



National Park Service Paleontology Program

Oral History Interview – Eric Scott

Natural Resource Report NPS/PALEONTOLOGY PROGRAM/OHI—2021/002



ON THE COVER
Eric Scott

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Background

[Interview with Eric Scott from his home in California: This telephone interview was conducted Tuesday, February 2, 2021. The primary speakers are interviewee Eric Scott (ES), who is a research geologist and vertebrate paleontologist and presently Program Manager for Paleontology with Cogstone Resource Management in Riverside, California, and interviewer Vincent Santucci, (VS), senior paleontologist for the National Park Service, Paleontology Program, at home in Gettysburg, Pennsylvania. Erin Eichenberg (EE), Integrated Resource Program Manager at Tule Springs Fossil Beds National Monument and Jill DeStefano (JD), President and one of the founders of the Protectors of Tule Springs were also on the telephone call.]

The interview was recorded on a digital audio recorder and a mp3 file was created. A written transcription of the interview was produced from the digital audio recording, by TUSK volunteer R. Sky McClain, and this document contains the discussion during the interview. Eric Scott signed a release form for the National Park Service for the preservation and use of the interview in the future. If present, PII has been omitted.

Transcript

[This oral history interview is with Eric Scott, at home in California, and was conducted on Tuesday, February 2, 2021 by telephone with Vince Santucci from his home in Gettysburg, Pennsylvania. Eric is a research geologist and vertebrate paleontologist and Vince Santucci is the senior paleontologist for the National Park Service, Paleontology Program.]

2:15:11 (length of interview)

[START OF INTERVIEW]

VS: Today, is Tuesday, February 2, [2021] with Paleontologist Eric Scott. Eric has assisted the National Park Service with paleontology inventories and research in Tule Springs Fossil Beds National Monument, Joshua Tree National Park, and Death Valley National Park along with some other parks as well. We are joined today by Erin Eichenberg (EE), Integrated Resource Program Manager at Tule Springs Fossil Beds National Monument, Jill DeStefano (JD), the President of the Protectors of Tule Springs and Jon Burpee, the past Superintendent at Tule Springs Fossil Beds [National Monument] and currently the Superintendent of Lewis and Clark National Historical Park. Today's interview is being conducted over the telephone from Eric's home in California and so thank you, Eric.

ES: My pleasure.

VS: So, the first question is probably the easiest. When and where were you born?

ES: I was born in California.

VS: And can you briefly provide us just a little bit of background in terms of what it was like growing up until you wind up going to college. Was there anything in your life that drew you towards outdoors, nature, fossils, geology?

ES: Honestly, not particularly. It was suburbia. So we lived in a house. I would collect things like praying mantis and look really closely at pill bugs and stuff like that as a kid. But we didn't, my family didn't travel very much. A long, long trip to us kids would be from Burbank down to Disneyland. So, we didn't do a lot of road trips. We didn't do a lot of nature. And so, other than what I just described – looking at bugs in the yard, stuff like that. I didn't really get into nature or the outdoors. I did get into dinosaurs because there was some dinosaur books that my mother had purchased for me. Particularly the *How and Why Wonder Book of Dinosaurs*. I did form and retain a fascination with fossils and with paleontology but it was very geared towards that. It wasn't geared towards the outdoors much at all. And I didn't have many opportunities. It's Burbank. I can remember sitting in my classroom looking out the window at an outcrop of dirt in the foothills there on the school campus and wondering if it had dinosaurs in it. But that was about the extent of my experience with paleontology.

2:57

ES: I learned from my mom, when I was a teenager, that there was a volunteer program at a place in Los Angeles at a place called La Brea Tar Pits which at the time had a museum named the George C. Page Museum. You had to be 16 years or older and I was. So, I started volunteering there. I didn't want to because it's all Ice Age mammals. There's no dinosaurs there. And I was all about dinosaurs. But I figured, maybe I'd learn something with these fossils that then I can apply to dinosaurs when I become a dinosaur scientist. Very quickly I learned that there is all sorts of stuff that we don't know about the Ice Ages. It wasn't some period of time that had been studied to death. It was a very vibrant area of research. I really got involved and engaged with Ice Age fossils, particularly large mammal fossils at that point in time. What also came along with that though was the LA County Museum—which was the parent museum of the George C. Page Museum—would run trips out to the desert every Memorial Day and look for fossils out in the Mojave Desert. At a state park in California called Red Rock Canyon State Park. And that's when I started really getting exposed to the outdoors, camping in a tent and so on. And I had no idea what I'd been missing. And it was like a revelation. It wasn't just the fossils. It's like everything about this is amazing. Its fresh air and beautiful sunrises and gorgeous sunsets and fossils. It opened up a whole new thing. I realized paleontology was not just a hobby anymore. It was what I really, really, really wanted to do. In part because of that open air, outdoor component. So, from that point until now I was hooked on doing work in the field. Eventually I did go to college and had no idea what I wanted to do. I looked at geology classes and biology classes but there were no paleontology specialties. And then I discovered physical anthropology. The first thing they do is, "Hi, I'm Professor So and So. Here's a cast of a hominoid skull." And so that's when I started studying biological anthropology which was my academic background. But, I stayed with Ice Age mammals in North America and continued to do that thing.

5:45

VS: And so—

ES: That catches us up to college.

VS: Sure, so, what year did you begin your post-high school education and where did you go?

ES: I went to Cal State Northridge starting in 1980. Graduated in 1985 and then foolishly—no idea what you people in the future will think—but, I can look back in the past and say it was dumb to say I needed a year off but that's what I convinced myself. So, I took 1986 off. And then I spent a year at USC Medical School to study with a Professor named Charles Oxnard who was also an anthropologist and I liked some of his views on fossil primates. So, I went to study with him. Number one it became too expensive and number two, Dr. Oxnard moved to Perth, Australia and so the person I went to USC to study with was no longer available. The remaining faculty there were not as keen on osteology, biological anthropology, and so on as Dr. Oxnard had been. So, suddenly I was kind of left hanging. So, in 1988 I started at UCLA in Los Angeles and I worked on a Master's there and finished up in 1990.

VS: And did you do a Master's thesis?

ES: Yes, I did. I don't have the title with me because it's down in the office. But, it was on sexual dimorphism in recent and fossil skulls belonging to the genus *colobus*, colobus

monkeys. And what I was attempting to do again with the biological anthropology interest. At that time in the 1980's there was still a bunch of discussion about the fossils coming out of the Hadron Region in east Africa. And there were some people like the Institute of Human Origins who were arguing very strongly that Lucy and other fossils from that Region of Africa represented a single species named *Australopithecus Afarensis* and other scientists who were saying, "No, you have two species, a big one and a little one" and the IHO team would argue, "No, we have just a sexually dimorphic species where the males are substantially larger than the females". And so what I was trying to do with colobus monkeys, with multiple species within a single genus, was to see if there were certain characters that you could use to distinguish between species. That wouldn't distinguish between sexes. If you could take it beyond body size. If you see this sort of difference between one and another it might be a sexual difference but if you see this sort of difference between these two groups than it's almost certainly going to be a species characteristic distinction rather than simply a sexual distinction. It turned out to be much more frustrating than I intended because all of those colobus monkeys are relatively sexual dimorphic. And so the sexual blueprint kind of obliterated a lot of the interspecies – intraspecific differences. I did find a couple of morphological differences which remains my way of dealing with things today. Focusing, in many ways more on the anatomy, the morphology of the animals rather than on body size. Body size can change depending on your environment; depending on what latitude you're at and so forth. Whereas morphology is a little bit more consistence in my opinion. So, even though I have not gone back to colobus monkeys since the thesis what I learned there has informed my science subsequent.

VS: And you completed your Master's in what year?

ES: That would be 1990.

10:00

VS: 1990. And where did you go from there? Were you continuing to have a relationship with the La Brea Tar Pits or had that stopped for a while?

ES: No, that had not stopped. I should mention that when I started volunteering at the tar pits that was 1978. That's when my mother told me about the program. I volunteered there one or two, and sometimes three days a week right on up until 1985. At that point they hired me to be one of the excavators in the on-going excavation at that time was named Pit 91. And what Pit 91 was an intensive excavation at La Brea because they have well over 100 localities there. But so many of them were excavated back in the early part of the last century in 1913, in 1915. And it is very much we're digging down. We're digging up the Saber-tooth cats. We're digging up the dire wolves, occasionally we'll find a horse. But that was about it. It was all focused on the large mammals. Whereas Pit 91 was a pit that they started excavating in 1913 to 1915 and stopped and left it out in the open as an example of what these bones looked like when they are in-situ, when they are in position. Eventually that display was replaced with a different pit which today in the Hancock Park Campus at La Brea they call the Observation Pit and Pit 91 is buried. But, everybody knew it was there and they knew it was full of fossils. So in 1969 it was reopened and here the intent was to record the exact position and orientation of every fossil, every large fossil that they found in the deposit as well as to collect asphaltic samples for micro-fossil remains. These micro-fossils, the remains of small mammals and small rodents for research and so forth had not been represented in those earlier collections. So in 1969 they reopened the pit. There had

three excavators. They started everything working and then in January of 1981 that was shut down completely. I was a volunteer in the lab at the time and what you were doing in the lab was cleaning up and putting back together broken bones from Pit 91. So, when the county pulled the funding on Pit 91 they also pulled the funding on the lab. So, I couldn't be a lab volunteer at that point. So, for the next six months I remained a volunteer but I became a tour guide. And started doing tours at La Brea rather than working on actual fossils. And after about six months suddenly Shelly Cox, the laboratory supervisor, started showing up again. Apparently George C. Page, the man who donated five million dollars to build the Museum and as part of that Museum had insisted that there'd be a publicly visible paleontology laboratory. So anybody coming to the Museum could see the laboratory workers actually working on fossils. It is fairly common today but back in the 1970's, early 1980's that was it. La Brea was the only Museum that had that sort of exhibit display in the back. That it's now all over the place shows how popular that is. Well, if you shut that lab down and send the staff into unemployment and send the volunteers home, Mr. Page gets kind of concerned. After about six months of watching his lab being empty he said, "To heck with this." And he ponied up the money out of his pocket. He was a millionaire and he ponied up the money to bring Shelly Cox back and to restart the volunteer program. Another six months down the road the county finally relented and brought Shelly back on board as a Foundation employee of the Museum. All of that is background to the fact that the Pit, Pit 91, remained shut down because Mr. Page that it was ugly. He wasn't concerned about that. He was concerned about the lab. But, what happened in 1984 was the Olympics came to Los Angeles and the City of Los Angeles did not want the world to come to Los Angeles for the Olympics and see that the City couldn't afford to keep the La Brea Tar Pits – the world famous La Brea Tar Pits open. So, Pit 91 was opened for the duration of the Olympics. That's it. Just the summer. And that was my first hired job at La Brea. And then I remained an excavator and eventually after 1987 I became the lead excavator or the chief excavator up until early 1991. That's a lot of background.

