's Hill because we're just above the St. Mary's River. It's just down the hill

here. This point on the river was the farthest upstream that sailing vessels could come. They'd come up here and trade with the Native Americans and with settlers for whatever goods they had. They also took on water here that was acidy, but it prevented growth of parasites and things like that. It was good water to carry and store. So they took on water here, from the river.

MR. GENTRY: How are we located here in relationship to Okefenokee here?

MR. FURNETTON: We're roughly five or six miles from the actual edge of the swamp. We are east of the swamp. The river below us, St. Mary's River comes out of the southeast corner of the swamp and flows probably forty or so miles before it gets here. It takes off down to the south then turns to the east and back north again before it makes the loop here. It sort of borders the area of Georgia called "the Big Bend", which is the knob that sticks down to the southeast of Georgia when you look at it on the map.

MR. GENTRY: You said that the part of this country that interested the most was fire. Tell me a little bit more about when you came here in 1974; what sort of ecosystem it was and what your observations about it were.

MR: FURNETTON: My interest in fire really had to do with its relationship to the maintenance of this community. Most of the uplands in the southeastern part of the United States, or at least the southern coastal plain were covered with the long leaf pine community. That was really my interest; the relationship of fire to the long life pine community as well as some of the other communities we have in the southeast. The long life pine community is dependent on fire. The trees and the under story all depend on low intensity fire for its existence. All of the wildlife in this area is adapted to this frequent fire regime. Over period of years since we settled here a number of things took place. Long leaf pine makes a very good lumber species. Of course a lot of it was cut for timber. But one of the factors that limits the range of long leaf pine is that we destroyed the fire regime. At one time, depending of what literature you read, there was anywhere between sixty and ninety million acres of long leaf pine community. Now it's down to just two or three percent of that. It's really one of the most endangered communities that we have in North America.

MR. GENTRY: What was the range of the long leaf pine community?

MR. FURNETTON: It goes all the way up into Virginia and down around the coastal plain to well into east Texas. The long leaf pine as an interesting characteristic that makes it adaptable to fire. When the seedlings come up, it grows in what we call the grass stage for several years while it's developing a root system. During this time, fire can burn over it and it's bud is right at the surface of the ground. It stays there for several years and fire can burn over it without damaging it. When the root system is developed it shoots up a candle, or the stem part of the tree for sometimes several feet in a single year. In just two

or three years, it's back out of the stage when fire would damage it. This is of course very different from other pines, which have a delicate little seedling for two or three years. When the other pines and other trees that are in that stage; the frequent fires that came along would destroy them. So because of fire, long leaf pine was able to establish itself in this community.

MR. GENTRY: Was there some reason why there were so many fires here naturally?

MR. FURNETTON: The fires would occur during the lightening season. From here on down probably to where Cape Kennedy is, is probably one of the most lighting prone areas in the country. We have afternoon lightening storms almost every afternoon during the summer. The lightening would strike and start a fire. It might race for several miles before it reached some natural barrier where it would go out. The under story, because of the frequent fire regime, we didn't have tall brush. It's not like now where the fire doesn't occur. The under story was primarily grasses and low shrubs like blueberry and ground oak. In some cases they would come up rapidly from the stem part of the plants that were underground. That's the ground oak or runner oak. Some perennial herbs like blazing star and a lot of the other perennials where their roots systems will live in the ground and it will grow and stem, bloom and go to seed in the fall. But the under story was low and the fire would just race through without a tremendous intensity. It would not damage the mature trees but it would burn up the seedlings of the other varieties.

MR. GENTRY: When I imagine that, I see the forest as being almost park-like, where you could see for a long way because there was no under-story.

MR. PHERNTTON: The old historians write about a park like effect. I remember reading where you could just ride horses through the woods for miles and miles. The mature timber would not by thick. It would be fairly sparse. Long leaf pine will grow for 400 years and it gets to be quite large and it needs a little space. Gradually the less vigorous trees would be crowded out. The under-story would be fairly clear. It was really sort of paints a beautiful picture. When some areas that still have the whole community; the long leaf pine over story along with the fire dependent under story; it's beautiful.

