

TRANSCRIPT

INTERVIEWEE: Mike Tewes

INTERVIEWER: David Todd

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David Todd [00:00:01] Okay. Well, good morning. I'm David Todd, and I have the privilege of being here with Mike Tewes. And I hope I'm pronouncing that correctly - your last name.

Mike Tewes [00:00:11] Is "Tewes".

David Todd [00:00:12] Tewes. Apologies.

Mike Tewes [00:00:15] No problem.

David Todd [00:00:16] Well, with your permission, we plan on recording this interview for research and educational work on behalf of a small non-profit called the Conservation History Association of Texas, for a book and a website for Texas A&M University Press, and for an archive at the Briscoe Center for American History, which is at the University of Texas at Austin.

David Todd [00:00:39] And we will keep, you know, the records on our side. But I want you to know that these records are all yours, and you can use them as you see fit.

David Todd [00:00:49] And I wanted to make sure that that's okay with you.

Mike Tewes [00:00:53] That's okay with me.

David Todd [00:00:54] All right, well, let's get started.

David Todd [00:00:56] It is Thursday, June 29th, 2023. It's about 9:20 a.m. Central Time. My name is David Todd. As I said, I'm representing the Conservation History Association of Texas, and I'm in Austin. We are conducting a remote audio interview with Dr. Mike Tewes, who is based in the Kingsville, Texas, area.

David Todd [00:01:20] Dr. Tewes is a Regents Professor at the Cesar Kleberg Wildlife Research Institute at Texas A&M University in Kingsville, where he has coordinated the Feline Research Program. And he holds the Frank Yturria Endowed Chair in Wild Cat Studies. During his career, he has worked with a variety of wild cats, including mountain lions, bobcats, leopard cats and clouded leopards. He is especially known for his years of research and conservation work with ocelots.

David Todd [00:01:52] Today, we'll talk about Dr. Tewes' life and career to date, and especially focus on what he has learned about the study and conservation of ocelots.

David Todd [00:02:03] So I thought we might start basically chronologically, and ask about your childhood and early years, and if there might have been some people or events in your

young years that might have been influential in getting you interested in nature and science and ocelots in particular.

Mike Tewes [00:02:24] Oh, yeah. I guess I've always been, um, had the road kind of clear for me as to where I was going to head into the future.

Mike Tewes [00:02:34] My father got me interested in some bird hunting, dove hunting and predator calling - coyotes.

Mike Tewes [00:02:40] And fourth grade, I wanted to impress my sixth grade teacher who was a bird watcher. And so I took a baby roadrunner and made it into a pet. And it turned out to be a great pet - sat on my shoulder, and then finally went wild again. And I'd see it every few years in the back of my yard.

Mike Tewes [00:03:00] And so I was connecting with him: Ollie Barrier was his name, sixth grade teacher in Odem High, in Odem School. And so, he got us interested in the Welder Wildlife Refuge and also the world of wildlife (officially the Rob and Bessie Welder Wildlife Foundation of Sinton, Texas).

Mike Tewes [00:03:27] And it's an incredible place that started in the 1950s that has educated hundreds of scientists, that have gone on and done good things in the United States.

Mike Tewes [00:03:40] And that was a very important part of my life by going out on field trips, fourth grade, sixth grade. I volunteered the summer of 1973, in high school - helped with their egg collections. And then they ended up funding my master's degree with David Schmidly at A&M, on rodent ecology in burning environments, or prescribed fires.

Mike Tewes [00:04:09] And then, maybe a very pivotal moment would be at the end of that degree when Drawe was the assistant director at the Welder Wildlife Foundation and he had to write a proposal on ocelots and he asked if I wanted to do that. And I agreed. And it was May of 1981 that he asked - second week of May of 1981. I remember dates pretty well.

Mike Tewes [00:04:38] And I met the following (I had two weeks to do it) and I met my wife-to-be the week after. And I had to cancel our first date so I could finish that proposal to get that ocelot proposal done. And she has since forgiven me for that.

Mike Tewes [00:04:58] But it was, so we turned it in. It got rejected, but it was picked up by Texas A&I University in Kingsville. And Lynn Drawe got me in on that and to where they hired me to do the project as a research associate at the Cesar Kleberg Wildlife Research Institute. And I used it for my Ph.D. material at the University of Idaho for a degree.

Mike Tewes [00:05:27] So it was really an important moment for me. And I really I'm indebted to Lynn Drawe for that, really getting me into that career in ocelots.

Mike Tewes [00:05:38] And part of the message there is also persistence. Persistence I think is so important in our field of wildlife conservation, in almost anything we do. And I didn't give up on that project, even when our proposal got rejected. I kept trying to determine a way to get in on the ocelot. So I was very fortunate.

Mike Tewes [00:05:59] And that's another underlying thing. I've been fortunate throughout my career. Many, many good things have happened to me, and I've interacted with good people, with good intentions.

Mike Tewes [00:06:09] And so persistence and being fortunate have helped me get to this place.

Mike Tewes [00:06:15] So that was important, an important moment there.

Mike Tewes [00:06:23] I grew up in Odem. It's a small town just ten miles away from that refuge, and it's just north of Corpus Christi. So that kind of outdoors time - I was a big birdwatcher when I was in fifth grade and sixth grade. I knew my birds better than I do now, again, because of the influence of that one teacher.