15:20

VS: No, no appreciate it very much. So, two-fold questions. One's just a statement. Rancho La Brea is a National Natural Landmark which is a program administered by the National Park Service. But, the follow-up question Eric is: If you were talking to the general public and you wanted to tell them what the Rancho La Brea land mammal age was how would you do that?

ES: It's funny because that's a good question. I actually have some difficulties with talking to fellow scientists about it. But, to give you the background a land mammal age is a period of time. Actually see right off the bat I get it wrong. A land mammal age is an age that is characterized by certain groups of organisms or even just one, which are known as indexed fossils or indexed species. The land mammal age concept dates back to the early 1940's when scientists were trying to take big, deep stacks of fossil bearing rocks and then look at the fossils in them and say which one's are older? Which ones are younger? This was in the days before electro metric dating. Dating using radioactive isotopes. And so the land mammal age concept came up as a response to that. So, if you were to find a certain kind of organism in a fossil deposit it would indicate that the fossil belonged to the Miocene or the Pliocene or the Oligocene or to a subset of that period. With the advent of first radiocarbon dating as was tested in the field at Tule Springs and then later other forms of radio-metric dating. The need for relative dating using land mammal ages became less intense because now you could in many cases get absolute ages based on radio

isotopes. But the terms are still there. The Rancholabrean was actually not one of the original land mammal ages that were named in 1941. It was named I believe by a Berkeley scientist named Donald Savage in 1951. And it was characterized by the presence of extinct bison. And we can talk about bison more later. But the thing is the appearance of bison is what characterizes a land mammal age but the land mammal age is going to differ depending on whether or not you find bison and it's only going to apply to a given assemblage. If that makes sense. And maybe I'm already taking it too far for the general public but I wouldn't want the general public to think about a land mammal age as a span of time. It goes from 220,000 through 11,000 [years] because if I find a bison tomorrow that's 330,000 years old I've just changed the age of Rancholabrean. You can't have a pre-Rancholabrean bison because bison defines the Rancholabrean if that makes sense. So, it's a way of communicating roughly how old your assemblage, your fossils are without necessarily having radio-metric dates or radio-carbon dates. So, for example at Tule Springs if there was no dating there at all. If nobody had ever found any radio-carbon dates and we just didn't know. The fact that there were bison in that assemblage would mean you are in the latest part of the Ice Ages. If you had found a huge number of mammoths, camels, and horse, and everything else and no bison it might suggest that you were earlier than bison. So it's an index fossil and it provides a rough estimate of the age of the fossil deposit you are working on.

19:36

VS: And so how do you define the end of the Rancholabrean?

ES: The end of the Rancholabrean because bison are still with us, the end of the Rancholabrean would be the disappearance of the other Ice Age mega-fauna. Things like mammoths and so on. That becomes a more technical issue because, again, different large mammals disappear at different times. You wouldn't, for example, argue that the Rancholabrean ended 6,000 years ago or 4,000 years ago depending upon the dwarf mammoths from Wrangel Island for example. I don't know the exact date of those mammoths but still they survived for several thousand years after the end of the Pleistocene. They didn't do that at Tule Springs. So because it is a concept that is defined by the animals, when bison disappear from Tule Springs, that's when the Rancholabrean would end at Tule Springs. If you were to find a population of bison that survived longer in South Dakota, a fossil bison, maybe in the same species. Or a mammoth or a horse. Something like that that survived in South Dakota or Nebraska beyond it then Rancholabrean would have extended a little longer in that Region at that site. It still wouldn't apply to Tule Springs.

VS: Thanks. That was perfect.

21:14

VS: So 1991, anything happen in your life that changed the scenario for you?

ES: Yes, and this is uncomfortable to talk about but I'll go ahead and talk about it anyway. At the end of my career I actually had a two year Master's. And it was supposed to be a steppingstone to a PhD. To this day, even now, I'm not quite sure what happened but I had some sort of falling out with my major advisor and she no longer wanted to work with me. I mean what I say. I still don't know what I did to disappoint her. I know that I had – in order to do my study on colobus monkeys, I had gone back to the American Museum of Natural History in New

York to measure their colobus monkey skulls. And then I took a train down to the Smithsonian to measure and document their colobus monkey skulls. And when I came back I found out that, even though I had submitted the proposal and everything was good to go, I found out at that point that my major advisor had just decided she didn't want me doing that. And I'd already gone. I'd paid out of my own pocket. And so suddenly I found myself out of a program. I was told that I would not be continuing for a PhD and as you can probably imagine it's really tough to apply for graduate school for a PhD when you've just been kicked out of a PhD program. You can't lie and pretend that didn't happen. So you just have to—I still don't know what I would have done. I was definitely floundering and not sure what to do. And then I saw that a museum near Burbank called the San Bernardino County Museum was looking for a Paleontology Field Supervisor. Somebody to supervise the field work and go out in the field and do stuff like that. Because of my years of experience at La Brea and because I now had a newly minted Master's degree, even though that degree was incredibly disappointing because it wasn't why I had gone to school. But it is what it is, I was qualified for the job and got it. I was hired by somebody at the time she was the Project Manager for mitigation programs based at the San Bernardino County Museum. Her name is Kathleen Springer and she interviewed me. We hit it off pretty well. I'd already met her a few times before hand but this was the first time we really engaged one another and she decided to hire me. And that's when I started my career at the San Bernardino County Museum. My intent was to work there for a couple years. Get some museum experience under my belt and then see what I could do about going back to graduate school and getting a PhD.

24:15

VS: And you were at the museum until around 2016?

ES: 2015.

VS: 2015, ok. And, so can you summarize your work at the San Bernardino County Museum and particularly as it relates to National Park Service projects at Joshua Tree, Tule Springs, and elsewhere?

ES: No. (laughter) I was there for 24 years. That's tough to summarize. I will say that when I started there I was the Field Supervisor and they were largely doing – they were largely funded by paleontological mitigation. Which today I think many museums would frown on because it's almost a conflict of interest because we were a county funded agency. Essentially competing with private business. I didn't see that at the time. I just saw here's your paycheck and I said, "This is cool." I'm not sure what we do today however Kathleen was scrupulous in making sure that there was no overlap there. At the time we were not county positions. We were Foundation positions. Excuse me, Association positions. And all of the monies were funneled through the Museum Association. So there was no conflict with taxpayer dollars being used to supplement or vice versus and mitigation program. Because there was all sorts of work going on Kathleen and I and our team of field people managed generally to stay employed even when recessions hit. So, in 1993 we would see a lot of the collections and curatorial staff laid off but we would keep our jobs because we were working on various mitigation projects. And so that was actually a help.

26:11

ES: In terms of National Parks and National Monuments though I don't recall doing very much of that. I do recall in 1991 actually going out on a mitigation project to the Tule Springs region – to the Upper Las Vegas Wash. They were doing some flood control and as they're excavating they needed to account for paleontology because it's federal land. I should emphasize that at least these days California in addition to federal guidelines it also has several state and local guidelines that explicitly preserve fossil resources. So, if you're going to conduct an excavation in potentially fossil bearing sediments in California you have to have a paleontologist on site, a qualified paleontologist on site with some sort of program designed to recovering and preserve those resources. You can't just plow through them. Nevada, in the 90's, and to my knowledge still today does not have state-wide regulations that are similar to that, that act to preserve paleontological resources. But, because the Upper Las Vegas Wash in the 90's was Bureau of Land Management land mitigation was required. And so the San Bernardino County Museum went out there to survey the region where the disturbance was going to be conducted to collect any fossils that were uncovered and so forth. I went out there and participated in almost none of that because our first night there I got a phone call that my mother had passed away. And so I had to come back into town. So I left the other team out there. We were working with a paleontologist named Gus Winterfeld. I think he was with a group called [Danes?] and Moore, a cultural resource management company and we were subbing to them. We were subcontracted to them. But, I mean I woke up, had breakfast with the crew, collected 6,000 lbs. of sedimentary matrix for washing and then went back. Even at that time, despite what was going on personally, I was excited to be there, because in all those years I had worked at the Tar Pits, I had wondered about other fossil localities. And La Brea and other asphalt localities are really unique unto themselves because you've got multiple hundreds and hundreds and hundreds if not thousands or even millions of beautifully preserved and largely complete fossils and it's almost always meat-eating animals. And it is unheard for other fossil localities. But the scientists who worked there when I was a volunteer had all these giant libraries. And one volume that kept sticking out to me because it had pictures of bones was the 1967 volume on Tule Springs. And so I would pour through that and look at all the kinds of animals that had been found there. So, when I actually had a chance to go out there in 1991 it was almost like walking on hallowed ground. I was so excited to finally be at the Tule Springs site, the famous Tule Springs site. And then obviously in addition to personal stuff, I was disappointed that I didn't get to do very much except dig dirt. I didn't get to participate very much. In the mid-1990's there was more mitigation being conducted in the Upper Las Vegas Wash and so went out there and conducted that as well. And then in the early 2000's that's when the Harry Allen Northwest Transmission Line came in. And that was a Transmission Line that was going right through the heart of the Upper Las Vegas Wash. And this is when we really started to get engaged—at least from my perspective—with these lands that are now National Monument lands.

30:20

ES: Because we found I think three dozen localities and several thousand fossils. And at that time, as probably everybody knows, the whole Tule Springs discussion had been about the archaeology and whether early people were there at the same time as the extinct Ice Age animals. That was the whole drive of the Tule Springs Dig, in the early 1960's, in 1962 and 1963, was to really map out the geology, really map out the context and determine what the relationship of human made artifacts in the area was to the Ice Age fossil bones and fossil teeth. And the results of that were that all the archaeological evidence was from geological units that were younger

than the fossil-bearing units. So there did not appear to be any overlap between the fossils and the artifacts. And that's where it can stop. Once that volume was published in 1967 there was very, very little work done because the work that had been done was being driven by archeology. And the archaeology had been shown to not be connected with Pleistocene mega-fauna. But because the focus was archaeology there's still not that many fossils known. That sounds weird because you can go to the University of California at Berkeley today and they have multiple cabinets full of Ice Age fossils from Tule Springs. But they never received the attention that they might otherwise have received if you were looking at them from strictly a Paleontological perspective. They were very much a part of the larger—what was perceived to be—the larger archaeological story. And when that story fizzled the fossils were just not interesting to people. For us to go out and do a survey and conduct a mitigation program and do it just along this narrow strip of land. We weren't surveying the whole valley. It was just a narrow alignment for the tower, for the transmission line. And to find three times as many fossils on that alignment—let me say three times as many fossil localities on that alignment then had been previously reported from the whole region—that's when the BLM woke up to the idea that, "Wait a minute. There's a lot of fossils out here".