MR. GENTRY: Well what happened to it all?

MR. FURNETTON: The timber was cut, in many cases because it makes very good lumber.

MR. GENTRY: What period of time did most of that cutting take place?

MR. FURNETTON: Probably during the 1800's. I'm kind of using my imagination now, but we primarily had settlers here. During that time of course, they would clear out

their home places and pastures and gardens and fields and this sort of thing. In some cases there was some farming; tobacco, cotton and other major crops. In this particular area, we probably had more settlers. They probably didn't have a tremendous effect. They probably made holes in the woods, and thinned it out. I think the major part of the timber that was cut was for their own use. They probably didn't have a lot of effect on the area. Then, later on when the timber industry started shipping lumber to other parts of the country, I think long leaf pine was prized in several places in the north for timber. Then of course the big lumber companies came and cut down the timber, sawed it up and shipped in away. This was probably between the late 1800's and 1920 and into the Depression.

MR. GENTRY: Was there any replanting at that time, when they came in and cut it?

MR. FURNETTON: At that time it was not replanted. The second growth, in some cases of long leaf pine up on the high hill where it was so dry that the other trees could not compete very well because of the low nutrient level and dryness of the soil. Long leaf pine can survive where others won't. In those areas such as the high ridges, long leaf pine came back. In the lower areas slash pine, loblolly pine and pond pine moved into what was the long leaf pine community. The reason it was able to move in was; for one thing it's a lot more vigorous seeder. All of these types of pine all produce a lot of seed. Had we still had the frequent fires, they would have taken care of that. The fires would normally keep the other species [under control]. The other species have always been here but they were around the ponds and creeks and low areas where it wouldn't normally occur. Now, since we cleared areas for farms, fields, pastures and roads, which had a big effect, we created a lot of barriers to the fires. Fire would no longer race for miles and miles like it would at one time. Our second growth was long leaf pine up in the dry areas and probably slash and loblolly and some time a mixture in the lower more fertile areas. This went on for quite some time until probably around the 1950's and 1960's when the timber companies started planting pines. Around this area during that time, they usually planted slash pine because it would grow pretty fast. It also made a pretty good timber tree. Later, they planted loblolly pine because it grows even faster. Of course the interest in these later years was not in producing lumber. The interest was in producing wood fiber for pulp mills.

MR. GENTRY: Was there a period of time where fire was suppressed?

MR. FURNETTON: Yes. We have suppressed fire for ages of course. This, of course has had a great effect. The greatest effect is probably the fact that we moved here and created a lot of unnatural barriers to stop the fire.

MR. GENTRY: I am thinking of an interview that I have just recently done a month or two ago with Mr. Joyner who was employed by the Charlton County Commission to ride the woods and prevent the homesteaders and settlers from burning the woods, like

they would because they had cattle running free out there and they wanted to regenerate grasses. That was in the 1920's and 30's. Does that make sense to you?

MR. FURNETTON: Yes it does. A while ago I mentioned that probably the greatest cause of fire was lightening. But during the settlement times, and really the Native Americans for a long time before that; realized the value of fire because it renewed the forest floor. It made it easier to hunt and to get around. It creates crops of blueberries and such that they wanted. It also stimulates the grasses. This is why the settlers liked to burn the woods. Almost everyone around here did burn the woods. They probably weren't as large as they were back when no one lived here. But still, with all of the settlers who were burning there was still a pretty good acreage that burned. And it served the same purpose as the natural fires.

MR. GENTRY: Mr. Joyner said that the scientific thinking in those days was that fire was bad.

