

TRANSCRIPT

INTERVIEWEE: Jerry Caraviotis

INTERVIEWER: David Todd

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Google Voice [00:00:00] This call is now being recorded.

David Todd [00:00:04] Mr. Caraviotis.

Jerry Caraviotis [00:00:07] Yes, good morning, David. How are you doing?

David Todd [00:00:09] Good morning. I'm doing fine and I hope you are well also.

Jerry Caraviotis [00:00:15] Yeah, yeah, things are good. Sort of a dreary day here in Houston.

David Todd [00:00:21] So the rain's coming down?

Jerry Caraviotis [00:00:23] Yet it poured pretty heavily a little earlier and it's still overcast and sort of gloomy, but supposed to, supposed to clear up tomorrow. So.

David Todd [00:00:34] Well, you know, maybe this is a good excuse for indoor stuff like talking on the telephone.

Jerry Caraviotis [00:00:41] Absolutely. Absolutely. Put this time to good use.

David Todd [00:00:46] All right. Well, I sure appreciate you doing this. And at the very outset, just wanted to thank you for taking the time.

Jerry Caraviotis [00:00:54] Oh, gosh. No problem at all. I mean, yeah, it's. I thank you for giving me the opportunity. I guess it's quite an honor.

David Todd [00:01:05] Well, I look forward to learning more, and I thought maybe as a place to start, I could just lay out for the record what we're hoping to do and make sure that this sits well with you. Let me just give you somewhat of an introduction. So with your OK, the idea is that we would record this interview for research and educational work for a nonprofit group called the Conservation History Association of Texas, and that's to create a book and a website for Texas A&M University Press, and then to catalog and preserve it in an archive at the Briscoe Center for American History, which is over at the University of Texas at Austin. And of course, you'd have all equal rights to use the recording as well. And I just wanted to make sure that that's OK with you.

Jerry Caraviotis [00:02:03] Yes. I mean, I think you explain that in our previous conversation? But that sounds wonderful.

David Todd [00:02:13] OK, well, good. Well, let's, let's dive into it. I'll maybe try to set the stage here with a little bit of information about when and who and where and all that good stuff.

David Todd [00:02:25] It is December 19th, 2020. And my name is David Todd. I'm in Austin. I'm representing the Conservation History Association of Texas. And we are conducting an interview with Jerry Caraviotis, who worked in the Houston Zoo's bird section from 1988 through 2007. He's also worked for EPA and Harris County. Today, I think we'll mostly be focusing on his work with the zoo, where he cared for a great variety of birds. And in particular, I think for today's conversation, he worked with the captive breeding, reintroduction of the Attwater's prairie chicken. He is based in Houston, as I understand it. And this interview is being done by telephone.

David Todd [00:03:21] So today as mentioned just briefly, we'll hope to talk about the Attwater prairie chicken, its decline and then the efforts to breed it in captivity, release it to the wild and gradually restore this really rare bird. So that's the thought, the plan here.

David Todd [00:03:43] And I would like to start by just a question about your childhood and if there might have been any people who were a big influence in your interest in working with animals or birds or just conservation in general.

Jerry Caraviotis [00:04:00] Well, David, you know, my family is Greek-American. I was born and spent the first 10 years of my life in a town called Hollywood, in Florida, which is just north of Miami. I guess from my earliest memories, I've always been interested in and fascinated by the natural world. Although my family never discouraged me from such interest, honestly, I don't think there was anyone around me at the time that really initiated that or fostered that. So I'm assuming it's genetic.

Jerry Caraviotis [00:04:42] When, when I was 10 years old, we moved to Houston and I've lived in this area ever since. I actually came to birds and an interest in birds rather late. I mean I'm interested in any kind of life form. I've always been that way. But, yeah, birds were sort of, sort of late in peaking my interest. When I was in junior high school, I met a very good friend, Randy Pinkston, who had a great interest in birds and still does to this day. And I think that really, really set me off on my, in my personal interest in birds.

David Todd [00:05:20] Well, and whether there's, I don't know, birding outings that you do with Jerry [Randy] or were there other things that you might kind of explore with him?

Jerry Caraviotis [00:05:31] Well, yeah, I mean, definitely. We spent, you know, a lot of time as youngsters outdoors in the Houston area and, you know, outside of the Houston area. And, and that's when I really started learning, really learning my local birds and getting to know about the bird life in this area. And definitely that was, that was the big start.

David Todd [00:05:58] Yeah, well, it's nice to have a co-conspirator I bet, to do these things and makes it more fun.

David Todd [00:06:07] This may be skipping ahead a little bit. But I think it's a major landmark in your life. You graduated from Texas A&M with a bachelor's in wildlife science. And I was curious if there was, you know, any particular colleague or mentor or, you know, fellow student who might have encouraged your interest in the outdoors and wildlife.

Jerry Caraviotis [00:06:37] You know, that's, that's a hard question to answer in a certain sense, because there were so many people, you know, I learned from, surrounded by there. It was a, you know, for someone interested in in the natural world, that was a pretty heady atmosphere to be in, you know. So I learned so much from my professors, my fellow students, my friend Randy that I mentioned to you. He was also a student in the department at the same time.

Jerry Caraviotis [00:07:06] As far as prairie chickens go, David, one of the professors there, Dr. Nova Silvy, had quite a few graduate students doing research on Attwater's at a ranch, the Tom O'Connor Ranch, down on the central coastal prairie. And, at one point, he took a group of undergraduates down there and including myself, and put us in blinds before the sun was even up, you know, next to a booming lek of male prairie chickens. And, you know, I'll never forget that, you know, being in there in the dark and you can hear the birds, you know, and, you know they're close. You can't see them yet. And then gradually as the sun came up and it got light enough, you know, you're, you're watching, you're watching these male prairie chickens displaying, you know, literally just feet away from you. I'll never forget that.

David Todd [00:08:21] And what was the display like?

Jerry Caraviotis [00:08:25] Well, you know, you know, it's so fascinating, it's, it's otherworldly in a way. You know, these males get together on something called a "lek", for displaying as a group, and each had little sub-territories within that lek and they're trying to attract females to mate with. The sound is eerie. It's otherworldly. It's, it carries forever. It's these low bass notes. And, you know, they're, they're doing this display. Pinnae feathers on the side of their heads erected. And the air sacs on the side of their necks which produce that, that, those bass notes inflating and deflating. And they're stamping their feet, and they're charging at each other. And yeah, it's all a bit overwhelming, you know, but really neat to see.