33:05

ES: Kathleen and I at that point had a sit down in person—this was the before times so none of us wore masks—we had a sit down with the BLM person at the time, Stan Rolf. And I have never forgotten that meeting because Stan was coming at this from more of an archaeological perspective. And I think, no disrespect intended to him, but he kind of highlighted the whole perception at that time which was, "This stuff is everywhere". He even said something like, "Well, what's one more bison tooth. What's one more horse bump?". It's like, "This stuff is everywhere so why should we care?". And Kathleen and I pitched to him that because of the context. Because this is not asphaltic because it's in the Mojave Desert. Because of being non-assemblage it actually was at the time and remains *unique*. And as soon as we emphasized that word *unique* you watched Stan go 180 degrees about. And he said, "Well, if it's *unique* then we have to protect it". Then boom. Suddenly the BLM was engaged in fossils as fossils rather than just as some supplement to the archaeological story. At the same time this is happening, Kathleen and I had been approached – the museum had been approached to do some work in Joshua Tree National Park.

34:39

ES: What happened there and stop me if you don't want me to talk so much about Joshua Tree. But, what happened there was that some people in the park in an area called the Pinto Basin had found the end of a camel foot bump. A fossilized camel foot bump. And they talked to at the time there local National Park Service person who was Dr. Gregory McDonald. And he recommended officially that a local institution such as the San Bernardino County Museum be retained to conduct an examination of the Pinto Basin Region. Now there again the Pinto Base Region was also well-known for having fossil bumps buried fragmentary fossil bones. Not as good as the stuff at Tule Springs but still they were there. And again they were part of what was perceived to be a larger archaeological context. If you read some of the 1930's papers about the Pinto Basin site it's very clearly an archaeological story and the fossils are part of that story. And then in the 1970's a paleontologist, originally at UC Riverside and then at the Natural History Museum of Los Angeles County, and then an Associate Curator at the George C. Page Museum,

which is how I knew about the Pinto Basin, a gentlemen named George T. Jefferson conducted a study in the Pinto Basin and he determined similar to but different from Tule Springs, in Joshua Tree, in the Pinto Basin there's almost always a wind blowing. And so the artefactual remnants, the Pinto culture that is represented there was associated with the Ice Age fossils through a process of geological process known as deflation. Where the wind is blowing. It blows hard and the lighter sand and gravel elements get blown away and the layer of the sediment goes down. And the larger things like projectile points and so on that are in those upper layers, they settle as the sand disappears and as the top layer is blown away and the fossil bearing older layer is exposed those projectile points settle in among the fossils. And they look like they're associated but it's an artifact of the way they were preserved. It's not an actual association. So in the Pinto Basin as at Tule Springs there was this long held perception of early people hunting Ice Age mega-fauna in these areas. And through time that interpretation was dismissed. It was determined to be either at Tule Springs there wasn't an association or in the Pinto Basin, in Joshua Tree, there was an artefactual association that was caused by standard geological and erosional processes. And the same thing happened in the Pinto Basin where once it was determined that early people weren't there at the same time as the organisms, worked stopped. Nobody was interested in the fossils anymore. And so when they found that camel foot bump and Greg McDonald recommended we go out there we started surveying.

ES: Actually, let me double back. There was a tour group that wanted to go out to the Pinto Basin and look around and talk about fossils. And Kathleen couldn't make it that day so I got it. And I'd never been to the Pinto Basin before. I don't even think I had been to Joshua Tree before. Just again, not an outdoors person. And so please feel free to laugh at me because here I am leading a field trip into this fossil bearing area. No idea where the fossils are. No idea what I'm looking at. Never been to the park before and yet I'm the guy leading the field trip. It was absolutely ridiculous. What was particularly ridiculous is that as we hiked into the Pinto Basin I noticed what to me looked like some good fossil outcrops down in the southern part of the Pinto Wash area up against the Eagle Mountains. And so I [said], "Let's go there." So we wandered to these outcrops and walked right up and there's fossil bones just lying there on the surface. I was so lucky. I looked so good to those people. They had no idea how lucky they were that happened. But there were fossil bones sitting there at the surface. And we then talked to the park.

39:19

ES: Kathleen and I wrote a proposal. Submitted it to the Park and the Park rejected it. They weren't interested. And we mentioned this to Greg McDonald and Greg said, "It's because you guys don't know what you're doing. When you write a proposal, you don't especially to a National Park unit," And Vince please stop me at any point if I'm being critical, but what Greg recommended was, 'You don't write to the Park saying, "Hi, your park has fossils in it. We want to find them. Give us money."' What you do is you say, "Your Park has fossils in it. As part of your mandate you're required in writing to determine the resources present to a certain percentage by a certain date, the resources within your Park. Since we know these paleontological resources are in your Park we can help you meet that need that you already have." And at that point we resubmitted a proposal. That was how we phrased it. Boom. We got money to go into the park and start doing the work.

ES: So, always if you're going to ask for money. You're doing something to help the entity that you are borrowing money from, be it a National Park, a National Monument, or what have you.

Writing [for] money to say, “Hi, we want to come in and find fossils”, isn’t necessarily the best way to do it. So again a long-winded answer to your question but it was actually in the early 2000’s that we really started to engage with National Parks, National Monuments, and federal land. And that was a conscious decision by Kathleen Springer who said, “Let’s move away from these short-term, limited, local mitigation projects. Let’s start focusing on these larger things that had a research component built in and focus on doing that.” And so it was all part of a very deliberate design of hers to start working on some of these larger projects. Again, at the time Tule Springs was still Bureau of Land Management land but Joshua Tree is very much National Park land. And so we were working with two federal entities at that point.

41:33

ES: In 2003 and 2004 the Bureau of Land Management gave us funding to survey the entire Upper Las Vegas Wash as part of something. I should have this acronym – The Upper Las Vegas Wash Conservation Transfer Area where there was a talk in Congress at the time to take federal lands in one area and transfer them to a different area. And then free up lands in and around Las Vegas. And if I recall correctly the idea was that the economy was booming in Las Vegas at the time. And land was extraordinarily valuable. I believe, if I recall correctly, that an undeveloped acre of land in Las Vegas could go for a million and a half dollars. And so if you were to do this Conservation Transfer you could generate billions of dollars simply by moving these federal lands to a different Region and freeing up the lands in and around Las Vegas for private ownership and development. Prior to doing that we were retained and by then – if Kathleen were here she would just refer to it as a Tule Springs do-over. We’d been out to Tule Spring enough that we knew the Region. We knew the fossils. We even knew some of the collections. So we were the ones hired to conduct a survey of that whole area. We were working on it in late 2003 early 2004 and we found well over 400 different localities. Again, this was a paleontological wealth that nobody had keyed in on before. It was hinted at in our mitigation project, with Harry Allen Northwest Transmission Line but here was proof in the pudding. Where these fossils were just really abundant and this was an amazingly rich paleontological resource that had not been exploited at this point. Now once the survey was conducted we then needed to wait several years before the Bureau of Land Management could fund the actual field work because field work is a small percentage. The fun percentage in many cases but it’s a small percentage of the actual work. You find a fossil in the field. You dig it out. Sometimes you put a plaster jacket around it to help preserve it and dig it out of the ground and get it back to the laboratory. But then you have to clean that thing up and you have to put all the broken pieces back together and you have to stabilize it and preserve it so it is preserved in perpetuity. And then it has to go into a museum collection and the collection spaces need to be funded as well. And so there’s a lot more work that goes in at the back end of paleontological discovery than just the upfront field work. And in order for us to conduct the field work and collect those 438 localities you needed not to just the funding to send us to the field you needed the funding to cover all the rest of it. All of the preparation. All the curation. Everything had to be built in. And so there was a lag time between 2004 when the survey finished and 2008 I believe when they started really seriously funding us to actually do the fossil collection, to revisit all those localities. Make sure the fossils were still there. And then get the fossils out of the ground. Clean them up, put them together, and put them in a collection. While that was going on we were still also going out and doing annual and semi-annual survey’s in the Upper Las Vegas Wash. Excuse me, not the Upper Las Vegas Wash – I

meant the Pinto Basin. We were doing that as well. So, those were our two major areas of focus during that period of time.

45:37

ES: We also did a little bit of work towards the end of Kathleen's tenure and my tenure at the San Bernardino County Museum. We started doing some work at Death Valley [National Park]. Because of Kathleen's geological work with other scientists like Jeff Pigati of the United States Geological Survey (USGS), there was an increasing recognition that all sorts of fossil deposits throughout the Mojave Desert and the American Southwest are all the same sorts of ground water discharge deposits as what you see at Tule Springs. So, with Tule Springs kind of acting as the hub and anchoring things, because not only did it have the most abundant fossils, it also had the most interesting record in terms of archaeology and in terms of paleontology and in terms of history. It just remains a unique locality. But, it also could be used to inform all of these other sites. There's a site near Shoshone, in California near Death Valley called Lake Tecopa. Well, it turns out it wasn't so much a lake. It was more ground water discharge deposits. And sediments in the north part of Death Valley interpreted to be lake sediments, or playa sediments, turned out to be more ground water discharge deposits. And so Kathleen with her connections with the USGS started getting involved looking at Death Valley. I got to go along for the ride in case any fossils came up. So that was a lot of fun, exploring a brand new area. And even though those were the major federal areas where we had worked there are still so many other localities out there that remain to be explored that still had that same kind of geological depositional setting where there ground water discharge deposits - they were deposited at the end of the Ice Age. You can reasonably expect to find some Ice Age fossils in there as well. And so even though we had been fortunate enough to work at Tule Springs, and then Joshua Tree, and then Death Valley there is still so much more that can be done. In each of those areas as well as throughout the Mojave Desert.

VS: Excellent.

48:05

VS: So, I have just a couple of more questions. What I want to do is to take us through all of the pre-Monument discussion of Tule Springs and then I wanted to allow Erin and Jill and Jon to ask questions. And then if you are still willing to spend a little more time then we'll start talking about the establishment of the Monument and the post-Monument portions of the Tule Springs history. So, a personal question Eric is that I think you are well-recognized in the scientific community as somebody who specializes in Neogene or Pleistocene mammalian paleontology. How do you see yourself and what do you think your area of expertise is? And finally how do you think that came to be your area of expertise?