MR. FURNETTON: Yes, during this time, probably from the late 1920's and through the Depression era and later up into the 1950's and 60's we had the idea that fire was bad. It did have the potential to destroy people's homes and people thought that it was destroying the trees as well. Other than a few people, like the Professor I was taking about, we did not really realize the role that fire played in the environment. I think that now we realize that it has a role throughout the whole continent, but particularly here in the southeast where the maintenance of this now rare long leaf pine community was absolutely dependent upon fire.

MR. GENTRY: That's a good background. Now even I understand about long leaf pine. What part did you play in all of this when you came to time part of the country?

MR. FURNETTON: When I came here in 1974 we were doing the same thing as we were doing at St. Marks when I was there. But when I came here, I continued a program of fire management, which has already been started by other fire managers. But during the period of time, when we excluded fire; when we thought fire was bad, we developed a tremendous under story in the woods. We no longer had the grass and low shrub and perennial herbs on the forest floor. We had gall berry, palmetto, myrtle bushes and the hurrah bush which were some times six, eight or ten feet tall. It really didn't matter what type of timber you're talking about; if you have this type of under story and if a wildfire went through then, particularly during the growing season, the natural time for fires it would destroy just about everything. So during this time our main emphasis was not mainly to restore the community; of course this was our goal, but at this particular time we were trying to reduce the fuel level so that when we had a fire it wouldn't destroy absolutely everything. When I came here we were still doing dormant season burns. This is not the natural time that fire occurs. And it's not the best time to restore the long leaf pine community; the under story part, but the main thrust was to reduce the fuel level so

that if we had wildfires it wouldn't destroy everything. Also, we had the idea that some day we could start burning during the growing season when the fires occurred naturally.

MR. GENTRY: So how did you go about doing that?

MR. FURNETTON: During the winter, the dormant season, that's really the easiest time to burn. In this part of the country the weather varies. The temperature might be warm. It might be seventy degrees in January and then front comes through and it's liable to drop down into the teens. Well usually this front brings along a little rain. We might have a half-inch or so. After the front passes we have a so steady wind, usually from the northwest and shifting around to the north. During that time it's pretty stable and it's easy to set a backing fire. A backing fire would start with a fire line on the down wind side of the area that we wanted to burn. We'd set that on the down wind side and let the fire back into the wind. It would do a pretty good job of reducing the under story and it would not get really hot. We didn't get a lot of acres, but gradually by keeping at it we were able to reduce the levels of the under story. Of course one time wouldn't do the job. This had to be done repeatedly. We burned on about a three or four year cycle for many years, trying to get the under story in a condition where we could have a growing season fire. Probably our first growing season fires were in the early 1980's. From that point we started out with small little blocks. Now, a great deal of the Wildlife Refuge, the pine lands or uplands are burned during the growing season.

MR. GENTRY: Are you saying that the fire, after you had cleared and made a fire barrier was set against that barrier? The wind would have to have blown the fire across that barrier? The fire was burning against the wind? I imagine this was so that the wind would pick it up and race it along at a high rate of speed.

MR. FURNETTON: That's correct. When setting these backing fires, of course we'd set them from either a natural barrier or a plowed or cleared line. If we had a 'jump' that would be a head fire, a wild fire. That was the touchiest time of the whole operation was getting that base line set. We call a fire burning into the wind a 'backing fire'. The fire that's burning with the wind is a 'head fire'. We also had flanking fires which kind of burn along in the flanking lines of the block where it was set.

MR. GENTRY: What sort of crew and equipment would it require to do this right?

