

TRANSCRIPT

INTERVIEWEE: Jim Eidson (JE)

INTERVIEWER: David Todd (DT)

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David Todd: My name is David Todd. And I'm representing a group called Conservation History Association of Texas. And we're outside of Celeste, Texas near Lane, Texas, northeast of Dallas at a place called Clymer Meadow. It's October 19th, the year 2000. And we have the chance to interview Jim Eidson who's the steward here, manager of the preserve. And I wanted to thank Jim for taking this time to visit with us about his life and his work here.

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Jim Eidson: Thank you.

David Todd: I thought we might start by just asking you a little about your personal background and maybe you could tell us if there are any experiences or people that first introduced you to the outdoors and to conservation.

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Jim Eidson: Well that's a good question, David. I—I don't think there's any one—one single event that's—that's had the effect I guess. My ancestors came to this part of the world back in the 1830s. And I think that connection to the landscape, you know, for—for all of us is kind of a—there's kind of a genetic memory that's there that enamors us with certain landscapes. So I think that certainly—certainly part of it. But I think something that was particularly important as—as a child is that I had a place to—to play that was a natural area even though I—I lived in a fairly settled portion of the world near Dallas. Had a creek that ran about five miles and I—I spent my entire childhood in that creek. And that really whetted my—my interest and appetite in—in being in the outdoors. And I think, in addition to that—that, being in the Boy Scouts for a good number of years had a lot to do with it. I attended conservation training camp at Lake Texoma here on the Red River back in '67 or '68 I guess, and kind of made a decision at that point that I wanted to work in conservation. Now I got sidetracked along the way before I arrived here. But in any case, I

those—that—that had a lot to do with it. My—my grandmother had land down in Hamilton County. It was the family ranch that they'd been ranching there since the 1880s. And that was always a special place to me to go down there and look at the land. And—and back in those days, I was kind of learning about the world and I—I thought it was short grass prairie. Because the grazing had been so hard on it over the years that there wasn't much left but buffalo grass at that point. But it came as kind of a shock to me that that might have been tall grass prairie. So I think that was one of the places that I began to think about what the prairie was back in the old days and how the landscape had changed over time.

David Todd: And as you grew up, did you have much formal training in ecology and conservation?

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Jim Eidson: Well as I said, I think as a kid that—that the Boy Scouts certainly taught a conservation ethic and provided merit badges and everything from wildlife management to forestry and soil conservation I guess. But it was really later I really began to get a formal education in conservation in midlife, in my thirties. I went to Texas A&M University and got a Masters Degree in range land ecology and management. And it was kind of—kind of a peculiar situation because I—I became very interested in the—the black land prairie and doing restoration. And I thought it would be the perfect niche because there aren't too many people interested in black land prairie restoration. So as it turned out, I was lucky enough to find a job doing just that particular thing. So I—I was quite lucky.

David Todd: And that job was here at Clymer Meadow. Can you tell a little bit about what the meadow is, how big it is, where it's located, what sort of eco zone it's in, soils here, grasses you find?

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Jim Eidson: (talking over David) Okay. Right. Well that—that—that's going to be a mouthful to tell that story. The Clymer Meadow is—is being part of the black land prairie, this is part of the larger tall grass prairie landscape that, you know, once stretched from the coast of Texas up into southern Manitoba. The Texas black land prairie is peculiar out of all the tall grass ecosystems because of the fact that we have so many different types of soil here. We have these—this black gumbo soil that we're standing on. It's in the order of vertisol. You get east of here and you get into the sandy loam acid soils that are—that are alfisols. And then about ten miles to the west of us here, you get into mollisols, which are on top of the Austin chalk rather thin calcareous soils. In each of these different soil orders supports a different type of prairie. The one that we're standing on here at Clymer is a vertisolic prairie. It—its on very black clay soils. And this—this supported both gamma grass switch grass prairie type and also the little bluestem, Indian grass, big bluestem prairie type. So Clymer is kind of unusual in that it has two distinct globally imperiled plant community types that are contained here. The extent of Clymer Meadow, including what the nature conservancy owns and what other private landowners have here, is about 700 acres. And as you know, nearly all of the black land prairie has—has disappeared over the

years. And I think with Clymer being the second largest black land prairie remnant remaining in the world at 700 acres, that tells you—tells you a lot about how the acreage has been decimated—decimated over the years.

David Todd: How big was this area originally in Texas?

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Jim Eidson: Well the black land prairie was about—was about 12 million acres all together. And today the estimates range somewhat, but anywhere from three to five thousands acres of it remain at this point. There really is the—the—the most endangered large ecosystem in North America. It's, you know, look—look at ground here, if you're whizzing by this thing at 55 or 70 miles an hour it's—it's not the most photogenic landscape in north America. It doesn't—you don't immediately recognize its importance and how special it is until you learn something about it. You get your nose into it, you know, actually are able to understand how many different species of vascular plant are here and how many thousands of species of invertebrates live here. But nonetheless, you know, it is—it is the most endangered large ecosystem in North America.

David Todd: You spoke of some of the diversity here in soils, can you talk about diversity of plants that you see here?