ES: Oh, I [pause] It's a good question. I honestly don't know how I'm perceived by the paleontological community. I tend to think I'm over-perceived. That people think I know more than I do. I still mentally feel very much the student. Not so much college student. But, still - I'm still learning these things. Just as an aside, I'm supposed to be writing up a fossil horse from the Yukon and it's ok - well that's great. I'll start and start reading all this Russian literature. Not in Russian, I can't read Russian. I can't even fake a Russian accent. But you know, it's not that I know all these things blah, blah, blah. It's quite the opposite. I'm just enthusiastic about these

things. The answer I just gave you should convey that I think I'm generally perceived as a specialist in extinct Ice Age horses and Ice Age megafauna, more generally. Pretty much almost exclusively, not entirely anymore, but almost exclusively in North America. And that started going back to my La Brea days where I was a volunteer and still wanted to be a paleontologist. But, had kind of given up my dream of working on dinosaurs because I had discovered that Ice Age animals were cool. And I noticed that every other scientist there had an animal that they specialized in. So George Jefferson was studying fossil bison and Chris Shaw and Tony Tejada-Flores were studying Saber-tooth cats. And Bill Akersten was studying Saber-tooth cats and Shelly Cox was studying Ice Age bears. And Sherri Gust, who I would later work with at Cogstone Resource Management. She was a research associate and she would come in and study fossil sloths. And Greg McDonald, who I first met at La Brea was also studying fossil sloths. So, all of these other people that I encountered, the professionals all had their own field of expertise. So, I figured if I'm going to be a professional I need an animal. And the only animal that nobody was looking at was fossil horses. And so I figure, "Ok, I'll do that". And I've been doing them ever since. And that's ridiculous but that's actually what happened. It wasn't that I grew up with any deep love of horses. I grew up in Burbank. We didn't have horses. I wasn't interested in horses except maybe Trigger when I was watching Roy Rogers on television and that was about it.

I can remember when I started measuring horse teeth at La Brea and the Collections Assistant at the time, a geologist named Jim Quinn came in and said, "What are you doing?"

[I said], "Well, I'm measuring horse teeth."

And he said, "Well, what questions are you answering?" And he caught me just cold. Because I wasn't answering questions. I was just measuring horse teeth because that's what everybody else was doing with their animal. So, I might as well just start. It was actually a good place to start because it got me familiar with horse teeth to begin with. And with horse anatomy to begin with. Because I was a volunteer I was—ok, a little bit of background. The collections at La Brea, at the time was the George C. Page Museum, there were two major collections. There was the collection that was coming in actively from the Pit 91 excavation starting since 1969. And then there were all of the fossils that had been collected between 1913 and 1915 that had spent decades and decades and decades in the basement of the Natural History Museum of Los Angeles County down in Exposition Park. When the Page Museum was built all of those fossils were brought to the tar pits. But they were brought there and they were put in new shelving units but they still had decades and decades worth of dust on them. And so when you weren't working in the paleontology lab taking—Hello?

[short break in conversation as Eric thought phone line was disconnected]

ES: Ok. When you weren't working on the Pit 91 stuff you were working in the back of the house on what were called Hancock collection fossils from that 1913 to 1915 excavation. So when I decided that horses were going to be my thing I became the volunteer responsible for washing and cleaning and organizing all of the horse fossils. So that's how I got a basic understanding of horse skeletal anatomy. And to this day I think it was extremely fortuitous because it was hands-on. In all honesty, no disrespect intended, but I would not have been able to do that with the collections out at Tule Springs for example. Because yes there are horse fossils there but in most cases they're extremely fragmentary and you don't have all of the skeletal

elements preserved. Where-as at La Brea there's thousands of horse bones there with every skeletal element represented. You even get ranges of variation from four adults to juveniles to pre-natal individuals. And so I was really fortunate enough working with that as a volunteer to be able to really learn my horse fossils. And then to start applying that to other sites.

54:54

ES: Now, one of the interesting things about learning horses was that the naming of the La Brea horse was considered by many to be problematic. The name of the horse, the scientific name of the horse is *Equus Occidentalis* which means Western Horse. And that species as currently defined is named off of a single tooth from an unknown locality in Tuolumne County, California. And normally when you are naming species that's not good enough. And so I could see this idea early on that I could rename the species based on the material at La Brea Tar Pits. But before you can do that you need to compare it with other fossils. One of the other fossils that I wanted to compare it with were the horses from Tule Springs. If you go back to that 1967 volume there is a beautiful full-page illustration of a lower jaw of a horse. And I so wanted to go wherever that fossil was and look at those. I don't recall if the book even talked about where the fossils were so I wasn't really in a position to go look at anything except that picture which believe me I poured over with a magnifying glass. Because that was such a complete lower jaw. And so from the early 1980's on to today I've been studying fossil horses. I have branched out from horses in more recent years. I've studied, started studying fossil bison. And then we picked up bison in the early 90's when we found a partial bison skeleton on one of our Memorial Day trips out to Red Rock Canyon State Park. And so to put that in context I was writing a paper on all these fossils and had to start learning more and more about bison. And then in the mid 1990's, starting in 1993, the San Bernardino County Museum started working with the Metropolitan Water District of Southern California on what at the time was called the Eastside Reservoir Project and what is now known as Diamond Valley Lake in California, outside of Hemet, California. Much to almost everybody else's astonishment when you're digging excavation that's five miles long, two miles wide and goes down a hundred and forty feet, you're going to start hitting fossils. And so we did start finding fossils including bison, including horses and including a lot of mastodons. So at that point I had to start learning about mastodons as well. While I would love to be the smart guy and say, "Oh yes, we've always had these questions about blah, blah, blah." It's been quite the opposite where I've been kind of stumbling along behind whatever presents itself at the moment. Horses were the only animal to not be worked on at La Brea so I picked them. Bison were the only animal at Red Rock Canyon to be represented by partial skeleton so I started working there. Mastodons were among the most common, hugely most common large mammals found at Diamond Valley Lake so I started learning them. But because of my experience at La Brea I was able to – I knew where to get the references. I knew who's brains to pick when I didn't know something and so I was extremely fortunate to be in the right place at the right time.

58:36

VS: Great, thank you very much. So what I'm going to do, I am going to go ahead—Erin first; Erin do you have any specific questions for Eric pre-Monument?

EE: Hi, Eric. I actually have two questions for you. So, the fossil localities at Tule Springs Fossil Beds had various site names that appear to be designated by paleontologists who have worked in the area throughout the years. Did San Bernardino County Museum relocate any of the historic

sites from the Tule Springs Expedition, Mark Harrington, or Fenley Hunter Expedition? And can you tell us about your knowledge of the naming convention for these fossil localities? For example do you know the origin of the fossil locality names for the Super Quarry, Camel Quarry, and the Tule Mammoth Site?

ES: Let's see, first off, yes we relocated some of the earlier localities. We didn't necessarily know it at the time because we didn't have accurate point information. If you look at some of the earlier publications there'll be a map of the whole wash area and there'll be a little star in one area saying, "Oh, we found such and such here". There wasn't the opportunity to really drill down because the entire Upper Las Vegas Wash has fossils in it. So, just because I find, let's say, for example a bison tooth here and Harrington in the 1950's mentioned finding a bison in that area it's because bison are present in the fossil record. It's not necessarily the same site. One locality that is the exception—I still love this—was what we called our Site Stewardship Quarry. Where it was an outcrop on a small knob of land that originally appeared to have been vandalized. It had an exploded tusk that seemed oriented almost vertically in the ground. And then it had some ribs at the surface. I want to say this is 2004 where we went out to that site because somebody had looked at those ribs and seen what appeared to be cut marks. I'm trying to remember the name of the archaeologist. It's not coming to me. It might hopefully later or if not I can e-mail you the name. But the archaeologist—we were out there with Stan and the archaeologist, now I'm kicking myself. Kathleen will remember—looking at this rib and it's clearly exposed at the surface and the surface has clearly seen a lot of damage including from ATV's. And so finding damage to bones is just not a big deal. But, to the archaeologist at that time they were saying, "Well, these are cut marks. This is clearly the most significant site in the whole area". Through her it was the most exciting site. Subsequently, obviously we no longer have that interpretation. The more we excavated we even found a plaster jacket that had been excavated earlier. I don't know honestly how many years later – again we found out on the survey and we didn't go back out into the field to collect anything for another several years. So, we knew it was there. We originally interpreted it to be potentially vandalized or at least damaged by modern activity but we went back out and started looking and we had been asked by the Bureau of Land Management and we had worked out with them that we were going to develop a Site Stewardship Program. Where we would have a classroom and we would teach people. These are the basics of anatomy. I'm not talking about this is a femur. This is a humerus. Just this is what a bone looks like. This is what tusks look like. This is what a tusk fragment looks like. This is how you distinguish a fragment of bone or fragment of tusk from a fragment of PVC pipe. Or from part of an air conditioner. Or something like that. And that might sound dumb but it really did help so we could send volunteers out there and they could survey the area and look to see if there were any fossils coming up. Then we would give them one day of experience which we divided up into two sections. There would be half the people would walk out with Kathleen and look at the geologic units and try to come to a better understanding of the context and the others would go to this quarry. This Site Stewardship Quarry where the tusk was. Where the ribs were. Where that old plastic jacket was and start excavating it. We'd grid the whole thing off. We'd set up a grid system and people would work within their grids and so on. Then middle of the day those two groups would switch. The one's who went out to look at geology in the morning would excavate in the afternoon and vice versus. It worked out really well. It was really well-received. But at some point I was doing some background work with one of Harrington's old volumes from the 1950's. Either Harrington's or Ruth DeEtte Simpson – I think they were both co-authors and there was a map in there of a locality that they had collected

and it was our quarry. And we had never keyed in before. But it even had pictures of ribs at the surface. It had a picture of where the tusks were. They had even gridded it off almost identically as how we had gridded it off. So, we were looking at a site that had been excavated back in 1955, 1956. There's photographic evidence of that work going on and we were working in that same quarry. So, it wasn't vandalized and it wasn't evidence of early humans butchering bones. It was a previously worked quarry that had been interpreted to be a mammoth kill site and when they started digging there and realized there was no artefactual association they stopped work there. And the bones had been sitting ever since. Interestingly that site produced a femur, a complete mammoth femur and I've no idea where it is to this day. I'm not sure if I'm supposed to say that but I will. So, if they still haven't found it in the future you guys should start looking for it. It was a complete mammoth femur from that quarry. I do know that a paleontologist named Phil Orr was brought out from the Santa Barbara Natural History Museum to help with the excavation. To help the archaeologists do the work. And he is reported to have collected some of the fossils that he thought were really key and take them back to the Santa Barbara Museum of Natural History. I've been to the Santa Barbara Museum. They have a mammoth tooth from that quarry. I believe they have a camel neck bone from that quarry. But they were unable to locate a femur. If the femur was something that Phil Orr took that Museum doesn't know where it is. And if Phil Orr didn't take it then I don't know where it is either. For those of you familiar with Tule Springs complete bones are rare enough. A complete mammoth femur is almost unheard of and so re-locating that fossil, if it hasn't happened, would be spectacular. In any event that is one example of us relocating an earlier quarry and even though we had already worked it. It was later that we realized this is some of the early work in this area. This is where they started.