Mike Tewes [00:06:44] And then I guess it was in college, I decided that ornithologists had a good thing going, but the mammalogists knew how to enjoy the field work even more, and then including, just including field trips. And so, I ended up becoming a mammalogist at Texas A&M University.

Mike Tewes [00:07:14] And there the big influence on my life was David Schmidly. And David Schmidly was, I remember taking his Mammalogy class in 1977 and he was just promoted from assistant to associate professor at that time. And I remember finishing my first mammalogy test and I was the first one finished in the whole class. I was so excited. I loved mammalogy.

Mike Tewes [00:07:42] And I remember his assistant came over to grade my paper. I'm sure he wanted to mark a bunch of X's and things and I ended up slamming a 97 out of that first exam.

Mike Tewes [00:07:53] So I think that's when Schmidly first picked up on me.

Mike Tewes [00:07:57] That and the second thing was going with him on a field trip for two weeks in the Big Thicket, in Christmas of 1977, and I was his number one assistant by chewing all the oats that you have to chew to put into rat traps. I was trying to impress him by chewing the oats good and getting up first thing in the morning. So David Schmidly really has been critical throughout my career.

Mike Tewes [00:08:23] And he ended up becoming department chair of the Wildlife Department at Texas A&M University, Dean at the Galveston office. He was president of Texas Tech University, Oklahoma State University and the University of New Mexico, where he retired.

Mike Tewes [00:08:43] But he's so important in the natural history of Texas - all the books he's written on mammalogy. He just came out with a new one this year on the mammals of the Trans-Pecos, one of the co-authors. And he wrote the first one back in the 1970s because I remember that one distinctly. And so he's done an incredible work in on natural history and definitely should be a person I interviewed for this program, I would think - you may want to consider that.

Mike Tewes [00:09:15] So that got me through, into my Ph.D. at the University of Idaho.

Mike Tewes [00:09:26] And again, as another example of being very fortunate, I picked the University of Idaho because of Dr. Maurice Hornocker. He was a giant, in my mind, still a giant, in the field of carnivore ecology. He was the first one to study mountain lions in the 1960s.

Mike Tewes [00:09:45] He, in fact, his memoirs are coming out in two days, July 1st. It's called "Panther on the Ledge". And it chronicles that time period from 1963 to '72 when he did the first mountain lion study in the central wilderness of Idaho. And that changed the perception of mountain lions, I think, throughout the United States from a varmint that should be killed to a venerable carnivore worthy of protection by the states and management by the states.

Mike Tewes [00:10:21] So, he was very instrumental in my career. And so really, so I went up there and took my data from that first ocelot study and analyzed it for my Ph.D. and graduated in 1986.

Mike Tewes [00:10:40] About that time, another important point in my life was March of 1986. I was at the North American Wildlife Conference in Reno and we had a breakfast with Morris Hornocker and my director from the Caesar Kleberg Institute, Sam Beason, Dr. Sam Beason. And Sam wanted me to come back to Texas to study ocelots. And Maurice wanted me to stay in Idaho to study cats.

Mike Tewes [00:11:09] And I thought, "Why am I sitting at this breakfast with these two very important people in the field are offering me an opportunity?" And that was, again, a very fortunate and important point in my life with that. And it turned out the money was actually available at Kingsville - Caesar Kleberg Institute. Well, that's what the director told me. So I had to make a choice. And I picked to come back to Texas to study ocelots. There weren't ocelots in Idaho: that was another key factor.

Mike Tewes [00:11:49] And what was an interesting twist on this was in August, just as I was graduating and coming back, I had the U-Haul trailer, Bonnie and I, my wife Bonnie, who is like the number one assistant on ocelots. We had the U-Haul trailer packed up ready to come back.

Mike Tewes [00:12:05] And the director, Sam Beason called me, and said, "Mike, you might want to hold on that. We may not actually have the money available." And I said, "Sam, I'm already packed. I'm coming back anyway. The U-Haul's packed." And what is kind of ironic is, I guess about ten years later, after Sam passed...

Mike Tewes [00:12:27] I'm beginning to lose my voice there, so I apologize for that.

David Todd [00:12:31] Do you want to grab a glass of water or...?

Mike Tewes [00:12:34] Well, at some point I might get a cough drop because my voice does get weak at some point and in a second I'll get a cough drop.

Mike Tewes [00:12:44] So, so after he passed, we were going through his files and Sam had written a letter to me that August of 1986 saying, "Mike, we don't have a position here. Do not come back to Texas, essentially."

Mike Tewes [00:12:58] And that was just a shocker for me to think this whole thing probably shouldn't have happened. I probably shouldn't have even come back to Kingsville to work at the Kleberg Institute. And none of the cat program would have happened.

Mike Tewes [00:13:13] So again, that was another fortunate point in my life as well.

David Todd [00:13:18] Wow! The future might have been very different. This is like "what-if" history.

Mike Tewes [00:13:23] Yeah, like some of those movies. What happens if something else had happened?

Mike Tewes [00:13:27] And for me that would have been totally different. And I'm pretty sure, I'm pretty sure the cat program may well have, it wouldn't have existed because it wasn't on the radar. The only reason it was on the radar because of I guess what I was doing. And so that, yeah when I think about that, it's an incredible thought for me to think there's been more focus on ocelots than would have otherwise happened.

Mike Tewes [00:13:59] And so, that got me to Kingsville. The Cesar Kleberg Wildlife Research Institute began its first year in 1981, and I arrived that October. So, I feel happy about being there at the inaugural year of this Institute, which I think is an incredible place.