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Jim Eidson: Well there are about between 250 to 300 species of vascular plant here. And as I mentioned before, there are two distinct prairie types that occur on Clymer Meadow. If you look out here, you know, beyond in the landscape, everything that is surrounding us out here is old field. If you were standing on this hill forty years ago, nearly everything surrounding us would have been in cultivation primarily for—for cotton, agriculture. So these old fields tend to—the—the go back land if they go back native after cultivation is being abandoned. Generally you're looking at somewhere in the neighborhood of maybe forty to seventy species that recolonize, at least to this point, that have recolonized. But I think part of the message that we—we can see from this is that the black land prairie just doesn't spring back after disturbance has—has ceased on the land. It's something that it's going to manifest a totally different type of plant community than what we find in these remnant prairies. Now, you know, in time scale if we're looking at that hillside behind us here in the next 200, 300 years perhaps at—at that—that rate, there will be recolonization of the prairie species. But I don't see that happening, especially because the prevalence of exotic species in the landscape. It's more likely it's going to go to tall fescue and Johnson grass over time than go back to little bluestem and Indian grass.

David Todd: Can you tell what some of the first visitors and settlers might have seen here maybe what Olmstead saw or the Marcy expedition?

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Jim Eidson: (talking over David) Right, there—there—there's a fair amount of writing from people that were on the Marcy expedition in this area. And I think most of them have indicated that this—this was a wide open grass land with very little woody vegetation, talking about seeing views of 12-20 miles before you could see a—a skirt of woodland off on the horizon somewhere. So a vast grassland landscape certainly it has become much woodier than it was a hundred and thirty, forty years ago. Part of that is I think is because of fire suppression over the years. Certainly following cultivation, the soil was opened up to invasion by other species that you think about a wide open cultivated field with a woody hedgerow growing along the edge. Then those woody species may be the most prevalent thing within the landscape. So they're able to move in and colonize, especially after this thick turf, this dense sod has—has been opened up, trees can—can colonize the area. Also accounts of bison in the area as well. I know one—one account in Grayson County talked about—they never counted them, they just said, you know, they were huge or immense herds that were grazing across the landscape. But certainly bison, pronghorn antelope were here, bears, wolves also, even jaguars were within this landscape. So this is very different than it was when the first settlers came in here and—and saw the black land prairie.

David Todd: Can you tell a little bit about why the Clymer Meadow remained relatively untouched and has survived to this day?

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Jim Eidson: Well, J—I've wondered about that myself. Jim Clymer was a Pennsylvania boy that—that came to this part of the world back in the late 1840s. He was on his way to the California Gold Rush and one of the—one of the roads—California roads came across the Red River up there at the Preston Bend. And it was kind of a stop over point. And he came through to look at the landscape and kind of speculate a little bit, kind of take some time off. And he really became enamored of it. That's one thing, another thing that a lot of the early witnesses of the black land prairie mentioned is how beautiful it was. So he decided he'd come back here and settled after he made his fortune in the California gold fields. But he came back and built his house, or tried to build his house right over here on this hill across from us. And the Civil War broke out and being a Union sympathizer he was asked to leave the—leave the territory. And he did. And then—but after the Civil War was over he came back and built his house there. He owned quite a bit of land in this particular region here. But one of the things that I think that Jim Clymer recognized was the fact that we've got a fair amount of topography out of here in these steep slopes were erode able. I don—certainly there were others in the black land prairie that would just as soon, you know, plow out these hills and leave it to erode once the soils were exhausted. But perhaps because of the fact that Jim Clymer came from a more settled part of the country where they had sustained agriculture, you know, over a hundred years or more, maybe it was the practice for some of those Pennsylvania folks to take a—a little bit bet—better care of—of the land out here. But also this land, and this is pretty common throughout the black land prairie, was that the—the main thing that saved these remnants of black land prairie was their value as a hay crop. The smaller remnants family farms would set aside a—a portion of the native vegetation to feed the draft animals on the farm. But in other cases, and I think

Clymer is an example of this, this was actually kind of a commercial production that they were producing hay for sale to

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other people with a landscape. Some of the—the hay producers then and—and even now on native hay ship this stuff all over the country. It's even had had European markets for prairie hay back in the 19th Century. So Clymer Meadow, or it was also called Clymer's(?) Bottoms, was kind of a mainstay for hay production within the community. My understanding is that really up through probably the '40s or '50s this was almost a community event that everybody that has ancestors out here, that there's stories of how they made hay on Clymer Meadow. And there are some people that—that—a lot of people in the community that I talked to that have, at one time or another, participated in making hay out here. From my understanding, it was kind of a—a big social event that everybody in the community came out to make hay. And they had dinner on the ground and that type of thing so it was—it was part of the cultural fabric of the community as well.

David Todd: Can you tell about this haying process, was it pretty mechanized in the later years?

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Jim Eidson: Well

(misc.)

David Todd: Jim, we were talking just a moment ago about this land was hayed for many generations and I was curious if you could tell us about some of the experiences that people might have had out here in those days.