MR. FURNETTON: You said, "Do it right"! I can remember being out in the woods at three o'clock in the morning all by myself setting fire! As time when on, we'd normally have a tractor. There would be a crew of three typically. Two of us would be setting fire and the other would be on the tractor. As time went on we've had disasters, mistakes or problems; here and in other places. Now I think the standard crew it as least five or six people including somebody who mans the radio all of the time. Now, we'll have a tractor plow unit, an engine, plus the grown crews. The engine is usually about a one ton or up

to a two and a half ton vehicle with a two hundred gallon tank in it. That isn't a lot of water when you think of a fire engine. But it's what we can use in the woods. It gets around in the woods and helps a lot. The plow is there to cut the firebreak. This is something that has kind of evolved over the years. We used to use a plow that would go down into the ground and turn a furrow both ways. It would essentially make a ditch through the entire woods. We still use those today particularly during wild fires, at times when we have to have a fast plough line. But as you can imagine this plough line through the woods could cause a lot of problems as far as erosion and basis soil disturbance and other things like this. Now, in a lot of cases where we can we use natural barriers. A lot of times instead of plowing a line we'll harrow it. At least we don't have a ditch. In some cases, especially now that we've got the fuel levels down; we burn in a lot larger blocks and have a lot fewer lines that we used to have.

MR. GENTRY: Wasn't that kind of dangerous out there in the woods doing that?

MR. FURNETTON: Yes, it was very dangerous. One of the things we did was to try and make a pretty good plan. Our plans kinds of evolved over time. Every time we made a little mistake, then you'd try to build in something that would safeguard against that in your next plan. Now, I think our fire management prescriptions are now huge volumes when they used to be a couple of sheets of paper. But it is a dangerous occupation. We've had people killed or hurt throughout the region doing prescribed fire and fighting wild fires. The risk of a prescribed fire is significant, but they really pay dividends wherever we have a good burning program. The wild fire incidents are way down. That's when the risk of accidents is much greater, when we're fighting a wild fire.

MR. GENTRY: Is it fair to say that the people who were here just prior to your arrival, and you upon arriving in 1974 were responsible for writing the book so to speak of how to do the prescribed burns?

MR. FURNETTON: Yes, in a way. I think our first burners learned a lot of the settlers that you mentioned a while back. They used to go through and set the woods. They were really pretty good; some of them. They knew what fire was going to do. They could reach down and grab a handful of pine straw and tell you if it was going to burn to hot, or whether it was going to burn at all. Our first burners probably learned a lot from these people. They really knew what they were doing.

MR. GENTRY: Were you involved in creating official manuals to pass on this knowledge to other FWS firefighters? Who wrote the manual about how to do all of this? Or, has it been written?

MR. FURNETTON: I mentioned our prescriptions; and this is probably something that needs to be defined. When you go to the doctor, he writes a prescription and you go to the drugstore. On the prescription it tells you what's on the prescription and how you're

supposed to take it. When we are planning to burn a unit we'll first go in there and see what it looks like and see what needs to be done. Then we'll write a plan for that. As a result of our prescriptions and each Refuge had to have a fire management plan of some sort. I think the first ones were just called forest management plans or timber management plans. Prescribed burned was just a section in that plan. The details of why it needed to be burned, and how it should be burned was spelled out in that plan. The plans just got bigger and bigger and more detailed as time went on. A lot of our expertise probably came from the various universities and schools. Long before fire actually was used by the different agencies, a lot of the schools were studying it and doing a lot of research on fire management. I think a lot of the texts and plans and expertise just evolved from the work of a lot of different people.

MR. GENTRY: What about safety in the Service as relating to fire? Did you see any changes in that during your career?

MR. FURNETTON: Yes. To begin with when I first came here, we had to do what had to be done with what we had. I think all of us liked to show what we could do with as little money as possible. Because times were kind of hard, it was really kind of a necessity. After a few accidents we learned that you really couldn't cut corners when it comes to fire management.

MR. GENTRY: What do you mean by accidents?

MR. FURNETTON: We had a death on Okefenokee NWR in 1979. At that time we didn't have special clothing. Now we have Nomex clothing that will give you some protection from fire. We have the fire shelters and a lot of person protective gear. But at that time we were using a 1954 model tractor to fight fire with. When it comes to what a just referred to as a fire engine, if it had a tank at all it was just mounted on the back of a pickup, probably severely overloaded. We used a lot of equipment that really wasn't adequate to do the job, but we made it do. Whenever you're doing that, sooner or later, something is going to happen. Probably one of our greatest deficiencies was that we relied on these old folks who used to fire and knew how to burn. But they gradually left the picture and we had to rely of those who really didn't know that much about fire. Sometimes we didn't know as much as we thought we did. Sometimes, I think a lot of us were who were just hired in to the field didn't have the instincts that some of the other old folks had. They probably had accidents too. Most of our training to begin with was on the ground training as we worked. That's probably resulted in some of the accidents that we had.