Mike Tewes [00:14:20] I think it's one of the leading institutes in wildlife research and conservation in the United States. And by many measures, we are - in terms of publications of funding levels, number of PhD students, professors. We have 20, 22 professors in wildlife that focus on the different disciplines. So, we're, I think, the largest in Texas and one of the larger ones in the United States.

Mike Tewes [00:14:52] So, to be involved with this organization, be fortunate enough to get back to here, is an incredible opportunity for me.

Mike Tewes [00:15:05] And so, I guess that's the early years. So, those are people really important in my life.

Mike Tewes [00:15:12] Teachers - Ollie Barrier - and I remember attending his funeral and I had lost connection with him for decades. And his wife or son, his son made a statement that he was never sure what kind of influence, if anything, he may have had with his students. And I always regretted by not getting back to him to say, hey, "He was really important, at least to me", and I know he was important with many other people. So hopefully it is not too late to get that message out there to them.

David Todd [00:15:46] Yeah, I think that's one of the most interesting things that I've learned with interviews like this one, is that there's this sort of daisy chain of mentor and mentee, of teacher and student, and that it's very personal. It's not about, you know, sort of wholesale textbooks and big classes, it's this very intimate kind of connection between, you know, the master and the apprentice. So, it's nice to hear that again with you.

Mike Tewes [00:16:17] Yeah, I think that's very true.

Mike Tewes [00:16:19] And I forgot to mention Dr. James Teer. Jim Teer was head of the Wildlife Department at A&M. I think one of the first ones. Well, A&M had the first wildlife

graduate program, and it started back in the 1940s. And then the Mammals of Texas writer ... can't think of his name, but he was the department chair. And then Jim Teer was important. He taught my first wildlife class. And then about the year he went to Welders when I went to Welder. And so he funded both my masters and a Ph.D. also.

Mike Tewes [00:17:04] So Jim Teer was incredible, but he was another one I had a very personal relationship - him and David Schmidly particularly.

Mike Tewes [00:17:11] You're right. It's a very, it's a mentorship. It's one-on-one that is so important in our field.

Mike Tewes [00:17:20] And I've got to throw out, I've got to throw out the Wild Kingdom, Mutual of Omaha Wild Kingdom program. That was about the only documentary that came on on Saturdays. And we only had three TV channels at that time. So, I, like many others, really kind of plugged in to that program and got to see what it was like in Africa and all those other studies.

David Todd [00:17:51] So, Marlin Perkins.

Mike Tewes [00:17:53] Yeah. Yeah. Marlin Perkins.

David Todd [00:17:55] Are there are there are other sort of influences that might have been in the media. You mentioned that TV show, but how about movies, books, anything else that would be sort of in the general view?

Mike Tewes [00:18:08] Yeah, I can't think of that many movies.

Mike Tewes [00:18:12] I do remember in high school being excited about reading "Silent Spring". That would be in the early 1970s. And then my physics teacher, Mr. Willie Haug, was important. We practiced slide rule every morning from 7:30 to 8. I went on to being at regional competition in slide rule. And most people nowadays have no clue as to what that even is. That was before calculators existed and you could calculate large complex problems.

Mike Tewes [00:18:47] But Willy got up early to teach me and Stan Brown slide rule so we could go into UIL competition.

Mike Tewes [00:18:54] He handed me the book "Walden". And I read that thing and I just loved it, the early book of Henry David Thoreau, "Walden". And it was even better once it got the Cliff notes of what it really meant, what all the hidden meanings and metaphors that occur in that book were incredible but ...

Mike Tewes [00:19:17] And I've since gone back and read "Silent Spring" a couple of times and now I think of it as pretty dry and matter-of-fact and technical. But, to see the connections and the relationships, and the complexity of ecological systems, I guess is what really turned me on with that book, and how things were connected and interconnected, and how some pretty simple, how humans are having such a dominant impact on the natural environment. And of course, that's a classic now.

Mike Tewes [00:19:53] Those two books, I guess, were the ones I can think of.

Mike Tewes [00:19:57] I read a variety of other books, and then I'd get National Geographic. And then in high school - "Natural History" magazine - I remember getting that, so I could read the column by Stephen Jay Gould. He was an extraordinary evolutionary biologist and just incredible writing skills and a way to tell stories. He did a great job. And so, I'd get my monthly "Natural History" magazine, and the first thing I went to was his column. And he ended up putting it into eight books and I've got all those books as well. I read all those books from Stephen Jay Gould.

David Todd [00:20:42] Yeah. Interesting. You know, excellent scientist, but also a good communicator. Yeah.

David Todd [00:20:51] So we should talk about ocelots, the star of the show.

David Todd [00:20:58] I heard that you were one of the first back in 1982 to capture a wild ocelot, and that you went on to catch many more. Can you tell about some of these first encounters with ocelots?

Mike Tewes [00:21:14] I started the ocelot field work, I believe, in November of 1981 at Texas A&I University, which became later Texas A&M University at Kingsville. And I was doing it for the Cesar Kleberg Wildlife Research Institute.

Mike Tewes [00:21:31] And I was doing something, I guess, pretty blindly. And now that I look back on it, those first weeks and months I would never do now, knowing what I know now. But the trapping places that just would not catch an ocelot.