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Jim Eidson: Right. Well as I've mentioned before, haying—cutting hay was one of the reasons that any of the black land prairie remains at this point. It was real common on family farms to set aside some portion of the native prairie—native vegetation to provide hay for draft animals on the farm. But other operations like Clymer—the Clymer Bottoms or Clymer Meadow here actually were kind of in commercial production. They were baling hay for sale, you know, across the community even to—to—throughout the country and even—even other places throughout the world had an interest. The market for hay for horses was especially important. Prairie hay and horses kind of always were recognized as kind of going—going together. But at Clymer in this community, the—the—cutting hay at Clymer Meadow was kind of a social event. It was something that you talked to people all through this community. And somebody either has cut here at some point or their grandfather or father—great grandfather participated in the cutting of hay here. So my understanding is that often times the whole community would come out back in the days when—when haying was kind of labor intensive, it took a lot of people to do it. There may be—may have

been, you know, 20 or 30 people involved in cutting hay out here back when they used horse-drawn implements.

(misc.)

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Jim Eidson: My understanding is that on Clymer that this was a real community event. It was something that—that in the old days when they were using horse-drawn implements, it was labor intensive process. It took a lot of people to make hay out here. And you talk to—to people in the community here and either they ca—cut hay at some point on Clymer Meadow or their father or grandfather, great grandfather participated in one way or another. But in the old days, they would cut using a—a horse-drawn sickle bar and sulky rakes and huge hay presses. And much of this was kind of a manual operation. But in addition to that, it w—they—they generally had a—a dinner on the ground out here during the hay making season. So everybody participated. So this is not, you know, just part of the natural history. And the—it's—it's also part of the cultural fabric of—of Texas this particular—particular prairie remnant. One of the things that—that I kind of speculate on if—if we're looking behind us at this—at this hillside, you'll see that there's this long row of trees on the top of that hill. And you—if you look in there, the—the species, it's an even aged stand mainly of hackberry and cedar—cedar elm trees. And one of the things that I've guessed is the fact that as—as they—they use the horse-drawn implements, they could get through some—some hog wallows up there, the gilgai which we'll talk about, and we're able to cut it. But once they shifted over to tractors in the 1940s and '50s they didn't want to get that machinery in that rough topography. And they left it alone and I think that's really—that's really an artifact of the change in the way that they hayed the thing. Another thing that's different from the way that we hay now is the fact that back in the old days, the old timers probably up to the '40s and '50s, would burn these prairies off every year after cutting hay. So there was fire and cutting of hay that took place as well. And of course obviously we've gone to rou—round bales instead—instead of the square bales. And in the old days used to be really large square bales that were done with those—with those hay presses.

(misc.)

David Todd: Jim, could you tell us how management of this land has changed from the days when it was run as a hay farm and to now where it's more of an ecological preserve where you're trying to restore it to native prairie?

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Jim Eidson: Well I think one think in terms of hay production to recognize the fact that—that it kept the system intact to this point. It certainly altered, if not the composition, then dominance within these prairies. Kind of a typical pretty hay meadow is—is grass dominated with a few forbs or wildflowers scattered across it. It's pretty—it's pretty appealing to the eye overall. But it tends to be kind of low in diversity. Anytime you kind of

concentrate dominance within one group of species, then you begin to lose some of the diversity of the prairie. One of the things that we want to do is kind of have an evenness of dominance across a number of—of sweeps of species that live out here. So I guess in a nutshell, we're trying to take kind of a—a clean, relatively tame native hay meadow back to the state of being a wild prairie again. Now we still cut hay kind of on a rotational basis across the preserve. But it's nowhere nearly as frequently. It's not an annual—annual taking of hay. And over time, we're probably going to replace that particular influence by grazing of—grazing of bison. But some of the ways that we—we're—we're trying to accomplish that, and if you kind of imagine that we're trying to reinstate at least facsimiles of what the original disturbances were, which would primarily be fire and grazing. One of the first things that we'd look at doing on these per—preserves and certainly one of the more traditional ways of managing tall grass prairie preserves is through prescribed fire. In the old days, wildfires would sweep across the country. These would be regional events that may consume hundreds of thousands of acres at a time, would run with the wind until they hit a major drainage, might have to hit the Red River before one of these fires would stop. These were both started by lightning in some cases and other cases native Americans started these fires to improve bison range, to draw animals in, improve the forage or else to kind of relocate the animals where they could get to them more easily. There's been some argument that those human-induced fires are not appropriate, they're not part of nature. But you're talking about a population of humans that have been in this landscape for at least 11 thousand years in this areas, if not more, as old as this system is. So it—it's just another organism interacting with—with the landscape. But, in any case, we can't do wildfires anymore. It certainly it—it's something that is—is destructive. And we work to suppress them if they do occur. But instead, we try to replicate that influence by doing prescribed fire. With prescribed fire, we're looking at under a particular conditions, weather conditions, relative humidity, wind speed, and atmospheric lift and others. We look at pinpointing