1:06:40

ES: The other locality that we caught right off the bat is what's known as the Tule Site. We bare no responsibility for that. We relocated the site and I think Kathleen and Jeff Pigati have recently demonstrated that it was an older site as well. When we first found it, it was a big cluster of broken mammoth bones sitting at the surface. And it even had paint cans and cans of thinner that were empty and their paint can was uncovered and full of sediment. But it wasn't recent litter. It had been left behind by the excavator's in the quarry. I'm pretty sure it was part of the 1962-1963 excavation. But, Kathleen could probably give you better perspective on that. Nevertheless, when we found that those remains had been sitting baking in the sun and freezing during the winter along with the equipment that the scientists left behind for decades. And we left it in place. Since then the paint can and the thinner can have been moved and I think some of the bones may have moved a little bit.

1:07:50

ES: But we did not have anything to do with nick-naming that Tule. Tule was nick-named popularly by the Protectors of Tule Springs. When they were driving back before Tule Springs became a National Monument they were some of the chief people driving the idea that this area needs to be set aside and preserved. Not just preserved but preserved as a National Monument and they were very clear on that. Kathleen and I and our team from the San Bernardino County Museum were providing the scientific perspective but it was the Protectors of Tule Springs who were invested personally. And they provided the enthusiasm and the passion and getting the word out and talking to people. They would talk to everybody at the drop of a hat. But, if you mention the juvenile mammoth quarry that's not really going to sell it as hard as Tule the Baby

Mammoth. That naming really, really helped I think get people excited because now it's become more personal. Now it becomes something they can own. So, that was a stroke of genius I think on behalf of the Protectors of Tule Springs. In the case of some of the other sites like the Camel Quarry I'm sorry I'm just going to have to call it. It's because it had camels. The Super Quarry was a huge excavation. We took almost a year if not over a year on the Super Quarry. Because it had so many darn fossils in it. It's was just an incredibly rich deposit that just went on and on and on. Super Quarry was dubbed. I'd love to come up with something more creative but you know in many cases with nicknames like that, once you name them they kind of stick. I don't know of too many sites that got nicknames. I tend these days not to nickname things because nicknames are best when they happen naturally.

ES: After I left the County Museum and started working at a place in Orange County called the Cooper Center. And after a year there I moved to a mitigation company called Cogstone Resource Management. That's who I work with now. And coming into an existing paleontology program I learned that it was common for anybody funding a nice fossil the discoverer was asked to come up with a nickname. And quietly I will say that I think that's forcing it. Nicknames happen because they're serendipitous. So we have a bison nicknamed Marshmallow. I don't know why. It doesn't look like one. I prefer things to happen just the way they are. So Camel Quarry is because they're were camels. Super Quarry's because there was so much material. But, again Tule, the Baby Mammoth, that is the responsibility and the honor of the Protectors of Tule Springs for coming up with that one.

EE: Thank you.

VS: Anything else Erin?

EE: No, I think that's it.

1:11:06

VS: OK. How about you Jill?

JS: Yes, Hi Eric. This is fantastic. I love to hear everyone's background before I knew them and how they got where they are and thank God you did. So my question would be when you all documented the 436 fossil sites and years later started going back to those sites and removing fossils and curating them. In the beginning what did you think was going to happen to that land and was there an urgency to get these things protected? And then when did you and Kathleen or did you feel that maybe the site would be protected forever?

ES: I don't know how to answer that short. I haven't answered any of your questions in short version. They've all been long form. So, I apologize for droning on and on. I think we were right from the get go. Not so much in the 90's. In the 90's again, our main focus was mitigation. So, you're going to be digging detention basin, we'll get the fossils out. You're going to be digging a transmission line. We're going to get the fossils out. But after Harry Allen Northwest when we had to sit down with Stan Rolf [archaeologist, BLM] and convey to him how important this was. Even then, I think, both Kathleen and I were thinking, "You know, this can't happen." They're talking about transferring these lands. They're talking about making them private lands. Right? The whole conservation transfer idea was to transfer these lands out of federal ownership. Federal ownership picks up somewhere else and now all of this becomes publicly, excuse me

privately, federal land that people can purchase. They can build houses. They can build shopping malls. That's back when shopping malls were a thing. And so forth. And because Nevada did not have any state laws protecting these resources that meant everything would be lost. All of those fossils we were looking at would be gone. It would all be bulldozed. Because once you're not federal anymore there's no protection for them in the state of Nevada. Just as an aside I still think that is something Nevada – it's such a no brainer. I don't know why Nevada can't do that. Protect the darn fossils. But, be that as it may. Kathleen and I really saw this as an opportunity to set the areas aside and preserve them and do the work. So, when we're finding the fossils we're getting very, very excited about what we're finding. We're finding so much that nobody anticipated. I think I can say by the mid-2000's both Kathleen and I thought that a National Monument or National Park designation would be the safest thing. At the time I was, I still am in a society, a society called Society of Vertebrate Paleontology (SPV). At that time in the mid-2000's I was on a committee with SPV, which at that time was called the Government Affairs Committee. We were involved working with the federal government with what would eventually be called, become the Paleontology Preservation Act. But, as part of that learning curve - Again, this is me stumbling behind things rather than taking the lead on them. But as part of that I started learning the ins and outs of different federal agencies varying responsibilities to paleontological resources. And so for example in the Bureau of Land Management yes fossils are protected but if you wanted to pick up a rock or something and take it home with you, you pretty much can. Because it's Bureau of Land Management land. And rocks are not protected. But what if you are a member of John Q. Public and you can't tell the difference between a fossil bone and a rock? And you inadvertently pick up a fossil and remove it from the site thinking it's a rock and you've just destroyed the context of that fossil forever. That can't happen in a National Park or a National Monument. At least not legally because there you can't remove anything unless you have a permit. So there's no public – I can't go to Yosemite [National Park] and start collecting pine cones and throw in the back of the truck and take them home. That's illegal. Same thing with Tule Springs. Kathleen and I, and I'm not trying to speak for her, but we were pretty much on the same page of this. But the best way to protect Tule Springs was as part of the Park Service. So, the regulations that were in place would ensure that nobody's going to randomly pick up a horse toe bone or a bison tooth thinking it's a really wacky rock and take it home with them. On BLM lands, no disrespect to the Bureau of Land Management, but on BLM lands that protection didn't exist. Now, even though that was the case Kathleen and I were working on a contract, on a research grant from the Bureau of Land Management. So, we aren't in a position to say, "Oh, this shouldn't be BLM land. This should be something else." Because we were constrained by the fact that we're already working on the BLM land. That again, is why having the Protectors of Tule Springs lobbying very hard and frequently asking Kathleen and I, "Can you come out and talk to us about fossils?" Well, both of us will talk about fossils until the end of time if we're allowed to do so. But, we would do it as representatives of the Bureau of Land Management and the same for the County Museum. We would provide the science, the context, the background and then the Protectors of Tule Springs would then go forth and say, "Do you see the importance of these resources? This is why this needs to be a National Monument. This is why it needs to be preserved at that level. Not simply at the BLM level." So, that's eventually what happened. But, I think from the early 2000's, and definitely by mid-2000's both Kathleen and I were both convinced that this needed to be a National Monument designation and extremely hopeful that that would be how things ended up. So, we were just ecstatic when it actually happened. There might have been dancing. I won't affirm or deny that.

It was very exciting and very deserved. Of all of the ground water discharge deposits in the Mojave Desert Tule Springs above any of them warrants preservation as a National Monument. Again, that's not something I was able to say when we were sub-contracted working on the research grant from the BLM because that would explicitly mean removing those lands from the Bureau of Land Management jurisdiction and moving them over to jurisdiction of the National Parks. It was a bit of an issue for us. We were very, very clear that that was what we wanted to have happen.

1:18:44

JS: Thank you. Just one other question. When Ted Fremd was brought out or dispatched by Jon Jarvis, the Western Regional Director of the National Park Service, to come out to Tule Springs and do his study or papers I think he spent two or three days with you and Kathleen out in the field. Can you tell us some about that visit? He didn't visit with the public until after it was all over and I've always been curious about what you showed him if you remember? And what he seemed to think at that time?

ES: What we showed him is what we would show lots of people. It's just as you know when you would lead field trips out there. You would frequently take people to the Tule Site and show them that. And that's because that's about the amount of time that you had. Whereas with Ted, he was out there for multiple days and so we could show him Tule. We could show him the Site Stewardship Quarry. We could show him the site where there's two tusks and all you see is the rings of the tusks exposed because the rest of the tusks are presumably going down into the hillside. Kathleen could take him aside and show him the geology. We could take him to the old geotechnical trenches and walk through the history of the region. We could do all of it because we had lots and lots of time. So basically that's what it was, days of taking him through all of the different aspects, again, emphasizing the importance of this. At one point, "Ted is a paleontologist. He's a vertebrate paleontologist. He's done this for a living". And like others we were able to walk him up to one area in particular where the ground was relatively thick with bones but because it was dry and dusty and the dust had blown over a lot of the exposed bones you had to look really carefully to notice that's a bone and that's a rock. And so we would frequently take people to that part of the Upper Las Vegas Wash and just wait for them to notice. And Ted – it took him a few minutes but I mean he is a paleontologist. He keyed in much more quickly than other people have been known to. But still I think that site in particular was like, "Wow, you weren't kidding. This stuff really is everywhere. It's all over the place." And the answer was 'Yes. It absolutely is.' So, there was that. There was Kathleen taking him aside to talk about geology. I will confess now for all of time that watching geologists talk for hours on end about geology, for me at least, is excruciating. It's just so dull. I'm sure it's exciting and provides context for the fossils but I want to get out and find some bloody fossils. But the good news is I was out there with a camera so I took lots of pictures of things. And we still have those pictures today. I was recently reading a book called, *The Log from the Sea of Cortez* by John Steinbeck and he talks about how all exhibitions should have a dedicated photographer. Because apparently they took camera equipment with them and never got around to using it. And so there's no pictures from their expedition. So, he recommended always having a photographer. If you can't have a photographer try having a bored paleontologist who doesn't want to hear more geologists arguing about geology and just wants to wander around with his camera taking pictures. You'll probably fill in the same gap. So, no disrespect to Kathleen or Jeff Pigati or any

of the other geologists that are out there. Chris Sagebiel was the Curator of Geology for the San Bernardino County Museum and I would frequently watch he and Kathleen and Jeff and Craig Manker, one of the field people, arguing about the geology in minute detail. And I'm going to wander over there and take pictures of a cactus. I'll catch you guys later. But, now I'm glad I did because we have all these pictures from that period of time.

JS: Very cool.

ES: Anyway, that's what happened with Ted. I spent part of the morning taking pictures of a desert tortoise from a distance. Ted was very excited about that. But, it was basically taking him around and showing him the same stuff. But because it was a prolonged thing we had more time to do it.

JS: That's great. Thank you.

VS: Thanks Jill. Jon, do you have anything?