MR. GENTRY: Who was killed?

MR. FURNETTON: On this refuge it was Richard Bolt. He was a biological technician. They had has a prescribed fire and it kind of rekindled. They went to plough it and it

jumped a road into an area that wasn't supposed to be burned. The wind direction shifted very suddenly. Richard Bolt, and Doug Nuss, who is a present employee at the refuge, were both in the area. They attacked the fire, the wind shifted blowing fire with flames at least 70 feet long in their direction. It covered the area between the fire and the tractor. They were plowing along what you might call a flanking line where the fire wasn't burning towards them, but perpendicular. When the wind shifted and the fire burned over the line and the tractor that Richard was operating. He was burned and lived for about two weeks, but died as a result of his burns. That started the shift towards better equipment and more training. But then, about two or three years later we had an accident down at Merritt Island NWR where two people were killed. They were attacking a wild fire, the wind shifted and they got burned over. Probably the biggest change we've had as a result of these accident is probably fire training. Now, a person doesn't just go out in the woods and set fire. You have to have a certain amount of training before you can operate under somebody else. The person who is responsible, the one we call the 'burn boss', is pretty highly trained. He has to go through a lot of different training programs and have a lot of experience. He has to be checked out on a lot of different aspects of the operation before he is allowed to go out and head up a fire.

One thing that I haven't mentioned that has helped us to get a lot more burning done and is also a safety factor itself is that we don't have to rely so much on people on the ground. In the early 1980's we started using helicopters in fire management. Not only in fire suppression; most everyone has seen pictures of a helicopter with a big bucket dangling below them. We also use the helicopters to set the fire. Sometimes we have to start out setting fire on the ground until we get that base line established but after it's established the remainder of the unit is set with a helicopter. They've developed a device called an 'aerial ignition sphere'. It's a little plastic ball about the size of a ping-pong ball and it's filled with potassium permanganate. The dispenser that these balls go through as they come out of the helicopter injects them with ethylene glycol, which is just plan antifreeze. That is an oxidizing agent for the potassium permanganate. Amount 30 seconds after it's injected, the little ball will burst into flame. It's not like an explosion. If you lit a book of matches and just let the whole book burn, that's about the size of the flame. There is about a 30 second delay before it starts to burn. During that time it falls to the ground. It's kind of an art setting a fire with these balls. I mentioned that when we were doing dormant season burning we used primarily backfires. As time went on we'd start out with a backfire. Sometimes we'd set short little head fires. Probably back when these settlers were burning for their cattle with a nice open forest floor; they probably used a lot of head fires. Setting with these balls what was just a pinpoint fire that was pretty cool to begin with. If it went on, it would become a pretty good fire as it burned on. These balls are dispensed so that we have a kind of a checkerboard-burning pattern. A ball would be dropped every 300 feet of so along a line. They'd try to set it so that about the time the fire is really beginning to become intense, it meets up with the fire set from the last line. At that time, the two fires will burn together and you'll maybe have a little hot spot where they burned together, but then, it's over with. So it's kind of an art,

to set the right number of fires in there. You don't want the fire from each point to get so hot that it damages something. On the other hand, you don't want too many fires in the same area at the same time. It's not exacted something you can just prescribe because the number of fires, or balls, per acre sort of depends on the burning conditions and the time of day and this sort of thing. It's kind of an art that the prescribed fire manager has to develop.
MR. GENTRY: Did you all use this quite a bit out in the swamp and other inaccessible areas?