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when that's going to happen and performing our fires then to accomplish particular objectives. It may be a woody kill to try to suppress woody growth on the prairie, to remove plant litter at the soil surface, to speed up nutrient cycling within the prairie, or to con—control exotic species to some degree. But some of the equipment that we use, standing in front of right here, generally this is a—a small engine, we call this fire engine. This is a—the high—high-pressure low volume engine. It's almost puts out a carwash type spray that can saturate vegetation very rapidly. We especially use this for doing a technique called "wet lining". If you imagine one of these fire units as being a square. And if we want to set a fire into the wind, called a backing fire, we need a way to suppress the—the movement of that fire along the backside of the fire line. We want it to move into the wind without beginning to start a head fire across our firebreak. So this allows us to put down a wet line to keep that from moving. These are—are drip torches. It's a mixture of gasoline and diesel fuel that we use. The flames kind of stick to the vegetation and will burn for a short time period that allows us to kind of install a continuous line of fire so—so that it's relatively even. This is an antique right here that we don't use very much anymore. It's called an Indian pump spraying, backpack pump sprayer and this is for working on spot-

overs, if a—a spark catches a little area on fire than we have people that can pick these packs up and get to it very rapidly. What's really replaced the backpack sprayer, especially with the Nature Conservancy, we've become more mechanized over the years. And I don't know if that's because our fire crew is beginning to get middle-aged or what. But this little four wheel—four wheeler over here with a 25 gallon tank on the back of it is used for doing fire line work. It's especially

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effective for fighting spot-over fires. We can get—get into an—an area rapidly with a lot more water than we would have for a backpack sprayer on an ATV. And we can virtually get anywhere we can run or walk on an ATV and deliver this—this water there. So, we do have a—a fairly rigorous prescribed fire program on Clymer Meadow at this point. And we're burning—at this point we're burning probably larger units than what we are going to eventually be burning. Right now we have mini-management objectives. We need to get a lot burned, especially for woody control and exotic species control. But as we get further—as things begin to stabilize, we've suppressed woody invasion, we're going to start dealing with smaller and smaller burn units. The reason for this is that most of the plants, nearly all the plants out here are well adapted to life with fire. But there are a good number of invertebrate species, all sorts of bugs, that live on the prairie that may be low mobility and may not be able to get out of the way of the fire. So part of our strategy is to keep shrinking these fire units so that there's always refugia that's left for invertebrate species.

David Todd: How big are the burn units and what time of the year do you usually burn [inaudible]?

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Jim Eidson: Well, tradit—burn intervals really depend on the—on the management objectives. The general rule of thumb is it's going to be about a three to four year interval between burns in a relatively stable site. If we have particular objectives where we have major woody encroachment on an area, we may go for several years that they are annual burns in order to—to accomplish that management objective. And so the fire units—the largest fire units that we're dealing with are about 100 acres at a time. Eventually I can foresee that our burn units are going to be multiple. You know, we may have a larger number of burn units in any given burn season. But the units themselves may be 10 acres or so. So that they'll always be, in other words, if we have that the—the western aspect slope behind you, instead of burning that entire western aspect slope to burn either a half or a quarter of that instead of the whole thing. So if there's a particular invertebrate species that pre—prefers that particular habitat, there's always at least half of that habitat that's—that remains for it. Let's see, you asked me about size and interval and what was the other question?

David Todd: The season you do the burns in.

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Jim Eidson: (talking over David) The season... Well, we have not—we have not done summer burns out here at this point. That is in the plan to do that. And certainly we're looking at that for—for woody control. Part of the concern with summer burns is they can be quite severe. Certainly in the last six years here because of the droughty situation, soil moistures have been so low that it would be detrimental, I think, to burn. You want to burn with a—a fairly high antecedent soil moisture due to the fact that, while these plants are adapted to fire, you would be able in—in very dry soil conditions to actually damage root systems and heat the soil and actually, you know, burn roots underground. So we haven't done that, but that is—once—once the weather returns to whatever normal it decides it's going to be, I think we may start to do small units. Talking with Bob Hamilton that manages tall grass up in Oklahoma, that's a—a nearly 40 thousand acre preserve up there. They'll, you know, do summer burns on several hundred acres at a—at a whack. And Bob has told me that they've succeeded with adequate fall rains that they get very good woody kill and very good herbaceous vegetation recovery. He said, then again, if you do a summer burn and you don't get the good fall rains, then you can turn 500 acres to western ragweed for several years running. Now for Bob on 40 thousand acres that's fine if—if he has a patch of ragweed of 500 acres. But if I on a—on an 800 acre preserve out here, if I do th—if I turn a substantial portion into western ragweed, I'm going to be in big trouble. So if we do summer burns, it's going to—they're going to be very localized. We're going to do very small units, 5-10 acre units that are really targeted for woody encroached situations. Generally our burning out here over the last several years has been late winter, very early spring burning primarily because we are trying to control call fescue which is an exotic invasive species and we're trying to time fire to do the greatest amount of damage to it. This year we are going to be, knock on wood if we come out of various burning bans that are taking place, we're looking at doing mid to late fall burns here. So certainly toward to the end of November the beginning of December, I think we'll—we'll do that. It's really important. I think, to have temporal variation in your burn strategy so that you're not burning the same time every year or, you know, every two years, three years. Because you'll—you'll tend to select for the same species and the same genetic variance so that you—you will reduce diversity that way. I think by—by having variation in the timing of burns, you're going to favor different communities, different species, so that you'll have a—a mosaic, the