JB: So Eric, first of all fascinating. I really appreciate you sharing so much of how you got to where you were. But also the efforts you were undertaking both in the 90's and then beyond at Tule Springs. We had an opportunity to interview Vance Haynes and learned a little bit about what it was like to actually work on the ground in the 1960's. What are some of your remembrances of actually working out there at the edge of suburbia essentially?

1:24:12

ES: (Laughter) I strongly recommend it. So many times you hear stories about people in the field. And again I mention Red Rock Canyon and you're in a state park but still living out of your tent and eating camp food and stuff like that. When we first started going out to Tule Springs back in the 90's there was a curator at the time at the Museum named Robert Reynolds. He was all about we're going to camp. And it's like, "Why? We're next to Las Vegas". Back in the 90's—I think these days are gone now. Any of you Vegas-ites can confirm this. But back in those days there was this idea in Vegas that we're going to keep the food at the casinos phenomenally cheap because we want people spending money on gambling. I remember going there with a student friend of mine named Rikka [Naminki?]. Driving through Vegas and she and I went to an all you can eat buffet and had all we could eat. Back in the '90's for me that's like a dare, I could pack food away back then. Not so much now. But anyway, and the two of us got full meals with tip for \$11. It was obscenely inexpensive and I think those days are gone. But still when we're going out there in the '90's it's like why can't when we can just go out there and work the entire day and then drive into town and have the world's cheapest meal Cheaper than if we bought food at the market and then sleep in a room. Which is what we did that first trip. When we started returning in the 2000's we did the same thing. The camping just didn't make sense with Vegas right there. And we had the Station Casino's and then later the Aliante Casino opened up. And because they were brand new they were offering like \$20 a night, \$25 a night. I don't think they offer that now but they did at the time. So we get in this rock bottom rate in these gorgeous rooms. So, you wake up early and you have a nice breakfast. You head out to the field. You work until sundown. You come back into town. You have a nice shower. You go down to a nice dinner and it's just heaven. Try that in other areas. You know, that's not how East Africa works. We eat in East Africa. Don't get me wrong. But, the meals have to be shipped to

the site where here you just go in and it was wonderful. We were able to check things like e-mail once e-mail was invented. So, there's all sorts of advantages in doing that. I did not really know Las Vegas that well and once we started working in the Upper Las Vegas Wash if I got more familiar with North Las Vegas rather than Las Vegas proper. I don't recall ever really going down to the Strip or to the big, exciting areas of Vegas. We pretty much stayed close to where the fossils were. But, still it was wonderful working in those areas. The first time we went out there in the '90's, again, we did not want to camp. We wanted to stay in a hotel. But, because I'm an idiot, and again this is 1990, 1991—'91, there are no inter-webs. So, I can't look anything up and I don't know there is a difference between downtown Las Vegas and the Strip. So, I found this hotel in downtown Las Vegas and I thought, "We're going to be in the center of everything." Well, no we weren't. I think it was a place called the Fitzgerald Hotel. Which was not quite what we expected. But, again it was cheap and it was close to where we needed to be so that's where we stayed when we were out there that first trip. Subsequent to that it was all in North Las Vegas. We just stayed close to the fossils. And ate really well. Oh my gosh. Even though prices have gone up for the food it was so good. But, then you'd work it off the next day so it was win-win.

JB: That's great. Thanks, Eric.

VS: Thanks, Jon. So, Eric the Monument was eventually established and so I wanted to talk a little bit about the post-Monument phase of your relationship with Tule Springs. You were now going to be working with the National Park Service. You'd had very good experiences with BLM and so you were extremely helpful to Erin and myself and others, eventually Jon. In terms of your scientific understanding and helping to develop a vision for the future of Tule Springs. You were identified and selected as a member of the Tule Springs Advisory Council. Do you have any thoughts about working with the National Park Service? Coming on board when we were trying to get ourselves set up? And then your role with the Advisory Council?

1:29:43

ES: Working with the Park Service was great. Being honest though – even though working with them and for them at the beginning once it was declared a Monument. That was not my first experience with the Park Service. I mentioned I'm a member of the Society of Vertebrate Paleontology and so many paleontologists that I would interact with there every year at our annual meeting and so forth were Park Service employees, including you. So I was very familiar with Park Service people long before Tule Springs was designated a Monument. Kathleen and I and the County Museum team had been working with the Park Service in Joshua Tree so we were familiar with them as well. So there wasn't much of a learning curve, I don't think, there. It was, ok, we are switching to a different federal entity but number one we know these people, like you, like Greg McDonald, like Ted Fremd so there wasn't that sort of an issue. And number two it was a way to explore doing things in a new way. The Site Stewardship Program that we had come up with had been something conceived through the BLM where essentially all the Site Stewards were BLM volunteers. So that wouldn't necessarily work in the Park Service. So you would need to set something like that up for the Park Service. The Monument was designated in 2014. Correct me if I'm wrong, but I believe it was when it was designated. Unfortunately at about that time the San Bernardino County Museum started going through some new permutations. The Board of Supervisors and this is me getting personal. And I'm sorry if this is not what you want to hear but the Board of Supervisors in San Bernardino County determined

that at that time the Museum wasn't pulling its financial weight. They would look at the visitation per year versus what was being charged. I think we were charging \$8 or \$9 or \$10 at the door per adult. But, if they looked at the money coming in versus the money going out they said, "Each visitor to the Museum should be getting \$54 worth of experience and we don't think they're getting that". My challenge with that way of thinking is that this was a County Museum so it is, at least in part, a tax funded or at least publicly funded entity and it's part of the agreement, I think, that a municipality like a County should have with its tax paying citizens. Where on one hand your taxes go to the roads relatively well maintained and keeping water clean and keeping air clean and so on. But it should also provide more than just the basics. And museums are one of those things, city museums, county museums. That's part of the contract that comes with being a municipally funded entity is you're giving the citizens a benefit that they otherwise wouldn't have access to and it's already being paid for in part by their tax dollars. So, charging them an exorbitant fee at the front gate seems like double dipping. But then the opposite was to have serious cutbacks. So Kathleen Springer was placed on Administrative Leave. I found my job curtailed to the point where we were told you will no longer do collections work. You will no longer do research. And again, stop me if you don't want me to talk about this. But, this is very real of what's happened or what was happening at that time. We had contracts with the Park Service for our work in Joshua Tree. We had contracts with the Park Service for Tule Springs and the County of San Bernardino—and to this day, just as an aside, I've had people tell me, "Oh you're such a great speaker. We love listening to you talk." Well, I'm not that good because I was never able to convey to the people of the County that if you want to interpret the land in the County then you have to include federal lands because so much of San Bernardino County is federal land. If you want to include the larger context then it has to include places like Tule Springs—What?

JS: I don't hear anybody. What happened?

JB: I'm still here. Did we lose Vince?

VS: Yeah, I'm still here.

JB: Ok. Eric, please keep going. I think Jill is here.

ES: Ok. So, basically the upshot was the County, San Bernardino County said, "Why are we doing the federal governments work for them? Why aren't we doing County work?" And my answer would be, "Because the County includes federal lands and they put other things in context. They're the sole stewards of wide open swaths of land that preserve these resources. So, we have to be involved federally." And as we learned, Kathleen and I learned, back in the early 2000's the way you get the money to do that so it doesn't cost County tax payers anything, is to provide a service to the federal entity. Whether it is the Bureau of Land Management or the Park Service. When you meet their needs you generate the information. And that information is conveyed to the general public and everybody wins. That argument didn't sail. So, we were told in 2014, "You will end your work with the Bureau of Land Management. You will end your work with the National Park Service. Write up a quick report. Send it to them. We're cancelling these contracts." So, that was the frustrating part of that. I will say that there were federal entities that I reached out to who were extraordinarily understanding of that situation. And Vince, you were one of them. When I would talk to you and explain the situation you were remarkably sympathetic and remarkably helpful in finding ways to meet your needs and still address what

had become my job responsibilities. Which no longer involved research. No longer involved outreach. No longer involved collections work. No longer involved field work. And no longer had any sort of a federal component. All of that was ended in 2014. So, if you were ever wondering why I stopped being a curator in 2015. That's why. Because I was a curator in name only. And it was time to move on to other things. That's why Kathleen eventually left the Museum and took a research position with the United States Geological Survey [USGS]. And that's why it's been so helpful. Because she's providing an avenue to continue to work with the National Parks at Tule Springs, Joshua Tree, and now at Death Valley in order to study the fossils there.

1:37:13

ES: The challenge for me has been finding time outside of my day job. Because now that is no longer part of my paid responsibility the way it was at the San Bernardino County Museum. My personal situation has changed rather dramatically which is very frustrating. Again, if this is more than you want to hear, tell me, and I'll stop. If it's a choice between filling out spread sheets and scheduling employees and working up budgets for change orders versus going to Death Valley and looking for Ice Age fossils there's no competition at all. I'd much rather return to the field and start documenting some of the stuff in Death Valley, as well as Tule Springs, and Joshua Tree. I'm hoping that something can be worked out in the future where the company I work for Cogstone Resource Management is able to do that in a semi-official basis. I know that my company is an archaeological as well as a paleontological company. And we have provided archaeological services to the federal government. It would be nice to lump in paleontology there as well. But that hasn't happened in an official capacity yet. Though I still try to keep my hands in with the fossils from Tule Springs and the public sector.

1:38:35

VS: So, this background—go ahead Jon.

JB: I was just going to say this provides really good context for future folks wanting to understand, transition from BLM to Park Service. And the personal transitions that both you and Kathleen were going through as well as the changes San Bernardino County Museum was being run. Because I think there is the possibility without the context that you just provided that people think, 'Oh the Park Service came in and went, "Oh, those people were BLM people".' The change was on a grander scale than going from one agency to another, but the changing nature of the County Museum. I think that's really useful and helpful. So, thank you for sharing that Eric.

ES: It was quite the opposite. The Park Service and again Vince, I am going to single you out. But, everybody we talked to at the Park Service was remarkably supportive. Also—and Vince, I won't speak for you here—but I suspect, I think they were horrified because the idea of a Museum actively turning us back on funding. Actively turning its back on such amazing research potential, to not participate in it, that was virtually unheard of and to this day I look back on it and just cringe. The County Museum currently has a curator and scientist. I know her. She's a good paleontologist but she has still to this day been told, "No collection's work. No research. No conferences. No field work. No nothing. You will tell the public you're a curator and you will provide education programs". And that's it. That's basically all they're interested in. Which to my mind is not a curator at all. I find it a waste.