Mike Tewes [00:21:53] And the first ranch I trapped was La Esperanza Ranch, north of Raymondville, on the west side of Highway 77. And the hunters were telling me about this jaguarundi in the south pasture. So I said, "Wow! I'm going to try to catch that." And after a few days, I caught a black house cat and that's what I'm sure what the jaguarundi was.

Mike Tewes [00:22:20] So, my immediate supervisor was getting concerned about January, February, and instilling quite a bit uncertainty in uncertainty in me as well that this project's not going to work out.

Mike Tewes [00:22:36] On March 2nd, 1982, I caught the first ocelot on the Guadalupe Ranch, and that's between the two salt lakes, about a dozen miles west of Raymondville. And I remember that first ocelot, I call that Ocelot Day, which also happens coincide with Texas Independence Day and Sam Houston's birthday. So, but at least in our family, we recognize it as also Ocelot Day.

Mike Tewes [00:23:06] Driving up with Jerry Thomas, he was helping me get started, he was testing some equipment for a couple of weeks in that area. So every morning I got onto this ranch, which had excellent dense brush. And I actually thought I may have a chance to catch an ocelot. And we did. On that morning, we caught the ocelot, its tail, I remember, flagging up in the air. And I just exploded in joy I guess at seeing that cat.

Mike Tewes [00:23:40] And, I was so used to not catching an ocelot, I'd left all my sedation equipment back in Raymondville. So, we had to drive back to my apartment in Raymondville, get that and come back out and sedate the cat and put the first radio caller on a cat.

Mike Tewes [00:23:57] And that was the first one that was studied in the hemisphere, Western Hemisphere, by a couple of months.

Mike Tewes [00:24:04] In May of 1982, another study started in Venezuela by Mark Ludlow, I believe. And then the professor was Mel Sunquist, a very, in my mind, a very famous professor on cats. And so, they caught one a couple of months later in Venezuela.

Mike Tewes [00:24:24] So we can at least claim those two that were caught in March of 1982 were the first.

Mike Tewes [00:24:30] I caught a second one five days later on March 7th on the adjacent Corbett Ranch, which was just to the west. And then I recaptured both of them on the Corbett ranch.

Mike Tewes [00:24:43] And no more work continued on Guadalupe, but it all continued on the Corbett Ranch, which is a beautiful ranch there on the north side of that salt lake. And they had excellent brush.

Mike Tewes [00:24:56] They probably did not have ... Mr. Kelly was a longtime ranch foreman there, manager, and he never, he trapped for coyotes often. And for decades before, he never caught an ocelot and he happened to catch one while trapping for coyote about 1980, '81, and he released them at least one or two.

Mike Tewes [00:25:22] So we knew they were there. And maybe the same two. Probably was the same two that I got - Number 17 and Number 26. And one was a male and one was a female.

Mike Tewes [00:25:35] About four or five months later. So I got that really first date I remember.

Mike Tewes [00:25:42] [Excuse me.]

Mike Tewes [00:25:43] After catching that first one on March 2nd, going home that night with like a ton of weight off of my shoulders, thinking I might actually be able to get a degree here. And just so relieved that I remember sleeping well.

Mike Tewes [00:26:01] And then I called my major advisor at the University of Idaho Maurice Hornocker. They said, "That's nice, Mike. Well, what's the chances of catching a second one?"

Mike Tewes [00:26:12] And that quickly brought me back down to earth thinking, "Yeah, we have a long ways to go still."

Mike Tewes [00:26:19] And then, luckily, five days later, I got the second one. And it appeared to be the only two that were on that ranch.

Mike Tewes [00:26:26] Eventually, so I got really interesting data. They would travel back and forth between the Guadalupe Ranch and the Corbett Ranch, the two core areas that were used there. And they'd typically travel two or three miles back and forth. And they were a pair.

Mike Tewes [00:26:45] And then eventually one of the, I believe it was the, well, I'm not sure, but one of them died about four or five months into it. And then shortly thereafter, the other

one dispersed to the south, and eventually got hit by a car, which is a very common form of mortality for ocelots.

Mike Tewes [00:27:11] But about that time, the Laguna Atascosa Refuge, the refuge manager was Gary Burke. And originally he was hesitant of allowing me access to the Refuge, even though this was a project funded by the U.S. Fish and Wildlife Service. When I was able to show him that indeed we caught two ocelots without harming them and actually obtained a lot of critical data, he allowed me access to the Laguna Atascosa National Wildlife Refuge, which is in the eastern edge of Cameron County, and is a 46,000-acre refuge.

Mike Tewes [00:27:51] So, I got there in September and caught the first ocelots at the end of September there. And eventually we trapped and radio-collared ten different ocelots on that refuge.

Mike Tewes [00:28:03] And so I studied them from September 1982 through August of 1984.

Mike Tewes [00:28:11] If it's okay, I'm going to go get a couple of cough drops so my throat works out okay?

David Todd [00:28:16] Yes, please.

Mike Tewes [00:28:17] Take a break?

David Todd [00:28:18] Yeah. Be comfortable, please.

Mike Tewes [00:28:20] Thank you.

David Todd [00:28:20] Sure.

Mike Tewes [00:28:29] Mm hmm.

David Todd [00:28:31] Welcome back.

Mike Tewes [00:28:32] Great. Thank you.

David Todd [00:28:33] Feeling better?

Mike Tewes [00:28:34] I do. Yeah.

David Todd [00:28:35] Good. Good.