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greatest diversity that comes out of that. The same thing's true with—with cutting hay. One of the reasons that it tends to lower diversity is the same disturbance at the same time of year at the same intensity every year. So that tends to lower diversity as—as well. The same thing would be true for, you know, even shredding prairies at the same time. So what we try to do in management using fire, shredding, grazing, whatever it is that we're doing, I think we have to pretend that Clymer Meadow is really a, you know, a—a two thousand acre landscape. And that you in your minds eye that you have to shrink yourself down to some infinitesimally small organism and pretend that that 15 acres over there is really 100 thousand acre patch. So what we're trying to come out with here is as much disturbance diversity, temporal diversity in disturbance as we can manage. So that you come out with a

mosaic of patches, as many mosaic patches as you can within this relatively—relatively small area.

David Todd: Well let's go at some of these mosaic patches and maybe you can show us some of the grasses that you've been working with.

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Jim Eidson: (talking over David) Okay. Alright.

(misc.)

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Jim Eidson: Well anyway, I wanted to talk a little bit about another technique disturbance that—that we're trying to look at replacement for cutting hay eventually. We may always cut a little bit of hay out here but that's grazing. One ecologist I talked to some years ago over the fact that, you know, every black land prairie remnant that we know of is an artifact of its management, you know, by humans, the cutting of hay primarily being the disturbance regime. And he said, "Well, you know, you through in fire and you through in buffalo and whatever comes out is what's supposed to be there." And that's kind of oversimplifying a little bit. But we wanted, here a couple of years ago, wanted to start experimenting with bison grazing. And in 1999 in May we brought in 15 bison bulls on 114 acres that's back to the east here and let them go out there and kind of graze unmolested for about two months. And then we packed them up and sent them home. We looked at that in terms of kind of being the shake-down cruise that—that we wanted to know that the fences would hold and the—what their dietary preferences were going to be and kind of what the behavior was going to be in that setting. The—the ecological impact was pretty neutral at that light stocking rate for that short of times. The—there were some trails and a little trampling and we found out they like to eat big bluestem more than anything else. And—but really the way that we think bison grazed in the prairies was that they would move into an area in large numbers, in tight family groups, that the density within a given acre of bison would be relatively high for a short time period. Because of the fact that the—these little family groups were surrounded by, you know, predators, buffalo wolves, that type of thing. And so try to replicate this, this year 2000, we brought 30 animals in again in May and took the same 114 acres and then

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installed electric fence to develop 5-10 acre paddocks. So the animals were kind of compressed in on small areas to intensify the grazing effect. That grazing would run from 5-10 days. And then they would move to the next one, never to return to that—the—that paddock that they had grazed. So we greatly intensified that—that grazing effect. One of the things that's pretty evident that even at that—that intensity of grazing, that density of animals, there's still some selectivity that goes on. The bison select grasses over anything else. They—they don't eat forbs during the early growing season. But then again they

trample everything. It's very democratic, everything gets trampled but the—only the grasses get eaten. The next thing that we found out is that toward the end of the grazing season, well toward the end of the—the summer, our grazing period there from about mid-July on, that their dietary preference begins to shift over to—to browse and to forbs. So they begin to eat trees and also to molest trees more. They horn them, they roll on them, they trample them. And so that was encouraging as well. The bison had been considered a keystone species in the prairie along with fire, that—that they were extremely important. There—others have—have even called them prairie engineers because they did more than just kind of impact vegetation, they—they had impact on the soil through trampling, through wallowing. They reshaped gullies in places from hoof action. So I think that—I think—we're encouraged by this. Right now, after the end of the grazing season, you know, you can definitely tell a major disturbance has happened on these paddocks out there. But I think that the push that's taken place there is a push in—in the succession, directing succession in the right way. One of the things as we look around us out here, this is not overly populated, but there is a—a native

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perennial forb that grows on the preserve, maxmillian sunflower, which has increased tremendously in abundance over the last 20 years or so. It's—it's great. It's supposed to be here, in some cases it's a good range indicator. However, it can grow in patches to the exclusion of other species. One thing that we found out through this grazing, while the bison do not eat maxmillian sunflower, they trample it. And they knock it to the ground. The—the initial recovery that we're seeing where it has been trampled is that the grasses and lower statured forbs are coming up into those gaps where the maxmillian sunflower was. So I think this is encouraging but we'll have to see over the next couple of growing season kind of what—what direction, what kind of a recovery takes place following grazing.

David Todd: Maybe this would be a good time to talk about some of the grasses and forbs and some of the soil topography that is sort of characteristic of the prairie that you find here?