David Todd [00:09:36] Great. Well, I guess, not too many years after you got out of college, you came to work (I know, skipping major chapters here), but you came to the Houston Zoo in 1988.

Jerry Caraviotis [00:09:52] Yes that's correct.

David Todd [00:09:55] Maybe you can tell us just a little bit about what brought you to the zoo and you know, how your work there started.

Jerry Caraviotis [00:10:08] Yes, you know, David, when I got out of, when I graduated from A&M, I took a job with the United States Environmental Protection Agency here in town, actually. And I did that for six years, started out in field investigations. And I ended up transferring to the laboratory there and doing some analytical chemistry work.

Jerry Caraviotis [00:10:35] You know, and as satisfying as the work was, and it was very satisfying, still, it was, you know, a somewhat sterile environment for me. And I was, I was really sort of removed from my real passion, you know, which were, were animals and plants in the natural world. So I made a decision to change, do a career change at that point.

Jerry Caraviotis [00:11:01] And, and with my interest in birds, that's when I got hired on at the birds section at the Houston Zoo. Not many people may know this, but most zoos really don't specialize in birds per se. They tend to be more mammal-focused, perhaps. But the Houston Zoo is what, has been and I assume continues to be, one of the leading bird zoos in

the country and a very huge collection. A lot of awards, lot of accolades over the years, so a very strong bird department there.

David Todd [00:11:53] And, and when did the zoo first start working with the prairie chicken?

Jerry Caraviotis [00:12:01] Well, you know, sometimes I'm a little fuzzy with dates, but I believe it was in the early '90s and probably around 1994. The way that came about was, you know, news travels sort of fast, I guess, in the zoo, zoo world, but we, we became aware that the Fish and Wildlife Service was, had begun work with Fossil Rim Wildlife Center in Glen Rose, Texas, for captive rearing of Attwater's, because at that point, their, their numbers had dwindled so greatly.

Jerry Caraviotis [00:12:44] And when I heard about it, it just sort of made me wonder, how come we're not involved with this? You know, we have we have this expertise and we're very close to the refuge and we're in the area of the historic range of the Attwater's. So I approached my boss, Chelle Plasse, the curator of birds at the time, and asked her, you know, what she thought about us becoming involved in the program. And she agreed that, you know, it'd be a good idea. And at that point, we, we approached Fish and Wildlife and asked to become involved, and did become involved.

David Todd [00:13:26] Well, and maybe you can help people who might hear this interview understand what the background on this was. I mean this prairie chicken, I guess in 1900, there were a million of them on some six million acres of prairie. And, you know, I guess for the time that you started working with the zoo and the Fish and Wildlife Service, it was put under 400, maybe...

Jerry Caraviotis [00:13:57] Sounds about right, actually.

David Todd [00:14:00] ...animals in the wild. What might have happened in the intervening years?

Jerry Caraviotis [00:14:06] Well, I mean, you know, everyone knew that the bird was in trouble and declining, you know. People had seen this coming for years - the slow, sort of slow decline of the bird. But what happened there towards, towards the time of our involvement and, David, is the bird really crashed a lot quicker than a lot of people had, had foreseen, particularly in the area where it was, had the largest numbers, which were on the private ranch lands again down in Victoria Goliad and Refugio counties, in the central coastal prairie. And no one, no one really foresaw how quickly the birds were, had, were nosediving. So, I mean, for I think years up to that point, Fish and Wildlife was, was trying to keep the bird afloat with, in the field, with, with habitat management. But it became apparent very quickly to them that the bird was about to go under, I mean, disappear.

Jerry Caraviotis [00:15:21] So that's when they embraced the idea of bringing birds into, into captivity, you know, to have any hope of keeping these birds extant.

David Todd [00:15:38] And do you do you have some perspective on what was causing these birds to struggle and to, you know, first decline and then collapse?

Jerry Caraviotis [00:15:50] Yeah, I mean, I think it's pretty well known, you know, what, what drove the decline of the Attwater's. You know, it's many things. I think the bird got hit on

many levels, but without a doubt - habitat loss, habitat alteration and habitat fragmentation, you know, was really, really was putting the hurt on those birds. There's an interesting graphic at the at the refuge outside of Eagle Lake, at the Attwater's Refuge, that shows satellite images through time, perhaps starting in the '50s. I don't remember exactly now. But anyway, it was for several decades and you could, you could just see in a visual progression how, in the area immediately around the refuge, including the refuge, native prairie was disappearing. So...

Jerry Caraviotis [00:17:00] So when you talk about habitat loss, it's really the erosion of the native prairie and its conversion of, I don't know, to rice farming or grazing lands?

Jerry Caraviotis [00:17:12] Yeah, rice farming. Well, you know, farming in general, grazing, and urbanization. I mean, when, when I was a teenager, there were still birds being seen in certain spots in the Houston area. So, yeah, I mean, they were here, and with the rapid urbanization of the Houston area, you know, that, that certainly did not help them.

David Todd [00:17:43] I've heard folks speculate about other factors, like fire suppression and fire ants and even skunks; and any, any other thoughts come to mind about their decline and what might have been some of the major causes?

Jerry Caraviotis [00:18:02] Yeah, I mean, some of the things you mentioned sort of go hand in hand with what we were talking about, you know, fire suppression, things of that nature. Several people that I really admire, really expressed a belief that fire ants weren't really that problematic to the bird, and I really respect these people. I really do. But I've always been of the mindset that fire ants had a major impact, on not only Attwater's, but a lot of, a lot of our local animals.

Jerry Caraviotis [00:18:49] There was a study done, that Fish and Wildlife told us about, that I believe it was done in Florida, and that once fire ants moved into a particular area, the insect biomass of that area dropped by about 80 percent.

Jerry Caraviotis [00:19:08] Now prairie chickens as adults are primarily vegetarian. But when they're young, like any young animal, they need a lot of protein to grow and prairie chickens tend to grow rather rapidly, reaching adult size really in pretty short order, just on a matter of three to four, maybe five months. So you can imagine the kind of weight they have to put on. But at this stage, they're primarily insectivorous.

Jerry Caraviotis [00:19:45] We, something that really drove this home to me is when we first began captive-rearing the birds, because every, every, every egg was so precious and every chick was so precious, we, we hand-reared all the birds, hatching them out artificially and rearing them ourselves. But after several years of the program, well, I asked my boss at the time if we could try letting a hen rear her chicks. And which he agreed to do, and we let her rear her second clutch of eggs (we pulled her first clutch of eggs).