MR. FURNETTON: We use it a lot on the islands in the swamp. We haven't done a lot of prescribed burning in the swamp itself. We have done some. We have used the ping-pong balls a couple of times and sometimes we've used the 'heli-torch'. Sometimes one will work, sometimes the other. The ping-pong balls sometimes fall down into the water of the swamp and don't work really well.

MR. GENTRY: Well, since 1974 when you started with all of this to restore the under story, how much change has there been made out there?

MR. FURNETTON: When you just think of it from year to year, you don't see a lot of change. But you have to make yourself think back to what it looked like when I got here. There's areas now where we have a pretty nice under story. It's really going to take years to restore the long leaf pine community; even the under story part. But there are places where the under story is beginning to look pretty good and it's not tall. The vegetation might be a foot or so high. In some cases, some of the hard wood shrubs that shouldn't be too plentiful are still there, but they are short. I can remember that when I first came here you couldn't see more than a few feet off of the road in some areas.
I can see a tremendous change. Over the past twenty-five years or so, you can really tell the difference.

MR. GENTRY: This is the year 2003, what would you guess, if they keep on working at it, how long before you have a long leaf pine ecosystem restored out there?

MR. FURNETTON: It depends on a lot of things. If we weren't doing anything else; if all we were doing was burning it would probably take three or four hundred years. But we're doing other things as well. We're thinning out. We do cut timber on the refuge. We're thinning out a lot of the slash pine and trees that we don't want there to speed up the process. Where we still have long leaf pine in a mixed stand, once you get two to four growing season fires and go through and thin everything else out; you have an almost instant long leaf pine community appearance. The under story still probably isn't what it should be, but it's coming along by this time. In those cases where we still have long leaf pine and can get rid of what we don't want, after probably ten or twenty years of growing season burns, I think we'd have a lot of the long leaf community components back.

When I speak of the components, the really valuable part of the long leaf pine community is the under story as far as wildlife diversity goes.

MR. GENTRY: What is the thing that you take the most pride in from your career with the FWS?

MR. FURNETTON: I just enjoy being in the long leaf pine community. And when I see some of the successes that we've had in restoring both the long leaf pine over story; seeing the wire grass coming back; seeing the perennials that are supposed to be there; and being able to identify parts of the long leaf pine community that are being restored. This goes along with the wildlife that is dependent upon it. One thing that we didn't mention is that as this whole ecosystem disappeared there was a whole array of wildlife associated with it that has disappeared as well. It's the wildlife species that end up on the endangered list, as well as some of the endangered plant life. All of these species, including the plant species are pretty long lived. That's one of the reasons that when all of a sudden we've made this sudden change, they haven't been able to adapt to the new conditions very well. Some of the species that we are thinking about, like the red cockaded woodpecker and the fox squirrel, which isn't endangered, but their numbers are probably not what they used to be. It's a real visible part of the long leaf pine community. You've got the gopher tortoise, which is a species of concern. I think it's on some state endangered lists. The indigo snake is listed as threatened along with some salamanders. You don't think of these as long leaf pine community species but they really are. But they really are because in the community you've got these little bogs or water filled depressions. When we had frequent fires, these were little open wetland areas. In the absence of fire these were just impenetrable shrubs that you couldn't get through. The species that were dependent on these areas are also endangered. But there is an endless array of species that were dependent upon these long leaf pine communities and hopefully as we are able to restore some of the community these species will be able to come along as well. This is what I take the most pride in.

Working with the biologists, ecologists and foresters and fire managers is essential, not only within the FWS but with other agencies. We've worked with the Forest Service, and with the military. The military has some of best long leaf pine stands left. Working with all of these others to restore the long leaf pine community has been really rewarding. I keep talking about us, and we; I've been retired for two years now but I still consider myself as part of the ecosystem I guess!

MR. GENTRY: Once a forester, always a forester! Okay, is there anything else you want to add?

MR. FURNETTON: I think that's it.