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Jim Eidson: (talking over David) Yeah. You bet. Right. Well this is something that's really unique to the black land prairie; this area that we're standing on here is a ridge top. It's Houston black soil. These soils are heavy clay. They're—they're 65, you know 60, 65 percent clay. And the type of clay that it is called montmorillinite. It's a very platy type of clay that fits very closely together. When this stuff is—is wet, the soils swells so that there's water that's packed in between these platy pieces of clay. And there's a tremendous amount of swelling that takes place in the soil. And then conversely, when it dries out, which has been pretty typical here recently, the soil shrinks tremendously and opens up large cracks. Some of these cracks can go down as much as six feet deep. So what this does ecologically, it's a major driver in this particular system. What we're—what we're standing in out here is an—an eastern gamma grass switch grass prairie. Now the eastern gamma

grass switch grass prairie type was one that was found throughout the tall grass prairie biome probably up to Kansas. It got a little cold north of there to sustain it. But you would find it down kind of in the river bottoms. If you were a pioneer back 130 years ago coming up one of the gallery forests along a little stream and you stepped out of the gallery forest into the flood plain, what you would find would be one of these gamma grass switch grass prairies most likely. Unique in all the world that I know of is the fact that these prairies grow up on the tops of hills in the northern end of the Texas black land prairie. And that's by virtue of something that's called a gilgai. The farmer's called these hog wallows. But the—the hogs didn't make these things. The gilgai are forged by that tremendous shrink-swell process of the soil that I described, you get these cracks that open up. The soil has a very blocky structure to it. So that if we open this up and dug a pit through it you'd see that these things have rather angular sides to them. So when this opens up, eventually one of these keystone blocks drops out and the thing caves in, you have a debris ball that ends up at the bottom of this crevice. Now when the soil rewets and swells, it tries to regain its original configuration and close up around that debris ball. And when it does, there's a conflict there. And the pressure of that conflict forces from the subsoil level upwards these ridges around a center depression. So you have soil that's being forced up to the top. Now you see if I stand down here, I'm standing at the bottom of the gilgai right here. And now if you look up here, I'm stepping up to the top. This is the micro ridge. I don't know if you can quite

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see that, but there's quite a bit of difference. I'm probably in the neighborhood of 18 inches higher than our cameraman here just by virtue of standing here. Now the thing that this does that's a—a tremendous boon to diversity in this situation is the fact that at the bottom of these gilgai there's a totally different plant community than what occupies the—the top of the gilgai, the micro ridge. Down here in the bottom, this mat of grass that we're looking at here, this is called eastern gamma grass. And this would be kind of a dominant in a—in a wet situation. As you can imagine in wet weather that these gilgai may contain anywhere, you know, several inches of water over several weeks at a time. So there's a lot of moisture harvesting that takes place in these gilgai. But in addition to that, the soil depth here at the bottom of this gilgai is about six feet to subsoil. So it's—it's a much moister situation than what you're going to find on—on thinner soils. So we're seeing here this is almost totally dominated by eastern gamma grass. We're looking here at—this is heath aster that's growing here within the gilgai. This late in the season, we're not going to see some of the—the more wet indicators. But lance leaf loose strife, sharp scale spike rush are real typical here as well. This is what's left of lan—lance leaf loose strife here. So really moisture loving species are congregated down at the bottom of this gilgai. So this is a gamma grass switch grass prairie type. Now as I stand up here on the top of the gilgai on the micro ridge, here we're finding little bluestem growing up here. This is a more xerically adapted species. Generally the community type of these micro ridges is going to be a—it's going to be a—a little bluestem, Indian grass, big bluestem prairie type. And as you can see here, this is kind of what's left over from the summer. But we're looking at sideoats gramma, which is a western desert grassland species and we're looking at down here almost a—almost a

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marsh like wet prairie community. And here's a western desert grassland species growing up on the micro ridge. So as you can imagine up here on this ridge, this is up out of the area that harvests moisture. But also because of the fact that the subsoil is being forced up here, the soil depth here is only about three feet to subsoil. So it's—it's a much droughtier situation soil wise as well. When we burn the vegetation off of this little prairie here, this little prairie patch, you can see, excuse me, you can see that these are like bomb craters that are arranged across the top of this ridge in an almost honeycomb like pattern. It's a—it's ow—it's a real regular—regular pattern across here. And this particular patch the management history on about this three to four acres right in here, this is almost been exclusively fire managed. Very little—I think this has had one hay cut in—in the last six years, generally because of the topography it's kind of messy to get in here with—with equipment. But generally it's been fire managed. This has been burned in '95 and also in 1999 here recently. And so what we've seen I guess in the last several years is that we've begun to get woody encroachment under control. So we look

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out into the landscape generally these little patches of trees, kind of round patches like this one here, this one over here. If we go around that—that little motte you can see two more off in the landscape. These are called mottes. You know I think around Waco, there's a little community called Elm Motte. And these are things that—that certainly occurred in the presettlement landscape but have tended to—to extend, I think, because of the lack of disturbance in these landscapes as well. But in any case, these gilgai because of the additional moisture that's here are ideal places for woody establishment within the black land prairie. Without appropriate disturbance regimes, these will tend to expand and fill in these gaps between them. That's most likely what's happened across from us here on this long bar of woodland that's taken place here. But we have to—to keep a fairly rigorous fire regime going in here to keep—keep woody materials out of the gilgai prairie.

David Todd: As you point out over the landscape, maybe you could tell us what some of your neighbors think about your efforts to restore the native prairie here.