Jerry Caraviotis [00:20:27] But what happened is we had the birds in a pen, lots of natural vegetation and the chicks did great up until about a week of age, and then we started losing chicks. And we weren't losing them from disease. They were just thin as rails. They were just basically dying of starvation. And at that point, we, we took the remaining chicks and brought them in and hand-reared them.

Jerry Caraviotis [00:20:59] But it just drove home to me what, you know, might have been historically going on with the bird, with chicks. In times past, when, before fire ants, before pesticides and herbicides and when there was a lot of insect life and these birds could just go down a row of vegetation and pick bugs like, you know, we pick berries, I guess. In that pen, and we were just putting a lot of food out, trays of starter food, throwing a lot of crickets and mealworms just constantly, constantly, but the chicks were burning off more food than they, obviously, than they were taking in.

Jerry Caraviotis [00:21:46] And so, again, as far as fire ants go, you know, yeah, they're basically eating, eating the food of the chicks. Not only that, they do tend to attack chicks as they're hatching. Prairie chickens, of course, are ground nesters, and it's very easy for fire ants to overwhelm chicks as they are coming out of the eggs, as they're hatching.

David Todd [00:22:17] I'm fascinated by what you're telling me, and it makes me wonder if these problems that the Attwater's prairie chicken was having with, you know, farming, overgrazing, fire ants, fire suppression, if any of those factors might have been at play with the decline of other grouse, knowing that the heath hen is now extinct and the lesser prairie chicken and sage grouse are in trouble. Do you think there are connections that you see?

Jerry Caraviotis [00:22:54] Oh, yes, absolutely. I mean, without a doubt. It's just been sort of a repeat of history. The heath hen being on the East Coast and East Coast grasslands are, you know, that's the first part of the United States that was developed by European folks. And, you know, that's, that was the first prairie grass to suffer and go away. Then the Attwater's, of course, greater prairie chickens have declined immensely over the range. And now the lesser prairie chicken is sort of following in the footsteps of the Attwater's.

Jerry Caraviotis [00:23:43] Something about what we're talking about, David, with habitat loss and fragmentation, prairie chickens are really what biologists or ecologists would call an R-selected type of life strategy. In other words. They produce a lot of offspring, they mature very quickly, they're predated on by many other wildlife. They don't live that long. In a certain sense, they are like feathered rabbits, you know, I got to the point where I was I nicknamed them prairie plankton. You know, that's their life strategy and I think, I think historically, and they're, they have been susceptible to inclement weather events during nesting. And back in the day, you know, I don't think that was much of an issue, when a certain subpopulation may have suffered due to that, or to other factors, because there could be recruitment from neighboring counties where that kind of activity wasn't occurring. When, when you have these little micropopulations that are now isolated, fragmented, when they have a bad event, then maybe poor nesting or due to rainy, inclement weather. There's, there's no recruitment now coming from adjacent areas to, to lift them up again. They're suppressed down. And yeah, at that point, it's, it's really tough for them to recover.

David Todd [00:25:34] So it, so the strategies for the grouse, and I guess the Attwater prairie chicken, are, sort of, have lots of individuals and lots of acres, and if you don't have both, then things start to go south quickly?

Jerry Caraviotis [00:25:55] It sure seems that way. You know, a lot of birds and a lot of animals, you know, somewhat adapt to human development. Grouse in general, and prairie grouse, you know, do not seem to fall into that category. Yeah, they need a lot of land and, and it's just not there anymore.

David Todd [00:26:25] Well, this helps me understand a lot of the background to why the zoo got involved with captive breeding, and my understanding is that the Fish and Wildlife Service, it was not their first choice. They seemed to have focused on habitat management for many years. What was the thought behind, do you think, their, their reluctance to turn to captive breeding?

Jerry Caraviotis [00:26:54] You know, I think it's just their background, you know, the folks that are in that line of work and, and their training, their background. They're wildlife biologists, they're field people. And I get it, you know. And really, that is the place to, to do the work if, if you're successful. You know, I totally get it. You know, they're just, at least initially, they weren't used to dealing maybe with zoo folks and captive rearing and stuff like that. So I think that explains the initial reticence.

Jerry Caraviotis [00:27:37] But honestly, you know, over, over the years in our partnership, I think, you know, I think we did become good and strong partners. And, you know, we needed each other, you know, can't, you can't do this alone. We needed field people and we needed people with expertise in captive-rearing birds to produce birds for release. So.

David Todd [00:28:07] Let's talk a little bit about the, the captive breeding and you know, how you did it, how you learned to do it better over the years. I'd be curious to learn about the, you know, from the get-go, of going out to collect eggs on the refuge to, you know, how you did the artificial incubation and hand-rearing and, you know, figuring out what the nutritional needs might have been. Can you sort of walk us through some of that? I know there's a lot of detail to it, but maybe you can give a layperson introduction.

Jerry Caraviotis [00:28:41] Yeah, I'll do the best I can do, David. That's a, that's a big story there. But yeah, initially, you know, Fish and Wildlife had hens radio-collared so they could determine when they were on nest out on the refuge, and not just the refuge, but basically from three different, when we got involved anyway, there were three basic subpopulations left, the federal refuge outside of Eagle Lake, the Texas City property, which later became the Nature Conservancy Texas Prairie Preserve, and then the private land holdings down on the central coastal prairies. So, again, they had hens radio-collared, so that they knew when they were nesting and they would go out and collect eggs and they would bring us the eggs.

Jerry Caraviotis [00:29:41] And you know, the artificial incubation, incubation, it was, at the zoo we did that all the time. And it was sort of, you know, standard, it was no big deal for us to get the eggs to hatch. As a matter of fact, we always had pretty good hatchability with the eggs. Of course, as time went on, we didn't have to rely on wild-collected eggs because we were producing eggs ourselves from our own pairs.

Jerry Caraviotis [00:30:14] The hen-rearing initially, the rearing of the chicks, was a little more problematic. These chicks, after they hatched and for the first maybe month of their life, we raised them in something called a "bootie box", which is just a wooden box, basically, an enclosed box with a heat source, something that can easily be cleaned.