David Todd [00:28:38] So, one of the questions I was hoping you could entertain is how you managed to trap these elusive animals, and have been able to do it a number of times since.

Mike Tewes [00:28:54] I remember reading a furbearer's book, trapping book, about how to go out and catch bobcats, coyotes, and they actually had a chapter on ocelots, which was amazing for me.

Mike Tewes [00:29:08] And one of the first things they said is that ocelots are easy to trap. And it turns out that they are. They are really pretty easy to trap. The key is finding out where they are. And once you find them, they're not that hard.

Mike Tewes [00:29:24] But I used a Tomahawk Box trap. We've used that for 40 years, and it's worked well. It is very safe technique.

Mike Tewes [00:29:36] And we have a separate compartment in there that we initially, the first many years, we'd bait it with chickens. And I remember one of my favorite baits was Ted, a big white rooster named Ted that I got from Raymondville. And the manager of that Esperanza ranch was named Ted so I named it after him.

Mike Tewes [00:30:02] And it was even in Texas Monthly. There's a Texas Monthly article on our ocelot work - probably about 1983, I think. And Ted got into that article.

Mike Tewes [00:30:20] But, then we ended up switching to pigeons. Both work well. And pigeons are smaller. They don't eat as much and they don't defecate as much. And they work just as well.

Mike Tewes [00:30:33] And it worked very well. Having a live bait to attract the cats ended up working.

Mike Tewes [00:30:41] I guess that I've studied a dozen, 12 different species of cats, around the world and caught them all on chickens.

Mike Tewes [00:30:48] So, so chickens work well for clouded leopards, marbled cats, golden cats, jaguarundis and a variety of small cats.

Mike Tewes [00:31:01] So we use the box traps. It was very safe. And it's very effective. They need to learn where to place them and how to place them and things like that. But that works well.

David Todd [00:31:17] And once you were able to trap an ocelot, I think you mentioned that you would put a radio collar on them to monitor them. And is there any sort of story that you could tell us about how that's done and what you might be able to learn from monitoring them?

Mike Tewes [00:31:37] Yeah. Initially, the early years it was called VHF collars. You would put them on them and you would have to track them individually, which would require a lot of work.

Mike Tewes [00:31:50] And I remember that on the Laguna Atascosa Refuge, we also did it for bobcats. We would look at relationships with bobcats. But, trying to track them for a 24-hour period, I would stay up and monitor them every night, on the hour, for 24 hours, and you could triangulate where they are. They would emit as a beep, that was not, you couldn't hear it, but you could detect it on your transmitter. And then you'd triangulate.

Mike Tewes [00:32:24] And that was done for a lot of wildlife studies. And again, the first one to do that was Maurice Hornocker on mountain lions in Idaho, on cats, anyway.

Mike Tewes [00:32:34] So that became pretty difficult. And I was staying up for 24 hours, and usually about three or four o'clock in the morning, every hour I'd do a loop to count the number of rabbits at the same time, and then start hallucinating and seeing bushes that became animals. And so, that was kind of pushing it.

Mike Tewes [00:32:56] But they would, the collars worked well.

Mike Tewes [00:33:00] Now, thankfully, they've got GPS collars, which will send the location information to a satellite. And then we download it to our computers in the office. And it's got a drop-off mechanism. We program it to drop off in three or four months or whatever schedule we'd need for that research design.

Mike Tewes [00:33:23] And so, that technology, of course, back when we started, in 1982, computers didn't exist, GPS didn't exist. Cell phones didn't exist. So, it was a lot more difficult back then compared to what we do now.

Mike Tewes [00:33:42] I had a student do a bobcat study on a ranch. And two years ago, trapped the first 11 bobcats in 11 days and put GPS collars on them. And the field work was essentially done.

Mike Tewes [00:33:58] That would have taken me a year 40 years ago to do that result. And that was done in less than two weeks.

Mike Tewes [00:34:05] So technology is totally different from then.

David Todd [00:34:10] Wow.

Mike Tewes [00:34:10] And cameras have become really important as well, another technique - these remote cameras. And, I think, I'm convinced we were maybe the first to do that, to use these remote cameras.

Mike Tewes [00:34:25] Dr. John Rappole, well, I went up to take classes in Idaho from 1984 to '86. Dr. John Repo, famed for working with birds, with Smithsonian, but he supervised the project and started using these remote cameras that he built. And we published the first article in 1985 in a proceedings, a totally hidden proceedings from some remote monitoring techniques in Pennsylvania (the proceedings came out of Pennsylvania).

Mike Tewes [00:35:02] But that, it documents our use of cameras back then. And that was 12, 13 years before what I consider one of the first technical papers by Karanth on tigers and stripes, use of cameras in that.

Mike Tewes [00:35:18] So there were some specialty cameras, I know, by National Geographic back in the 1980s.

Mike Tewes [00:35:24] But, in terms of use for wildlife in the field, I think we're, I'm not aware of anyone other than us being the first. And it may well be someone up there that had done it, but I'm not aware of them.

Mike Tewes [00:35:40] And then worked with this company in Georgia, which ended up becoming CamTrackAR. But they built, they started building those cameras. And it occurred in these very large, like a snare drum tight.

Mike Tewes [00:35:56] And I remember decades later speaking with someone from I think it was from that company in Georgia. They said, "Were you guys doing that ocelot research? Y'all

were our first clients." And so, we kind of got them, I think it's called CamTrackAR, got them going on cameras.