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Jim Eidson: I think the neighbors are generally supportive. Certainly I—I think kind of getting it in the mind that we're going from kind of a—a tame situation, although it's native prairie it's not tame grass but it is native prairie. But in a—in a—a state where it is at the best that it can produce hay, which is going to be grass dominated and allowing more and more forbs, things like maximillian sunflowers to people that cut hay, that's kind of considered a weed, you know. "Why are you letting the weeds grow up in the prairie out there?" But—but I think that—that slowly but surely, people are beginning to recognize that—that we're trying to come out with a different outcome than what the people that were doing to manage this as a hay crop. It's—it's—it's something different, we're trying to take it to something wild, but certainly interest from neighbors. There—there's an

increasing interest in the area in using native plants, native grasses as forage crops, either for planting of a hay crop or—or improving pasture for forage. One of the things that looking around us in this landscape, the areas that are go back lands, if they go back

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to some semblance of a native community, generally they're of very marginal forage value. You're talking about really some of the weedier grasses drop seeds and three on grasses that get established in there. Farmers that are kind of, you know, we're in a transition agriculturally, you know. If the landscape doesn't develop the housing subdivisions is—is going to continue as agricultural land. In the last 40 years, we've gone from row crop agriculture in the black land prairie that's begun to drop off precipitously over the last 40 years with the commensurate rise in the number of acres dedicated to pasturage. And this includes hay fields and—and kind of on the ground forage for livestock. And farmers and ranchers landowners are kind of faced with the dilemma. Because on this go back land, they've got acres that—that are marginal forage. And they've got a choice whether to stock lightly and have, you know, quite a bit of land that they can graze with that marginal forage, or to go to tame pasture. And if they go to tame pasture and sprig it with Bermuda grass or go to KR bluestem or some of the other tame grasses, diversity just takes a nose dive. Because any kind of monoculture, even if I were doing little bluestem, you know, monoculture, that it's going to—it's going to reduce the diversity. But what we're trying to do—the Nature Conservancy is—is attempting to do, is to begin to get native seed stock based on local genetic material off of Clymer Meadow, little bluestem, big bluestem, Indian grass, switch grass and eastern gamma grass in production at a scale and at a price that farmers and ranchers can afford to buy the stuff in the black land prairie, target this for use within the 17 thousand acre landscape that we're dealing with here, and encourage people to use that to revegetate. If they're thinking about going with KR bluestem, they'll have another option. Perhaps

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they can go with a—a native mixture of five species that will be of this local genetic origin. So what we're hoping for over time is that, you know, we don't foresee that all 17 thousand acres surrounding Clymer Meadow are going to be waving fields of grass—native grass. But we'll begin to see patches, an increase in the number of patches of late successional native grasslands that have replanted, you know. It's not prairie restoration, but it is getting those prairie dominants out into the field. So that over time, we begin to reconnect pieces of remnant prairie. And pieces of these planted patches will become reconnected. And that long after I've gone from this landscape, you may begin to see Indian grass, big bluestem, switch grass and others in the bar ditch by the road as often as you see Johnson grass. It's just a—it's just a battle of the numbers. So the general concept there is that I—I think it's—the way that we have to look at—at landscape management, ecosystem management in these settings where, you know, humans have been here for years, the landscape is very altered. If we want to reinstate landscape scale of function into this landscape, it has to be through hu—human effort, you know. It's not a situation that you can take this out of use

but instead work with the people that live and work in this landscape to be the people that drive the increase in biodiversity and

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landscape function. And that should be for economic reasons. That farmers, you know, given the choice, would plant native grasses, you know, if it makes economic sense to do it. The economics of using these native grasses as forage crops is that they—especially these local genetics—genetic material is the fact that they have survived for tens if not hundreds of thousands of years in this particular landscape, have gone through the vagaries of climate that they will produce a forage crop when a lot of things—exotic things have gone belly up. And under the right conditions and the right management, this forage out here we've tested some of the hay cut of Clymer Meadow and it's produced a ten percent crude protein content, which is excellent. As a matter of fact, one hay crop I had analyzed here in '97 a forage expert told me that it would su—take a lactating cow through winter without supplement.

David Todd: This is without fertilizer.

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Jim Eidson: This is without fertilizer and this is—this is—was burn only was the only manage—management coming up to the cutting of the hay crop. So if farmers and ranchers are able to use these natives, produce a good protien content without using fertilizer and—and overhead that goes with that, the cost and also the environmental costs of doing that, it's—it's going to take us pretty far down the road.

David Todd: Speaking of going down the road, can you maybe talk about what you see as the big challenges environmentally in the future?