Jerry Caraviotis [00:30:42] But the issue there was disease. You know, you can imagine a bunch of little birds in an enclosed space. And we did have some disease issues in the first weeks, week and a half, two weeks of life. Once we got past that, we were usually good. You know, the birds were almost as good as raised. And that was, that was problematic and remained problematic for many years. Of course, we had veterinary intervention which helped some of the chicks survive, and of course, some did not.

Jerry Caraviotis [00:31:27] Once the chicks got to a size where they were too big for bootie boxes we had enclosed pens outside that they would go to, sort of intermediate size. And after that, they would go out in same types of pens that the adult birds were housed in.

Jerry Caraviotis [00:31:56] Food, you mentioned food, we actually work very closely, all the zoos involved, you know. By the time the project really got going, you know, first it was Fossil Rim and it was us, and then some other zoos got involved, and when all was said and done, I think that we had at least five facilities rearing birds. So we all worked very closely with Purina, actually, on the nutritional requirements and diets for these birds. Had people researching that and the diets changed over time, a little more specific to the needs of the bird.

David Todd [00:32:43] So the way that you, through Purina's help and the, you know, the consulting from the other zoos, you could sort of create an analog for the really high-protein insects, but using this kind of a feed mix, some sort of kibble?

Jerry Caraviotis [00:33:07] Yes, it's like a ground kibble, you know, as you can imagine. The kind of food that you'd give chickens or ducks, something like that or, you know, small particles. But there was a starter diet for, for the chicks, which differed from adult maintenance diet. And it was a diet for birds going into breeding condition. So, and in addition to that, especially when the chicks were young, they got they got cultured insect food - crickets and worms and stuff like that. And that might be to more behavioral than actual, you know, any kind of really nutritional needs for the birds, to stimulate them and, and get them to do natural behaviors.

Jerry Caraviotis [00:34:00] Well, and was that an issue, this sort of problem of teaching the birds to live in the wild? You know, you're doing the hand-rearing, you're giving them kibble. It's a pretty artificial, I guess, set up. Was that a concern for y'all?

Jerry Caraviotis [00:34:20] Well, it was a concern. It really was, no doubt. And, you know, the birds, we found out, and I don't know if there was any way to know exactly, but the birds seemed pretty hard-wired. They seemed to adapt fairly well to release on the refuges, as far as getting food. The big problem was predation, you know. And I don't know if you can say that was really a factor of hand-rearing, or captive-rearing, or just the fact there were so few birds out there, upon release that, you know, it made it real easy for predators to zero in on them. So, yeah, I don't know, I don't know if that can be answered 100 percent. That's hard to quantify, you know.

Jerry Caraviotis [00:35:33] You've got to remember, too, you know, it takes a lot of hubris, I guess, in a certain sense, to expect to release a captive-reared bird, when the wild birds themselves were doing so poorly and crashing so quickly. But then again, you know, what choice was there, you know? Either, either you do that, or the bird, the bird was going to be gone. So you're doing the best with what you have. But, yeah, it's definitely a valid question, no doubt.

David Todd [00:36:17] Well, one of the things that I'd really like to hear your thoughts on is, is, as these birds got down to the hundreds, and below, how did you work out a way to avoid inbreeding problems?

Jerry Caraviotis [00:36:34] Yeah, well, that, that was, that was definitely a concern. And it was dealt with, again, when the program started, birds came from three areas that I

mentioned before. And the birds were mixed from those populations to try to diversify their genetics. And every individual bird had his genetics tracked through time. And David, every year before we set up pairs for breeding, we would, a group of us would meet and sit down and crunch numbers, basically. There was a chart with all the birds in captivity, with their genetic profile, the relatedness as compared to the whole group, and we, we picked who was going to mate with who, you know. So, we were in control of that, you know. Again, in the wild, the males boom as a group, the female comes in and she picks who she's going to mate with and, you know, on she goes, but we would set up males and females in separate pens to where they only had access to each other for breeding.

David Todd [00:38:16] Well, so you told us a little bit about breeding and choice of mates and of course, about how you actually reared the birds and fed them and so on. I understand that one of the big phases in this was, was actually releasing them to these breeding pens at NASA. Were you around when that first started? And could you tell us what about the role of the NASA partnership?

Jerry Caraviotis [00:38:51] Yeah, absolutely, I was. That was sort of at the tail end of my time with the birds and at the zoo, but what, what happened basically is, our breeding facility was on zoo grounds. It was not on public display. And as the zoo grew, the zoo privatized, that area was needed for some other facilities to help with zoo funding, I suppose. And so we were looking for a place to give the birds to. And one of our administrators, Phillip Cannon, was at a function. And it just so happened that the director of NASA was there, too. And they got to talking and and somehow the subject came up and NASA was gracious enough to offer us property out at the Johnson Space Center to build pens and which we did. And we had the first set of pens when I was there and after I left, subsequent groups of pens were built. I'm not sure of the total number now, but I think, I want to say at least 36 individual pens.

Jerry Caraviotis [00:40:16] Moving them here was no issue for the zoo. You know, we'd sort of worked out transporting prairie chickens to a fine art because we were always moving them around from one zoo to another or moving birds out to the refuge, the refuges, I should say, for release.

David Todd [00:40:38] Well, maybe you can talk (I hate to interrupt, but), maybe you can tell us the fine art of transporting these very rare, special creatures.

Jerry Caraviotis [00:40:50] Well, here's, here's the thing with prairie chickens. As a prairie animal with not much around them, and no horizon. When, when the birds are spooked, they want to fly and they want to fly quickly and a long distance to get away from the disturbance. And again, yeah, it's not an issue on the prairie. There's not many trees to avoid or anything like that. So they're very strong birds for their size.

Jerry Caraviotis [00:41:28] So, to transport them safely, what you needed was wooden transport boxes with good ventilation. They were dark, which helped calm the birds down. And the the roof of all the compartments had a very thick layer of foam glued to it. If the bird decided to jump up, try to get away, whatever like that, at least they wouldn't knock themselves out against the roof of the, the container.

Jerry Caraviotis [00:42:04] And usually when you put them in there, you know, there might be a little rustling around for, you know, seconds or minutes and the birds would typically settle right down. You'd put a thick layer of hay down on the bottom and they would snuggle

in. And then you usually don't hear a peep out of them, you know, until, until it's time to take them out.

David Todd [00:42:25] So you didn't have to... No sedation.

Jerry Caraviotis [00:42:30] Oh, no, no, absolutely,.