Mike Tewes [00:36:16] And then it just exploded. I mean, many companies, many places, exploded because there's a huge demand for a variety of species throughout the world - global now.

Mike Tewes [00:36:26] So it's a, I just like to, it's kind of a good feeling to think that we were one of the early ones to realize that was important, at least for a secretive cat that occurred in extremely dense cover, only at night. Those three factors - secretive, nocturnal and dense cover - that's about the only way you could get photos of them.

Mike Tewes [00:36:50] And then the spotting pattern. We realized early on that was like a fingerprint. Each ocelot was different. So, we knew we could identify individuals through the spotting pattern.

Mike Tewes [00:37:01] So those are two really important techniques.

Mike Tewes [00:37:04] And today, it's even more important. We spent the last few days talking about some upcoming projects, with Texas Department of Transportation. Cameras, we use them for everything.

Mike Tewes [00:37:17] We've got a leopard study now in Botswana, how we use surveying different areas, many different areas in Botswana for leopard densities.

Mike Tewes [00:37:32] We're using them on a project on jungle cats in northern Israel right now, these small cameras to identify these jungle cats in northern Israel. They're about the size of a bobcat, 20-pound bobcat.

Mike Tewes [00:37:48] And, I just wish I had another life to live, so I could start out where I'm now: small GPS collars with cameras that are incredible. And wish they were around 40 years ago.

David Todd [00:38:00] Good tools, it sounds like.

Mike Tewes [00:38:03] So this is probably really presumptuous, but I was wondering if you could just give us a brief introduction to the ocelot, basic outlines of the animal's life history and the niche that it fills.

Mike Tewes [00:38:23] Yeah. When we started in 1981, '82, I remember reading the few anecdotal kinds of things. And but there just wasn't a solid life history study.

Mike Tewes [00:38:38] So we learned early that ocelots are primarily nocturnal, even more so crepuscular. I used to say 80 to 90% ocelots start moving right at sunset or one hour before sunset. And same thing for bobcats, by the way, but they start moving right at sunset.

Mike Tewes [00:38:58] And peak shortly after sunset and then the activity tapers through the night and another crepuscular or peak at sunrise, the dawn. So, dusk and dawn are peaks of activity, especially for a nocturnal cat that wants to get out and move around and start looking for something to eat and has been kind of laying around all day long.

Mike Tewes [00:39:26] But they'll be active sometimes during the day time, especially mornings during daylight and especially on milder winter mornings compared to hot summer days. They just won't move during the hot summer afternoons.

Mike Tewes [00:39:46] So that's fundamental, their activity periods.

Mike Tewes [00:39:49] They use, probably the most important thing we discovered early on is their, at least in Texas, their reliance on extremely dense thorn shrub, extremely dense brush.

Mike Tewes [00:40:02] The very first three places where we trapped ocelots - the Corbett Ranch, and then the Frank Yturria ranch in about 1984, and Laguna Atascosa Refuge in 1982. Well, all three had brush that looked like a wall. You couldn't, not only walk through, but you couldn't, you couldn't see more than four, five meters into it.

Mike Tewes [00:40:31] And all three of those had ocelots.

Mike Tewes [00:40:38] We did two different surveys where we flew over the 13 seven counties. And I still, to this day, think that less than 1% of that total area has that very special cover.

Mike Tewes [00:40:51] Now, you've got to contrast that with the fact that they use a variety of vegetation communities throughout central South America. They occur even in the deserts of Sonora in Mexico, with very little dense brush.

Mike Tewes [00:41:04] But where they do occur, it always seems that there's some component of dense cover near the ground.

Mike Tewes [00:41:16] [Excuse me.]

Mike Tewes [00:41:20] So and that makes sense because their dense spotting pattern is made for camouflage and that dense cover where you've got sunlight dappling the flora or even moonlight at nighttime going through the brush, and it has a dappled appearance on the forest floor, that ocelot just disappears. It's hard to see it.

Mike Tewes [00:41:48] In this film by Ben Masters on America Ocelot, it really shows that - how they can just kind of disappear into the brush.

Mike Tewes [00:41:54] I remember one of the first times releasing an ocelot, the cat only walked a short distance away and I couldn't see it because of that perfect match for spotting patterns in the dense vegetation.

Mike Tewes [00:42:11] So that's not to say they won't use open areas. And they'll use open areas. My belief is that they'll use open areas, particularly when it's very adjacent to these extremely dense patches of brush. And so, they'll use them probably during the quiet of night, two or 3:00 in the morning when it's silent and the threats are reduced, they'll go out into some grassy or a little more open areas.

Mike Tewes [00:42:43] And then, when a male ocelot disperses, they'll go, they'll travel ten miles and there's no, often no cover. So, it has to travel through open areas. But, that doesn't mean that's the prime cover, or what's preferred by ocelots. Just because they can be seen in

the open, doesn't mean that's what they'd prefer in terms of cover. And in fact, that's the only time you can see them is when they are in the open. So, it's kind of ironic in that sense.

Mike Tewes [00:43:19] But then that's been used too much to for other reasons as to why, what is really preferred by an ocelot.

Mike Tewes [00:43:30] They do use other vegetation communities and other cover densities, but at least in South Texas, there's definitely a linkage to extremely dense thorn shrub.

Mike Tewes [00:43:42] And in that sense, we call them a habitat specialist.