1:40:30

We have been fortunate in this part of Southern California that another entity has come up. I am going to back up a little bit because back when Kathleen and I in the 90's were working on that Reservoir project. The Eastside Reservoir Project which became Diamond Valley Lake. We found well over 100,000 fossils. It is the largest Ice Age site outside of asphaltic sites. The largest open site from anywhere in the American Southwest. It has even more fossils than Tule Springs. The difference is Tule Springs remains open and you can find more fossils and find more fossils and find more fossils for the next several decades or centuries. Diamond Valley Lake is a reservoir. All of those fossil localities and any remaining fossils that we didn't find are all under water. And they're going to stay there for decades and centuries to come. So, that site is effectively played out. But, so many fossils were found that the good citizens of Hemet [California] decided that they wanted their own Museum. They did kind of what Protectors of Tule Springs did out in Las Vegas. They got state funding together and they built a museum: the Western Science Center. Which is now being run by a paleontologist named Alton Dooley and it is filling the gap for the San Bernardino County Museum. Where they are now the one's doing the work in the Mojave Desert. They're the ones doing work in Cajon Pass. They're the ones studying Ice Age and other animals from San Bernardino and Riverside County. Even to the point of becoming a repository for the fossils from Joshua Tree National Park because the San Bernardino County Museum didn't want to be a repository for those fossils anymore. The fossils have now moved to a new institution. That institution is research oriented. They are dedicated to preservation of the resources. They are dedicated to outreach and education based on their studies. So, those fossils are in a very good place. The fossils from Tule Springs are now in Las Vegas where honestly I think they should have been all along and I'm getting off the topic. But, I'm not because even when we started working out there, there were a bunch of people who were saying, "Why are all our fossils going to California? Why are our fossils being studied?" Because, as Kathleen would say, "We're the place for storage. The Ice Age is our backyard. This is our period of study and we happen to work at the San Bernardino County Museum that happens to be the institution doing the work." Once that stopped it made the most sense for everything to go back to Las Vegas. Even if that hadn't stopped I think it would have made the most sense for everything to go back to Las Vegas. Because those fossils are going to have more meaning for the people in Las Vegas to have their own fossils from their own backyard preserved in their institutions. I think it's important. They were going to have the significance that they were never going to have at the San Bernardino County Museum. Same way the San Bernardino County Museum would say, "Why do we have fossils from Las Vegas here?" I've just gone over why we were the ones who ended up having those fossils. But, given the circumstances I think that it would have best anyway for the materials to go back to Las Vegas. But, now I'm particularly happy that they're there. Where they will be available to study for paleontologists and other scientists for decades to come.

VS: Perfect. So what you have done is you have answered most of my next question. Perfect context.

[Quick side conversation between Vince and Erin about delaying an upcoming meeting]

1:44:27

VS: So, Eric, continuing on this vein. The transitions that were going on both with the land ownership and management of Tule Springs as well as the transitions that were going on with staffing and priorities at the San Bernardino County Museum, we were able to take advantage of all of that and be able to actually move a portion of the collections of Tule Springs that were at the Museum back to Nevada. Can you talk a little bit about that because you were instrumental in facilitating that whole process?

ES: I can. Again, I honestly am not sure where you want me to go with some of this stuff. So at any point I start saying things you don't want me to say just interrupt or something. The first move was with the materials that were collected as part of the Harry Allen Northwest Transmission Line. Because that was material that was already fully curated, fully in the collections, ready to go. And with microfossils, I believe we collected over 10,000 remains. I'll be honest and say I don't remember all of the intricacies but I do remember the BLM wanted those. Was it the BLM? Maybe I should shut up. Let me think. No, that was the material that went to the Park Service, wasn't it? Help me remember, Vince.

VS: Yes.

ES: OK. So that's the material you came to pick up was the Harry Allen Northwest materials.

VS: Correct.

ES: That's it. They had to be transferred from BLM ownership to Park Service ownership. I recall Scott Foss coming out and there being an agreement. And Scott Foss signing it. From my perspective we're golden. Everything's ready to go. This is in the days when Kathleen was not at the Museum. She was out on leave and I wasn't able to walk through this with her. But, from my perspective these are not our fossils. These are federally owned fossils and they're having their jurisdiction changed from Bureau of Land Management to [National] Park Service. The Bureau of Land Management in the person of Scott Foss [Senior Paleontologist] signed off on that. So, I'm good to go. You came out with your team. You collected the fossils and off they went to Nevada. Which was a good thing. But apparently, I still don't know and I'm not casting any dispersions on anybody. But, there appears to have been a disconnect. Whether it was Scott or somebody else in the BLM said, "Wait a minute. You haven't authorized this transfer." Even though there was a signature on the paperwork. And I know it because I saw the paperwork being signed. But Scott has since told me that, "I don't remember 10,000 fossils being signed for." And it was like the collection. That was the Harry Allen Northwest collection. And a lot of those are micro-fossils. It only took up four or five cabinets of space. But still that was the collection that went and it was signed for. That I will attest. I do not know all the particulars after that. But, it is my understanding from things I've heard through the grapevine that the Bureau of Land Management was very, very, unhappy about that. And so they determined that the remainder of the stuff collected as part of the Upper Las Vegas Conservation Transfer that would go to a different institution. And not be transferred. And I believe that is still the case. Those fossils remain under Bureau of Land Management jurisdiction.

VS: And to just give a quick answer to that. I think it was internal miscommunication with the BLM. So, we were communicating with the Las Vegas [District] office, Gail Mars-Smith. And Gail was very supportive of the transfer of the specimens. And so she had signed off. And apparently within the BLM organization of the State of Nevada certain people felt they should be

consulted in that discussion and because they weren't they were unhappy about it. But, ultimately there was support from the BLM State Director that the transfer was going to go forward. It wasn't all the collection. It was in fact approximately 10,000 specimens associated with the Harry Allen Transmission Project.

ES: OK. Thank you for clarifying. I found it very frustrating. Because as you say I was in the middle of it. I thought we were crossing all the T's and dotting all the I's and then to have the 'federal government' angry at you was not something that I particularly enjoyed. After years and years of working well with both the Park Service and the Bureau of Land Management I was frustrated to suddenly be in a position where the two of them seemed to be at odds and I was kind of stuck in the middle. That was admittedly frustrating. Nevertheless I will re-emphasize that the fact that the fossils are back in Las Vegas whether at two institutions – that is still the best place for them. So that's kind of what my involvement was. Basically here you go.

1:50:30

ES: Now, in terms of the material that went to the Las Vegas Natural History Museum. That was the non-Harry Allen Northwest material. We had been in the middle of preparing that. Getting all the fossils organized and ready to go when these changes happened in the county. Kathleen left the Museum and I was told no more collections work. No more federal work. No more federal contracts. No more nothing. Which meant we had to terminate the contract we had, which meant no further work could continue on those fossils without funding. And there was no funding. We still had years of work ahead of us for preparing stuff. Particularly the hundreds of fossils from the Super Quarry site alone were still in jackets. Still remained to be worked on and suddenly we were told the contracts over. Write a final report and submit it. I talked to I believe, Gail Mars-Smith and she said, "Just do the best you can. Understand the situation. You are in an unfortunate place. Just write the best report you can based on what you have." And so that's when in our report we said, "The stuff from the Super Quarry remains unprepared." That will be the case until additional funding becomes available. Since we were no longer soliciting funds from the federal government, because of what the county determined, we weren't going to do any more work on it. To get the fossils ready to go I was working with volunteers. I had one volunteer that I will mention named Judy Loman, who was a retired woman, teacher, scientist and just a wonder. When you suddenly don't have any technical staff. When it's just you, having a volunteer like her helping you out was extraordinary. I think we acknowledged her both in the report and in the paper. The reason I bring her name up now is that in the middle of the work she got sick, went to the hospital, and died. So, all of that knowledge and expertise went away and I didn't have any volunteers to replace her. By the time I left the Museum there was still a lot that remained to be done but I wasn't in a position to do any more. It was just too much for a single person to sneak in around the corners. Because again, I had been told, "Write the final report. Cancel the contract." Which meant I can't work at the Museum on fossils from Tule Springs. I can't do any of this work because it is no longer part of my job. Because there's no funding for it. So, the fossils are sitting there. I'm trying to get volunteers to work on them. But that was limited in scope and all around a very, very, very frustrating situation. I still feel, honestly, very bad. On the one hand I obviously dropped the ball. On the other hand I don't know what else I might have been able to do because I was essentially, officially as part of my job told, "You're dropping that ball. Drop it now." And I did so. Once I finally left the Museum and moved on I was not in the position to work with the fossils at all. And still don't quite know the status of

their situation at the various institutions to which they had been moved. I imagine there is a lot of territorial and collection staff grumbling at all the things that I left undone. But, in my humble defense I still, looking back, don't know what I might have been able to do differently because the decisions were all being made for me. Despite my best efforts I was not able to communicate effectively why this was such a bad course of action.

VS: Thank you.

1:54:37

VS: Specific question regarding your involvement in the Tule Springs Advisory Council. Feel free to be candid. Things that worked? Things that didn't work? And why maybe that process didn't proceed as well as everybody hoped?

ES: It's hard for me to say anything because we've had so few meetings! And almost nothing has happened. Maybe Jill can back me up on that. With changes in the federal government. With changes in funding sources and with things going on hiatus and with most recently the pandemic [Covid 19] so we aren't even meeting in person. The Tule Springs Advisory Council I find has been very, very frustrating. I will personally say I am very frustrated because the one individual in my mind, other than Jill, who should have been on that was Kathleen Springer. But she didn't meet any of the criteria. She wasn't in the county adjacent to Clark County and she wasn't in Nevada and so of all of the minds and intellects and all the enthusiasm to have on that committee, she would have been at the top of my list. Yet, she's not on it. I find that very frustrating. I'm happy to try and fill in for her but she has skills that I just lack. But there have been any number of other delays. The Park Service itself – I don't want to say it's changed its official focus but it actually under the previous administration there was a different perspective and different focus in terms of what National Monuments should be. What National Parks should be. I think we even saw that with Bears Ears National Monument where the focus of the federal government was we don't need all this public lands so much as we need the resources preserved in that public land for monetary gain. And if a National Monument precludes that sort of monetary incentive then we're going to reduce the size of the Monument. That's still obviously locked up in court and I don't know how that's going to be resolved.

ES: I will go back to things I said before. It is so fortunate for the people of Las Vegas that they had the Protectors of Tule Springs there constantly emphasizing the importance of these lands for their scientific potential over and above any other potential. That was critical to preserving those lands. I don't think anybody came in in the previous administration and talked about reducing the footprint of Tule Springs in order to make development more likely. Because the passion was there. The local drive was there to preserve those lands for their scientific integrity and significance. To double back again, I am changing the subject but I'm not going back to when the Monument was created. A large part of that is due to Protectors of Tule Springs. Some of it is due to the science being generated by Kathleen and our team. Part of it is also because of the Recession and because development wasn't going anywhere. If land had stayed at a million and a half dollars for undeveloped acre I don't know if the Monument might have moved forward as quickly. But when the Great Recession hit and the market bottomed out, suddenly developers didn't have any clout in determining what would happen with these lands. So we were very fortunate. That enabled the Protectors of Tule Springs to bring their point home even more firmly. So that when you see the previous administration changing the focus even of the Park

Service and challenging the interpretations of how to protect these resources, at least my perception at least locally in Las Vegas and North Las Vegas, that perception was never able to gain a foothold because the local people, as exemplified by Protectors of Tule Springs had already, in abundance, detailed their enthusiasm and their excitement and their investment, their intellectual investment and their emotional investment in those lands. That is something that Bears Ears, for example, didn't have. That they could have used. I really think Las Vegas owes a debt of gratitude to the Protectors of Tule Springs.