David Todd [00:42:31] Just the way you handle them.

Jerry Caraviotis [00:42:33] No, no, no, no, no. Absolutely not.

Jerry Caraviotis [00:42:37] Something that's interesting about that too, David, in a similar vein, is housing these birds. There's predator-proofing. We had to use hard hard-wire shells on the pens. But at the same time, you can't have that because if a bird gets startled and it goes flying off, you know, and slams into the wire, you know, injury or death, you know, is the result. So we basically had a false ceiling, and false sides of a stretchable mesh net made for game birds. Yeah.

Jerry Caraviotis [00:43:24] Well, tell us more about the design and construction of those pens. Sounds like they were pretty carefully put together.

Jerry Caraviotis [00:43:33] I mean, yeah, I mean nothing too exotic. Again, you had to take into account predators, hawks, things of that nature. Snakes weren't a big issue at the zoo, but out in the wilds of NASA, we were finding snakes in the pens. We were a little more worried about eggs, actually, than the adult birds.

Jerry Caraviotis [00:43:57] But anyway, we did put up, with the help of one of the NASA (NASA has a wildlife team actually, on grounds because so much of their property is fairly undeveloped). So the fellow who headed that up was really, really helpful in getting material and helping us put up material as a sort of sheet metal snake barrier around at the bottom border of the pens.

Jerry Caraviotis [00:44:28] The pens themselves - nothing too fancy, just you know, sort of sand and gravel bottom just to make cleaning a little bit easier, with, with clumps of native grasses. And the reason for that is, you know, for the birds to hide and feel a little more comfortable. Also, that's, that's where they make their nest, you know, typically at the base of a clump grass. And that worked out really good. And they're for nesting for us, either there or at the zoo actually. Again, though, the soft netting on the insides to prevent an injury from any startled birds, that was critical. You had to have that, just absolutely had to have that.

David Todd [00:45:15] And how did you figure out the dimensions that might work for these pens?

Jerry Caraviotis [00:45:20] Well, you know, oh, you know, I guess most of that was sort of an educated guess. With any animal in captivity, you want to give them space. You know, you don't want to crowd them. But at the same time, if there's too much space, they become a little harder to manage, a little harder to find, a little hard to catch up when it's time to catch them. So, you know, I guess it was just a compromise and it seemed to work out. I guess each pen was roughly, oh, I don't know, let's say, 30 by 50 feet, in dimensions. So, and they were all interconnected, too, so you could, you could modify the size of a pen, if need be - little side doors, you know, so.

David Todd [00:46:16] Well, and then how did these pens get worked to sort foster courtship and breeding between the birds that were adjacent to one another (I guess you'd already selected the mates you wanted to use to help with the diversity). But, but then how do you be sort of the midwife or the yenta to make the, the pairing happen?

Jerry Caraviotis [00:46:44] No problem. No problem at all. You know, nature took care of that part. That was never an issue. No. No, you just left them alone and they did what came naturally. Yeah, it really didn't, didn't require much on our side, maybe a little peace and quiet, you know, not much disturbance. But outside of that now, it was, yeah, it was pretty much automatic.

David Todd [00:47:15] OK, well, and then I guess the last step, in trying to return them to the wild, how, how were these releases done? You know, once you've got an adult that you want to take to the National Wildlife Refuge or maybe these private lands near Goliad - how was that done?

Jerry Caraviotis [00:47:37] Well, there was, it was a learning curve, you know, and it started long before the captive-rearing project came about. Back in the day, I believe it was Texas Parks and Wildlife, not the federal government, but I want to say they, they transported some birds from an area where they were, were more populous to an area that they had declined. And they did what's called a hard release. They basically just caught up the birds, flew them to the new site and let them go.

Jerry Caraviotis [00:48:12] And I think they found out that that was not the way to go. A lot of the birds just sort of disappeared. So with a captive-rearing release effort, Fish and Wildlife, the Nature Conservancy, would build release pens on the property, just like the pens they lived in basically before release. And the birds were taken out there, housed there, and then there was a soft release, basically. And we learned, too, that there was, you know, there was a, I guess there was some discussion about how long the bird should be left in the pens before the release. And we found out that if you left them in longer rather than a shorter period of time, the birds had better survivability. And I think the final figure we ended on, I want to say was about two weeks in the pens.

Jerry Caraviotis [00:49:26] And I will say I think that's something the zoo contributed to, because when you work with, with captive animals and you're handling them and, you know, in real close proximity, you realize quickly how stressful it is for an animal to be moved, to be put in a new environment. And I think we sort of lobbied for the, for the longer holding times in the release pens and as it turned out, yeah, that proved to be beneficial.

[00:50:06] So this, the two weeks in the release pens, sort of allowed them to acclimate to their new surroundings?

[00:50:17] Yeah, not only that, David, but just to, to de-stress, you know. Yeah, just to relax and settle down. You can imagine, again, a bird, an animal being caught up, being examined (because they were examined), often they were radio-collared at that point. So it's a stressful time for them. You know, things are happening to them that they're not, they don't know what's going on, basically. So this just gives them the time to sort of forget all that and relax and get back to, you know, the normal activity of the feeding and eating and drinking and all that. When release comes, you know, they're not all wired up and stressed. It just natural, you

open the door and they can come and go as they please, and you still leave food in there and then after a few days, it's like, well, you know, we're through with this place.

David Todd [00:51:20] Well, maybe a couple more questions about these, this release, phase. One is that I'm curious about one release site, I guess the one down near Texas City, that's now owned by the Nature Conservancy.

Jerry Caraviotis [00:51:38] Yes.

David Todd [00:51:38] I understand that it was used for collecting birds and eggs and then it was, you know, used for releasing birds. But then at some point that was stopped. Why did that happen?

Jerry Caraviotis [00:51:54] Well, I'm not sure 100 percent, I can tell you what I know. And I want to say that really happened about the time I left being involved in the program. So, you know, there may be things I don't know in totality, but that, that piece of property was an anomaly. And it was a head scratcher for, for the, the biologists dealing with, with, with Attwater's, because it was small. It was, they felt it was overgrown, it was too brushy, in other words. And they just couldn't believe that that population was hanging on. You know, it just made no sense. That population they felt should have been gone a long time ago. But it didn't. They hung on. And, but I guess eventually, you know, through time, even with the releases and stuff like that, the bird just were not taking hold there. So I think at that point, that's when the decision was made to quit releasing there, to, to take these birds and release them elsewhere.