Mike Tewes [00:43:46] And as compared to bobcat, which will use all variety of covers from agricultural areas to a little bit of the dense cover, but mostly the cover densities that are in between.

Mike Tewes [00:44:02] So, so that's probably one of the most important things is that reliance on dense cover, they're nocturnal, the prey they eat - they're opportunistic - they'll eat the prey that is presented to them or that they find. And it's, by far, it's less than one kilogram prey or more common.

Mike Tewes [00:44:25] Rabbits, cottontails, are like the prize to find. And then you can get a Neotoma wood rat. It's the largest rodent that's available to them, and they really hit it big where they get a wood rat. And then cotton rats are probably the most frequently encountered large rodent because of their size. And then they'll eat small rodents and others. They'll eat birds that live on the ground opportunistically.

Mike Tewes [00:45:03] But they prefer the larger rodents and rabbits if they can find them. But when preys decline, when preys decline like during a drought, they'll just try to survive on whatever they can find, even *Peromyscus*.

Mike Tewes [00:45:21] One interesting, there's some pretty interesting prey patterns are that, and bobcats again, by the way, are very similar in prey that they eat and in activity patterns.

Mike Tewes [00:45:35] But, one unique rodent that also selects extremely dense brush that's in northern Mexico and comes into, and also occurs in the southern tip of Texas is called the Mexican spiny pocket mouse. You know, the scientific name, I believe, is still *Liomys irroratus*. And it's kind of interesting to find them in that dense brush. And ocelots eat them. And they're probably one of the last species to disappear during a drought as well, because there are at least a few resources in that brush in terms of seeds or fruits, even during a drought that lasts longer.

Mike Tewes [00:46:18] And one thing I should talk about a little bit later is the importance of drought and the biology of that.

Mike Tewes [00:46:25] But so they'll, they'll, if there are a lot of prey out there, makes life easy. It makes raising young easy. Then you can spend more time, the mother can spend more time, teaching the young on the ways to hunt and to survive and how not to stumble into accidents and things.

Mike Tewes [00:46:51] Speaking of accidents, mortality, natural mortality, we found that ocelots, we have found ocelots killed by rattlesnakes, mange. One had a grassburr lodged in its lung. You know, those are some unusual things.

Mike Tewes [00:47:14] One thing we haven't documented, but I think is probably very important, are the feral hogs and the javelina that occur, that coexist with ocelots. There are less of both in that dense brush, less of almost everything in the dense brush, and that's probably one reason the ocelot does so well in it.

Mike Tewes [00:47:36] But if they were in the open, we have not documented it, but I'm sure javelinas would kill, a group of javelinas, would kill an individual ocelot, if they could do it. And probably feral hogs could kill kittens.

Mike Tewes [00:47:50] And we have an anecdote of a group of javelinas killing a bobcat outside of our studies.

Mike Tewes [00:48:01] So I'm sure, and then, of course, coyotes and bobcats are probably the two primary antagonists for ocelots.

Mike Tewes [00:48:10] Bobcats and ocelots are particularly antagonist. They coexist though everywhere. And, but in terms of a lethal agent, the coyote would probably be, a group of coyotes, would be more of a lethal agent for ocelots, again, especially if they caught them in the open. So those are some of the natural forms of mortality.

Mike Tewes [00:48:42] And then automobiles are probably the overall primary form of mortality. And we can talk more about that later. But more than anything, cars kill ocelots. And it's a, that's a, and we've documented that over and over. That's the biggest problem.

Mike Tewes [00:49:02] Interestingly, many of the ocelots, we've found several ocelots that have lived over ten years of age, both males and females. So, they, the ones that are able to set up resident home range, and that's what ocelots do, ocelots maintain a home range. For females, it's typically one or two miles across. And then male home ranges overlap one, two or three female home ranges, typically.

Mike Tewes [00:49:41] And that's a real important basic life strategy, and it's true for ... there are 40 species of wild cats and probably for the 36, 37 small cats, it's a fundamental life history strategy, is the females are oriented towards maximizing the chance that the young will live successfully to breeding age. So that means picking a home range or territory that has all the, enough resources to get them there, even through the variations of the environment over time, which includes droughts. It's got to be large enough to try to keep them alive during a drought.

Mike Tewes [00:50:25] And so the females are focused on keeping the young to a breeding age.

Mike Tewes [00:50:32] Now the males are totally different. Males are a, their primary life strategy is to try to spread their genes around as much as possible because they're not involved with kitten care. So, their strategy is to try to obtain access to one, two, or three females that are or in estrus or in heat.

Mike Tewes [00:51:00] And that means they have to travel a lot further in order. They have to travel frequently and further to find the females that may go into heat for only 48 hours, once a month, or once every two months. And so if they want to try to have, encompass home range of two or three females, they're constantly going round these home ranges to sniff for urine signs or scat signs that indicate when that individual's in estrus and then they try to, that one male tries to maintain a territory and exclusive access to that female.

Mike Tewes [00:51:40] And this all comes down to adaptive fitness. I think everything is based on adaptive fitness, which is a concept in itself.

Mike Tewes [00:51:48] But let me finish a little bit on the home range aspect. So, females are territorial and they will exclude other females, especially if they are not their offspring, to access prime home ranges. And the males are territorial to other males for basically the reason that also maintains exclusive access to the females and breeding rights.