ES: Getting back to the Advisory Council. I think there is a lot of good wishes. A lot of good intent, but there's been no execution because things have been so up in the air for a prolonged period of time. I would love to see things move forward with more authority. With more alacrity. And really focus on getting things done. I mean it was 2014 when that was designated. It's now 2021. So we are coming up on the ten year anniversary. I want people to go there. I want them going on hiking trails and I want them to look at fossils. I want them to get excited. I think the Advisory Council really needs to focus on that. But to do that we need to meet on a regular basis. We were just told that we won't be meeting this month because of the transition in administrations we're going to hold off until June. So, there is another opportunity and because of the previous administration and because of the transition I submitted my application to be renewed for the Advisory Council last year. It still hasn't been approved. And it's not going to be approved until later this year. I don't even know if I am on the Council anymore. I'd like to hope I am but I don't actually have any guarantees that I am. It's frustrating because my financial statement for the year is due on February 18 and I don't even know if I am doing it for a Council that I'm on. That's just one example of the delays. I don't think it's the local people who are uninvolved. I think it's more coming from a higher up level outside even the Park Service. I'm hoping with now a new administration that claims to be more science focused and so forth that maybe things can move forward a lot more quickly and a lot more smoothly. And I really hope I can be a part of that.

VS: Yes, we hope so too. Thank you. I have one final question and then I'll open up to Erin again.

2:01:43

VS: Eric, Tule Springs paleontologically came about [and] it filled a gap that we had in terms of representation of a park that was set aside specifically to preserve the paleontological resources for the Ice Age, for the Pleistocene. We have parks that represent the Triassic, the Permian, the Cretaceous, the Oligocene, the Eocene, the Miocene, the Pliocene. But Tule Springs was the first park that was specifically dedicated to preserve and interpret the Pleistocene fossil record. Since, we have also included a Waco National Monument as well so we've got two for the price of one.

ES: I recall – I have a friend who works at the Waco site. I have a couple friends who work there. My understanding was they were very, very, very, very keen on being the first Pleistocene park in the National Park System and I have no compunction at all saying, “Neener-neener.” I'm glad Tule Springs is the first.

VS: So my question is there's been a little bit of overstatement of the significance of Tule Springs. But I would say if you were coming out to speak to the public or a park ranger at Tule Springs in the future wanted to accurately describe, ‘What is the paleontological significance of

Tule Springs?’ Since you’re keenly aware of the significance of La Brea Tar Pits and other resources in the Southwestern United States, how would you characterize the significance of Tule Springs in terms of fossils?

ES: I’m going to answer your question first with a story that you may have already heard. And then try to answer it in more detail. But, back I think it was 2009 Kathleen and I, and Jill correct me on the date, when we went to see Senator Harry Reid in Las Vegas. We’re trying to promote the significance of the Tule Springs site, the Upper Las Vegas Wash.

JS: I will just interrupt. That was January of 2008.

ES: 2008, ok even earlier. We were very intent on promoting it but Kathleen and I are both scientists. We try to find that sweet spot between promoting what you’re doing because that helps bring it to the public attention and also potentially generate money. But remaining within the science. Don’t say things that you can’t scientifically support. Back in our Diamond Valley Lake days when we talked about Max, the mastodon being the largest mastodon in the western U.S. It’s because we had done our homework. We weren’t just making it up because he looked big. We were saying it because we had actually measured other mastodons and we knew what we were talking about. At Tule Springs we wanted to do the same thing. There was at the time this local perception that it was Ranch La Brea. It was better than Rancho La Brea and Kathleen and I would just look at each other and say, “La Brea has four million fossils. They have 640 plus different species of animal and plant. Tule Springs doesn’t come anywhere near any of those numbers. So, it’s not remotely as significant.” So, we go to Senator Harry Reid and tell him it is better than the La Brea Tar Pits we’re going to be lying. We tried to convey that and yet Rancho La Brea kept coming up and it kept getting mentioned. Kathleen and I would just grind our teeth. As it happens I think the only thing that sold Senator Reid on it was sitting with Kathleen and looking at pictures of Ice Age animals. Literally that seemed to be what he was most interested in. I don’t know if that means he had already made up his mind and it was just a pro forma meeting or if he really decided to do this because of renderings of extinct Ice Age animals. Anyway, that was just one of the things that we were trying hard to avoid. So, what you said Vince about the site sometimes being over-hyped is absolutely correct. And I just gave you an example. It is not the La Brea Tar Pits. It’s not close to the abundance of the La Brea Tar Pits or to the species representation. And the same holds true for other Ice Age localities that are preserved in asphalt like the Maricopa Tar Pits or the McKittrick Tar Pits. I’ve already mentioned the Diamond Valley Lake site. That is the largest non-asphaltic Ice Age assemblage from the American Southwest. They needed to build a Museum to house those fossils. Tule Springs doesn’t approach those numbers. So if you are looking for the biggest or the best or the whatever, Tule Springs is not going to be it. But that’s not what paleontologists are looking for in terms of significance and importance. For Tule Springs it’s because it’s the largest Ice Age assemblage in the Mojave Desert anywhere. There are probably cave deposits that have more fossils. But caves don’t grab things like mammoths except in rare cases. I’ve been working on a cave project up in Wyoming - Natural Trap Caves. And it’s got horses and it’s got wolves and it’s got others. But it doesn’t have mammoths because mammoths too big to fall into a cave. With the caves in the Mojave Desert, same thing. Yes, you did have the double toed sloth. Yes, you do have other caves and occasionally they have horse teeth. But in terms of the fossils you find at Tule Springs those are open area adapted animals. You don’t find them in abundance in caves. You don’t find them in abundance anywhere else in the Mojave Desert. Tule Springs is

unique in that respect. You also don't have the deep time component elsewhere. La Brea goes back 40,000 years, maybe 50,000. Tule Springs goes back over 200,000 years in terms of the sedimentary context. Diamond Valley Lake only goes back – I think the oldest fossil was 210,000 years and it was a real outlier. Most of the stuff was younger than 60,000 years. So, you have an abundance. It doesn't have to be the most abundant. It just has to be abundant with good representation with well-preserved fossils in a reliable geological context that can be reliably, radio-metrically dated. So, both in terms of what has been collected and in terms of what hopefully will be continued to be collected, all of those fossils continue to fill in that picture. And no other site that we know of in the Mojave Desert or the desert southwest, lumping the Sonoran as well, cover this period of time in nearly that level of detail.

ES: And on top of that there's the work that Kathleen Springer and Jeff Pigati and others have done documenting those ground water discharge deposits. This is remarkable. I still just am kind of staggered by it. Those ground water discharge deposits preserve a global climate record. If you see global climate changes as represented in ice cores and sediment cores you're seeing those same global changes manifesting themselves in the ground water discharge deposits at Tule Springs. So in addition to a time component for those fossils you also have a paleo-climate component for those fossils. And that's just staggering to me. And just as an aside. One more story. At least one more story. I was there at the Museum the day Kathleen, good lord, she was almost glowing, because it had occurred to her and it's one of those things in retrospect you think about and go "Oh, you know, that's kind of obvious." And it wasn't obvious until Kathleen Springer thinks of it. But she says, "They have tufa out there at Tule Springs. We have tufa deposits. Tufa rivers actually. And tufa only forms at certain temperatures of water and at certain balances of alkalinity and acidity. And so because the tufa is there we know what the temperature of the water was. We know what the Ph balance of the water was. We know we can tie that in with the ground water." She was so excited to have figured that out. To recognize there is this big paleo-climate signal that has been sitting there at desert surface for decades and nobodies keyed in on. She was the first. And I watched it happen. That was so cool.

ES: But that's part of the significance. That's one of the things we talked to Stan Rolf about when we had the meeting with him. It's not just the fossils. It's not just another bison fossil. It is the context of the fossils with the radio-metric dating, with the climate signals that makes Tule Springs a unique site and a uniquely important site to preserve as part of the National Park System.

2:11:28

VS: Thank you very much. Erin?

EE: I don't have any other questions.

VS: Jill?

JS: No, I think I'm good. Thank you. Fascinated.

ES: Yes, I do like fried eggs on my hamburgers – Thank you very much. (Laughter)

JS: Well, I was going to say some of your meals here have looked tremendous and I'm amazed you're as thin as you are.

ES: (Laughter) The eating was so good. I don't know if you guys want that as part of the record. But really the food in Vegas is routinely good and we were so spoiled to do field work all day and then not have to eat tent food at night. It was just spectacular.

VS: Jon? Jon, are you still there? We may have lost Jon.

VS: So, Eric we greatly appreciate your help with this. Is there anything that we haven't asked you that you would like to share with us?

ES: Not really that I can think of. I was worried you were going to start asking me dates and times. "Well, in March of 2007, when you were out there, what were you doing?" (Laughter) I don't remember. So, I'm glad we didn't get into that level of detail. I'm happy to have answered your questions. I'm really happy that you're putting this Oral History together. I hope people listening to it in the future will realize how significant this site is. There's so much going on in paleontology right now and it's so easy to get side-tracked by the newest and most interesting sites. There's people doing underwater discoveries. I'm now working sometimes out in East Africa. Which is fun. But to have a site like this adjacent to Las Vegas I'm hoping that the people of Las Vegas, once the Monument is open for them to visit I hope they really just – I shouldn't say this but I will – but I want them to inundate it. I want them to go there every weekend and look at stuff. And little kids like me growing up in Burbank, if not for the La Brea Tar Pits, I'd still be selling paint. So many kids and students in Las Vegas are going to have this resource literally in their backyard. I just hope that they take advantage of it and we get a whole new generation of paleontologists, whether they're in the Ice Ages or some other time period, who get their start from Tule Springs. So when they're doing Oral Histories like this they can refer back to 'Well, I grew up in Las Vegas and we had Tule Springs right there and I was so excited by the mammoths and the bison and maybe even the horses. That led me to my career in paleontology.' That would be worth everything if that were to happen.

VS: Well, Eric thanks so much for sharing this information with us today and helping to preserve and better understand the rich record at Tule Springs Fossil Beds National Monument. You have a great day.

ES: It's been my pleasure. You do the same. You all take care and stay safe.

VS: Thanks. Have a nice day.

JS: Thank you Eric.

EE: Thank you.

VS: Bye. Bye.

2:15:11

[END OF INTERVIEW]



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