David Todd [00:53:19] And then I guess another thought is, is with those release sites that, you know, continue to be used like the, of course, the Attwater prairie chicken refuge and then the sites down near Goliad, what sort of precautions could be taken to try to protect these, these very vulnerable and precious birds once they were out of their release pens?

Jerry Caraviotis [00:53:53] Well, I'll tell you, you know, what was done on the refuge that I'm aware of. I'm sure the same kind of procedures were followed at, on the private properties, I'm assuming. But on the refuge, there were, they did a couple of things to try to limit predation on the birds, because, again, that was, that was the big mortality factor. Once the birds were released, they were getting hit pretty hard.

Jerry Caraviotis [00:54:22] So they did some brush removal on the refuge. They cut down some, some of the smaller trees and such that were away from the San Bernard River, which, which borders one edge of the refuge.

Jerry Caraviotis [00:54:36] All the fencing, if you can imagine this, all the fencing in the refuge, they put sort of these metal, thin metal spikes on top of the tops of the fence posts, so some birds of prey could not loaf there and hang out there, basically.

Jerry Caraviotis [00:54:58] They also did some predator control early on, mammalian predator control. But, you know, it's, it's interesting, and they found out by trapping and removing skunks and raccoons and things of that nature, what happened next is the snake population took off and they were getting, they were getting more nest mortality from snakes eating eggs. So, you know, you push one thing down and something else pops up. You know, it's not that simple.

Jerry Caraviotis [00:55:31] Now, as far as fire ants ... early on, they had some entomologists come down from A&M, I believe. And they determined that the fire ants on the refuge, on the refuge were single-colony strain of fire ants - they only had one queen. And they advised the folks out there not to do any fire ant poisoning or elimination procedures, because if they got rid of the single-queen colonies, they might get infested with a multi-queen colonies which are more massive and have more individuals and such. So for the longest time, they, they didn't, not do any kind of fire suppression. However, again, and this is about the time I was no longer involved in the, in the project, but I've heard that they finally decided to do fire ant suppression out there, and when they did that, their chick survivability went up significantly. So, and that's, you know, that's most interesting.

David Todd [00:56:52] Yeah, well, I guess this is, so much of it is trial and error, and research, and there is no owner's manual for Attwater's prairie chickens.

Jerry Caraviotis [00:57:05] No, there's not. You know, and grouse in general as a group have not, you know, there has not been a lot of captive work done with them, and very little actually, at least when we entered the program. So, yeah, a lot of this was just, you're sort of writing your own script as you went along, you know, trying different things. I'd like to believe, you know, after some years of doing it, that we made a lot of progress, you know, in our knowledge of rearing these guys.

David Todd [00:57:37] Well, and, of course, there's a lot of science and hard work that goes into these efforts to, to bring back the prairie chicken, but I think you've pointed out in the past that it's, it was really, as much as anything, a labor of love. You know, that there was a lot of commitment and conviction that went beyond what, you know, a 9-to-5 job usually brings out in people. Could, could you talk a little bit about your own feelings, and maybe some of your colleagues' about the bird and the mission to try to save it?

Jerry Caraviotis [00:58:17] Well, I mean, one thing I would say, in that regard, David, is you would just not believe how many people over the years were involved in this effort. How much time, talent and hard work went into this: biologists, zoo people, research people, nutritionists, volunteers? I just can't even begin to think of all the people that, that touched this project. And honestly, without all those people, it would have been a failure from the get-go, you know. One group of folks or one institution could not have accomplished what has been accomplished with this bird. We're not where we want to be, obviously, but nevertheless, the bird is still there, at least for the time being, but just an incredible amount of folks gave unselfishly to this, to this project. Yeah.

David Todd [00:59:35] Well, this may be a cynical question, but, you know, pragmatic in a hard, cold world: you know, the populations have remained pretty low in the wild. I mean, I guess under a hundred to two hundred for the last almost 20, 30 years. Do you think that the captive breeding effort should be sustained if the releases are unsuccessful?

Jerry Caraviotis [01:00:11] Well, I'm biased. Maybe you're not asking the right person. But, I mean, I get, I get that. I mean we got that even during the time I was involved. You know, why are you wasting these resources? Why are you wasting all this time? It's sort of a hopeless cause. You know, you're, you're charging at windmills and such. And I get that. I really do get that.

Jerry Caraviotis [01:00:38] But then again, you know, a couple of things. First of all, once the bird is gone, it's gone, you know. You can't go back, it's final. The other thing is, it's hard to say

what the future holds. Without a doubt, the bird is going to have to be intensely managed into the near future, you know, in order to stay afloat. But you never know, who knows? I mean, maybe someone will figure something out. Maybe, maybe we'll find a cure for fire ants and eliminate them from the landscape. You know, it's hard to say.

Jerry Caraviotis [01:01:23] I guess. You know, it's always worth trying. And if you just throw in the towel and say, oh, well, I just, I'm, I'm not of that mindset. You know, they said that about the California condor, too, and other animals. You know, you're wasting your time, blah, blah, blah. Well, the condor is still around, you know, and if people had thrown in the towel on that, they'd be gone. And again, extinction is forever. So that's my views on it, David.

David Todd [01:02:05] So tell me a little bit about the, I guess the, the program of captive breeding and release at the zoo. And I think a lot of people who maybe don't understand the totality of what a zoo does, they see the exhibits and the sort of front-facing part of the zoo, and, you know, all the things that greet a guest, visitor there. But they may not know about what's happening in NASA or even in the back quarters of the zoo to breed these endangered animals. Can you describe maybe some of the, I don't know, sometimes I guess it's a tension, sometimes it's a synergy, between the front of the zoo and the back of the zoo, you know, between the display, and the research and captive breeding efforts?

Jerry Caraviotis [01:03:04] Yeah, I'll try to address that. You know, zoos have changed over time and are continuing to change, obviously. You know, originally, they were just menageries where people could come and see things and, you know, for their amusement perhaps. And as time has marched forth, zoos have, by necessity, have become more and more involved in conservation work. I'll tell you what, I would say, for most zoos now, that's really a big part of the core of what they do, believe it or not. And you're right, the zoo-going public doesn't often see that, directly anyway. But I think, I think zoos are more inclined now to have educational graphics or programs or announcements about this kind of activity so people know what's going on behind the scenes.