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Jim Eidson: Well—well, I think there—I think there are a bunch of them. You know, gee, I think one of the—one of the main things that—that's going to be an environmental challenge to us all, and this covers several areas, is how—how we as individuals have to adapt to—to changing environmental settings. For example, you know, environmentalists have been looked at for one thing as—as kind of looking at, you know, take the—the land out of the hands of the people and set it aside, you know, as a museum piece. And I think that we have to get away especially in most settings, except for, you know, certain wilderness settings where it may be appropriate. But in most settings that we deal with in Texas, people are well integrated into these landscapes. And I think that—that one of the—the main challenges that in conservation we have, is to develop technologies as to how to integrate people into these landscapes in such a way that biodiversity is either protected. Or in the case of the black land prairie, that it's increased. And when we talk about finding technologies to do that, we've got to figure out ways for people to make a living—a living on the landscape that—that those human populations thrive along with the increase in

biodiversity. And that—that example that I just gave about, you know, using natives some—some in some small way or maybe even in—in a fairly large way, people in cattle production, the economic incentive to produce cattle, make money, send their children to college, and other such things, is going to be a driving force behind getting native seed stock, native plants, native biodiversity reinstated within the landscape. And I think that's one of the main challenges and—and this goes kind of—this kind of jumps over to the us and them question in conservation and environmentalism is that we're all in this together, you know. There's not—there's not an us and them. I drove to work today and burned fossil fuels getting here for

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conservation purposes, you know. I'm involved in the system as well. But I think it's—it's going to be a major leap that we have to—to focus resources and our best thinking toward is how do we integrate human activity in a way that supports, you know, human populations in—in—a thriving human population in a way that increases bio—native biodiversity or protects it. And I think that's one of our major—majors jumps. And you can apply that across the board in terms of energy technology other such things, you know. But I think we're—we're reaching a point where we're going to have to really make a jump in the way that we look at things and it's going to be hard.

David Todd: I noticed when we were at the preserve headquarters that there were notes from children who visited the site. And I was wondering what sort of advice you would give to young people who might be interested in the outdoors and conservation?

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Jim Eidson: Well, to encourage them to begin with. I—I think one of the things and I—I mentioned my own childhood having a place to be outdoors. And that's something that—that in every urban landscape and rural landscape children need the opportunity to have that connection with nature. For me it was—it was unorganized, it was a creek in my neighborhood that I lived in. But there have to be open spaces protected where children can make that connection and there have—there's got to be a lot of them so that they can go out the back door and get to them without having to be carted in the minivan someplace. It's got to be right there in the neighborhood. But I've talked with—with kids every—every—I've had ev—everybody from kindergarteners to graduate students out here. And one of the things that—that has come up where kids are concerned about the environment, there's this sense of overwhelm with it that there's so many problems, you know, air pollution, water pollution, loss of habitat, you know, mass species extinctions. And I—I think that it's—that in a lot of ways for—for kids and young folks

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that that's—that's where kind of a source of apathy comes from. Is that it's so overwhelming is that there's nothing that they can do. There's the perception that there's nothing that they can do about it. And my advice to them, because I—I have some of the

same feelings sometimes, my advice to them is that you go find your corner of—of the world or your—your—your issue, your corner of the world and you fight the good fight. You go there and you do what you can and you dedicate, you know, your time, your life in some cases to that piece. And you can worry about the other things, but focus your energies on that one thing and dedicate yourself to that. Don't try to scatter gun across a million different issues and if we have a population, what is our population? Is it 250 million now? We have that many people that are focused, at least part-time as volunteers as—as—as voters or as future conservationist focused on their little 100-acre patch somewhere. That's a lot of conservation work that's going to get done in the long term. But I think kids have to get away from—from being overwhelmed by this and just pick their ground, fight the good fight, and then have something good to feel about.

David Todd: Speaking of that special patch, is there a place in the outdoors that you go to for respite or sheer pleasure?

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Jim Eidson: Well this—this is definitely one of them. I have the pleasure of getting—getting to kind of work up here, spend much of my time. But I guess places that—that have really influenced my thinking about the out of doors and about the environment generally has been my family land in Hamilton County. And kind of didn't grow up there but I certainly spent a lot—a lot of time down on the ranch. And I think anywhere—there—there's certainly more—there's more spectacular scenery, you know, it'd—it'd sound good if I'm, "Well I was up in the Rocky Mountains and that just stole my heart away", which I've been there and it's beautiful country. But any patch—any patch that is relatively intact I think is—is a source of great wonder to me and there are probably dozens of them that—that I've had some connection with. But I think the secret is for anybody to make that connection is repeated, it's—it's over time coming back to the same place and—and coming to the point that you—that you know the bird calls, you know the plants, you know the different seasonal aspects. And something tends to happen and—and I don't think it's just me. But other people that become owned by the land eventually is that it's not just—it's not just a familiarity and knowing the scientific names for things. It's—it's something that happens on a gut level that people make connection with the land and become owned by it. That's why there are so many volunteers on Clymer Meadow that come out here and, you know, bust their rear ends

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for hours at a time cutting brush and other such things is that they're making that—they're making that connection. And they get hooked. And so—so for me, there are a lot of places. And Clymer is definitely one of them, Park Hill Prairie is another place that's not far from here that my daughter got married there this weekend. So there's—there's that—there's—there's that connection that's there. But it can be a, you know, it can be a—a—a patch, a quarter of an acre behind the house somewhere that—that people are able to—to make those connections with. And I think especially children. I think especially children. It's that—that accessibility for them to—to have those special places is very important.

David Todd: Well thanks for helping us get connected with this nice spot.

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Jim Eidson: My pleasure.

End of reel 2114.

End of interview with Jim Eidson.