Jerry Caraviotis [01:04:11] I will tell you, once we got several years into the project and we had enough birds that were, actually some of the birds were, I guess you'd call them surplus. They weren't, they weren't candidates for release and such. We built an exhibit in a public area of the zoo for the birds. And it had really neat graphics about the birds and a kiosk right next to the exhibit. Ron Kabele, who is with Texas Parks and Wildlife, who did a lot of their documentaries and stuff, did a video for us, an educational video about the bird and the recovery effort. And that was an on-demand video that zoo visitors could play just by pushing a button.

Jerry Caraviotis [01:05:03] So, yeah, I mean, that kind of outreach can be done and is being done, you know, no doubt. No doubt. But yeah, there is a tension because, you know, zoos have typically only so much land, you know, you have to sort of juggle between, you know, giving people animals to see and, and a neat experience, an exciting experience, I guess. But, but also, you know, showing folks what else zoos do.

David Todd [01:05:45] Well, let's talk a little bit about the displays, and I guess the kind of animals, that zoos have, and promote and conserve. I remember when I was a kid, and I'm sort of dating myself, but I, I remember going to the zoo and being excited to see lions and tigers and camels and elephants and, you know, large charismatic megafauna from far, far away. You know, that, that sort of smacked of the Serengeti or African jungle or something. And, and yet, you know, there's, there's this other kind of message - an animal that the zoo is involved with,

the Attwater's prairie chicken, which is, you know, a small brown bird that's hard to see in the bushes often. And it comes from, you know, within 50 miles of Houston. It's a very different kind of an animal to be in your collection and part of your mission. And can you talk a little bit about the, you know, tension there, I guess, between those two sorts of creatures?

Jerry Caraviotis [01:06:59] Yeah, I think I can, you know, and the big mega, you know, animal forms, you know, people want to see that and they're important and they should be, be part of a zoo collection, I think, you know, just like you got to see as a youngster, you know, places that many of us will never visit, that, that is a big deal.

Jerry Caraviotis [01:07:27] But I think here's the thing, I think, David, is that society has changed somewhat through time. You know, some people call us the National Geographic generation. You know, people are a little more attuned to the natural world, all the little, you know, component parts. As far as the Attwater's goes, too, you know, it was getting fair press coverage in our area, in the paper, on TV at times. So there was an awareness of the bird, in the community. And I'll tell you what. Those, that little exhibit, even though the birds were hard to see at times, got a lot of visitation. You know, I think times have changed a bit. So, yeah, people are aware of these kind of kind of issues. And we got a lot of support from the community and within the zoo, actually, on this project. We had a conservation committee at the zoo and we, we sent out basically ballots on what, what the zoo workers thought was the most important conservation project within the zoo. And believe me, there were many. And the Attwater's, actually, got the most votes. So, yeah, I mean, elephants and tigers and lions are great, but now they got to share the stage a little bit, I guess.

David Todd [01:09:18] Well, I guess there's the stage at the zoo, but then there's also the stage where these Attwater prairie chicken, and other grouse, survive out in the grasslands and prairies. I think you've talked a little bit about, written about, what the prairie chickens' demise means about the loss of prairies. You were talking about it earlier, about farming and overgrazing and, you know, suburban sprawl and so on, that affects, its habitat. What sort of message do you think these prairie chickens tell about that whole ecosystem?

Jerry Caraviotis [01:10:04] Well, you know, to my thinking, they're just, they're a symbol of a larger issue and phenomenon. You know, when you look at Texas and the Gulf Coast, and how much change has happened in such a relatively short amount of time, it's a bit sobering. And we can't go back in time. We live in the now. But, something that really affected my, my thinking on this was reading Cabeza de Vaca's account of his time along the Gulf Coast and particularly in Texas. Now, he was, he and his compatriots, were shipwrecked here in the early 1500s. And he was one of the earliest European visitors to Texas.

Jerry Caraviotis [01:11:18] But after his time here, you got to think that really European development did not really start in earnest in our part of the country until the early 1800s. So the Texas we see today, the Gulf Coast we see today, we've come from what was basically a raw wilderness to where we are now in 200 short years. And that's really a short period of time. So, and Texas is just a microcosm for the whole world, you know. This is, this is happening throughout the planet as our population increases and development continues.

Jerry Caraviotis [01:12:09] To me, the question society has to answer, is going forward, how much of what was once wild we want to continue to have for future generations to see, to know. That's, I think, that's a huge, huge question that, that has to be addressed. So, and yeah, that, that, that's a biggie. So, yeah, the prairie chicken and its plight, in a sense, is the plight of the planet. You know, a million birds to near extinction in 200 years, and without a doubt, it's

all man-driven. You know, this is, this all falls on us. So, a society has to answer that as a whole. Is this, are these kind of things worth holding on to, or not? You know?

David Todd [01:13:22] I mean, in lots of respects, I guess you'd call it an existential question, whether it's our existence or the bird's existence or both of ours.

David Todd [01:13:34] Well, let me ask you something else I think is so interesting. When I've talked to conservationists, often they're from, you know, kind of one aspect of conservation. They work with animals and habitat. Or, they work with pollution control, public health, environmental justice, you know, that sort of different side of the same coin. But it's rare to meet somebody like you who has done both, you know, to work at the zoo for 20-some years and then to also work at EPA and Harris County Pollution Control Services. And I'm curious how you connect those two sides of your career.

Jerry Caraviotis [01:14:24] Well, yeah, David, no doubt. I've worn several hats. And they are different, but at the same time, there is that similarity. And, you know, both are concerned with a healthy, diverse environment for both humans, and the animals and plants we share the planet with, you know, I mean, when you get down to it, that's what both of them are about. So there that a connection, there is that bridge, maybe dealing with it at different ends, but at the core, yeah, that's what it is, a healthy environment for the inhabitants of a planet, which includes us.

David Todd [01:15:22] Well, well said. Well, I shouldn't keep you. I did want to just leave with one last question, and that is, you know, is there something you'd like to add, just as an open-ended comment about any of your work with conservation, or in particular with the Attwater's prairie chicken?

Jerry Caraviotis [01:15:45] Well, I did want, yeah, there's one thing I want to talk about. Because I think, I think most people would find it fascinating, and not many people know about it. I would say very few people know about it. And it's a little thing. But it's fascinating. As we're talking here, David, I'm looking at a picture of an Attwater's prairie chicken chick, that Bill Konstant, who was our conservation officer at the time, took of one of our chicks at the zoo. And I've always said that when you look up the word "cute" in the dictionary, there should be a picture of an Attwater's chick right next to it, because they are just cute, you know, they are! And you can't help but be enthralled by them.

Jerry Caraviotis [01:16:36] But one thing that happened early on, was a surprise to us, a big surprise, as when we were raising the chicks for the first time. We start seeing chicks trying to boom, trying to do the male display, if you can believe that. And it would typically be within the first week, to two weeks of life. And they would continue it, as time went on. The earliest we ever recorded it was 24 hours post-hatch.

Jerry Caraviotis [01:17:16] Now, imagine these little guys that are about the size of a chicken egg, yellow, fluffy down. And they're, they're bending over, they're exposing the little tiny areas that will be air sacs on the side of their head, their necks. Lowering their heads, stamping their feet. And not only that, but displacing other chicks in the pen, you know, acting pretty much like they're going to act as adults, you know, a year or so down the line.

Jerry Caraviotis [01:17:56] I mean, we were just blown away. When we saw this, we let the folks, the biologists know at the refuge. And they said, oh yeah, yeah, we know that. But what is not known if that is really determinate, that that is a male or female. Well, OK, so they threw

that in our laps like, well, we're going to find out. So, you know, these birds are banded from day one and throughout their life. They're tracked, so we know each individual. So we started keeping records of every chick that was observed doing that booming behavior. And yes, indeed, as you might expect, every chick that ever did that turned out to be a male.

David Todd [01:18:50] Amazing, so it's hardwired behavior.

Jerry Caraviotis [01:18:54] It just, yeah, it's hardwired and it's such an early age. I mean, what is going on? You know, were they establishing a pecking order, or were they...? I don't know. It's just, it was just beyond fascinating. And it was just so neat to see that.

Jerry Caraviotis [01:19:17] The other thing I wanted to mention, is during my time at the zoo, I had the great opportunity of introducing the birds to, to many people - special guests, dignitaries, on and on and on, people with a special interest in the bird. And typically it was when the males were, were displaying. And we would go back to the off-exhibit area, and even at NASA, once they were there, and show people the birds displaying.

Jerry Caraviotis [01:19:59] Now, typically, during most of the year, the birds are pretty aloof to your presence, you know. They typically weren't too scared, but they typically weren't getting too close to you either. They're just going about their business. But let me tell you, when the hormones kicked in on the males to start booming, all fear went away and they were typically in attack mode. There's records of them attacking bison, cattle, automobiles out on the prairie.

Jerry Caraviotis [01:20:39] And you have to be sort of careful when you went to work with the birds when they were in this mode, because you don't want to step on them. They were around your feet and their wings slapping you and biting at your pants leg and..

Jerry Caraviotis [01:20:53] But, what I'm driving at is when you brought people out during this time period when the males were booming, they were right up front and in your face. I mean you were just feet away from them. And they're doing their display and making their noise and stamping their feet and, you know, blowing out their air sacs and raising the feathers on the sides of their neck, over their heads. And I mean, it's something to see. I'm sure many people have seen it on TV. But to a person, and I'm talking about people that maybe some of them maybe really didn't have that great an interest in the natural world, perhaps, most of them, I think, did. But to a person, everyone was just fascinated, just fascinated to see that. And I think if every Texan had the opportunity to see that first-hand, you know, the bird would even have more support, that it has had.

Jerry Caraviotis [01:21:51] I mean they're really a charismatic animal. I mean, when I was at the zoo, I had the opportunity to work with literally hundreds of species of birds from all over the world, some incredible birds. But, without a doubt, the prairie chicken, particular, the Attwater's prairie chicken which we worked with - extremely charismatic bird, really unique, really neat.

Jerry Caraviotis [01:22:26] And I don't know if we touched on grouse in general either. Grouse are a family of birds that are restricted to the northern hemisphere. In North America, we have a variety of species. Some are more woodland-edge type habitat birds. And of course, the prairie chickens are the grouse, along with sharp-tailed grouse, that are the, that, for the most part, lived in in the middle of the continent, in the grassland belt stretching from the Texas and Louisiana coast all the way up to the Canadian border and beyond.

Jerry Caraviotis [01:23:09] Now, I don't know if we talked about it either, David, but the Attwater's, like the heath hen, is a disjunct population of the nominant species, which is greater prairie chicken. So it's a subspecies, it's not considered a full species, and they're very similar. If you had them side by side, you could probably tell a few differences, but pretty subtle differences. But again, historically, the coastal prairies were sort of buffered and separated from the tallgrass prairie starting, I guess, in the northern part of Texas and the panhandle and going north. So, the Attwater's were restricted to coastal grasslands from southwestern Louisiana down to nothing, most people say around Corpus, and maybe a little further south of that.

David Todd [01:24:11] So they're really part of the Houston biota, you know. They're the original Houstonians.

Jerry Caraviotis [01:24:19] Oh, absolutely. Someone.. I'll throw this out there, and it's sort of an interesting comment. I think there's a lot of truth to it. A birdwatcher I knew in Houston gave a talk once and he was talking about a fellow bird watcher, he knew, a friend of his, who described original Houston as being prairie chickens and mottled ducks, rear-end to rear-end.

Jerry Caraviotis [01:24:51] And I think there's some truth to that. That's a great simplification, though, when it comes to the bird life of Houston. It's so diverse. But, you know, we lived in, we live in a, in an area that was once a great wetlands and a great prairie area, and, you know, so, yeah, they were here. They were here when I was a boy.

David Todd [01:25:19] Well, thanks to you, they, they still are. So, thank you so much for telling the tale of all these people's efforts, including yours, of course, to try to breed these animals and get them back to where they belong. I really appreciate your time and thank you so much for teaching us.

Jerry Caraviotis [01:25:45] My pleasure, David. You know, my pleasure. You know, I'm very happy to share with, my experience with folks. Yeah, absolutely, you know, the bird is bigger than me, that's for sure. So I'm more than happy to share the little bit of time and experience I had with it, with anyone who's interested.

David Todd [01:26:11] Great. Well, thank you so much. Hope you have a good weekend and a happy holiday and a safe, healthy New Year.

Jerry Caraviotis [01:26:20] Very good. Likewise. David, I wish the same for you.

David Todd [01:26:24] Thank you. Take care.

Jerry Caraviotis [01:26:25] OK, bye.

David Todd [01:26:26] Bye there.