Mike Tewes [00:52:19] And of course, the other males that don't have a resident or territory. Or, or depending on the behavior of individuals are trying to get access to a breeding female. And the bold ones try harder and the submissive, subdominant ones may not try at all and just want to exist and live on the fringes of the environment.

Mike Tewes [00:52:46] But so, so, that's such an important overall strategy. Maybe as important as food is, is that fact.

Mike Tewes [00:52:55] And so a cat may be territorial; an ocelot may be territorial. It may not be territorial throughout its range. It may just have parts of its home range that a defense.

Mike Tewes [00:53:10] And they will defend. We've documented one male ocelot killing another male ocelot. I think actually two or three times we've documented that they will.

Mike Tewes [00:53:21] If you get male ocelots that's about the same size, 23, 25 pounds, and they have a bold behavior, they're not going to back down. They'll display and have matches where they try to intimidate each other and they try not to fight. Same with most small wildcats as they try not to fight, because when they do fight, they've got the tools to inflict damage quickly, with the claws and the canines.

Mike Tewes [00:54:01] And we've had a male ocelot puncture the skull of an ocelot with its canine. And if they engage in a battle, I always believe that if they lose one eye or lose one or two canines, their time is probably limited, or they'll definitely have a much more difficult time in surviving and being successful defending a resident home range.

Mike Tewes [00:54:28] But I remember studying clouded leopards in Thailand. We found a male with a broken canine that had died through infection, and then the canines, often upper canines will break, get infected and then it goes into the brain and they die.

Mike Tewes [00:54:45] We've also had we've had one-eyed cats, again clouded leopards in Thailand. They don't go too long because they require binocular vision of the prey to focus on the prey to accurately kill it.

Mike Tewes [00:54:57] So, and while I'm on this topic real quick, I want to throw out the other sense - hearing. I learned so much from my own house cats. I've got four house cats right now and each one has a totally different behavior. But also, I've found that my cats over

time will either lose eyesight or lose hearing. If that happens in the wild, they're finished. And sooner or later, just by age, they will lose one or both senses, and if they can't, and both are required to be effective hunters.

Mike Tewes [00:55:35] So, that's pretty important.

Mike Tewes [00:55:41] So, the prey, so then the males and females will interact and it's a polygynous form of mating system that I've just described. And so the ocelot that successfully defended its territories was a prime female. I remember the first adult female ocelot I trapped on Laguna Atascosa Refuge in 1982, she held the home range for, I think, about eight years. Eventually she was booted out and probably a younger, healthier female came along. She moved to a patch where we never caught ocelots. It's very poor cover. But she was displaced even at an old age and then died shortly thereafter.

Mike Tewes [00:56:38] So, that's very important is maintaining a place where you can get enough food and cover to successfully produce the young.

Mike Tewes [00:56:48] I have all these different things. I'm afraid I'm probably already starting rambling here and I don't know.

David Todd [00:56:58] This is interesting, and wonderful insights. Thank you so much. I mean, both the male and the female and, you know, their strategies for finding prey and defending territory and finding a mate. This is all great stuff. So thank you.

David Todd [00:57:16] So I thought maybe you've touched on this a little bit. You mentioned the, the causes of mortality, the, you know, the grassburr issue and the rattlesnake and the car. I know these animals, these ocelots, are terribly rare now and have been in decline for a while. What are some of the big factors you think in their decrease in their population?

Mike Tewes [00:57:43] Yeah, clearly humans, that's been a big factor there. Their distribution used to occur all the way to Louisiana and Arkansas. And they were, one of my hobbies was collecting records of leopard cats, which is what they were called in the 1800s. From 1820s to 1880s, there were records of leopard cats on almost every major river in Texas - usually, individual anecdotes of one being killed. And but they occurred on the rivers.

Mike Tewes [00:58:19] And even in the early 1800s, there was a lot of open areas between these river systems, even in southeast and eastern Texas. It wasn't all forest. And some of these places are more forested now.

Mike Tewes [00:58:34] And I've kind of, and to me, that makes sense is they occur in this really dense cover that occurs along riparian strips of rivers. Well, that's one of the first places. And so it provided cover, water, prey along the rivers.

Mike Tewes [00:58:50] But that's the first place humans came to, the settlers came to as well, as they occupied the Trinity and Colorado, and the Brazos River, and the San Antonio River. All had ocelots.

Mike Tewes [00:59:05] And since they were easy to catch, well, the first thing is that was probably a really important interaction. And ocelots lost readily and fast, I would think.

Mike Tewes [00:59:22] On the early frontier, there wasn't a lot of money. Bartering was really important in terms of the economy of the frontiersman. And so having an ocelot hide would be a valuable item to have to trade for something else.

Mike Tewes [00:59:38] Comanches actually used ocelot hides as a saddle, kind of as a blanket covering the horse to ride on, or as a quiver for their arrows.

Mike Tewes [00:59:50] So early on, humans interacted with ocelots on the rivers.

Mike Tewes [00:59:55] Then you can see the range contracting.

Mike Tewes [01:00:01] One of the first records of an ocelot being killed by an automobile was a Model T about 1904, 1906 in around Karnes City - I remember reading that article. But as soon as there were cars there were probably roadkills of leopard cats.

Mike Tewes [01:00:18] And then in the Rio Grande Valley, humans are the problem and have been. The Rio Grande Valley is, was the last stronghold for ocelots. I believe that delta system really was interesting: a mix of tanglements and vines, although there were prairies, patches of prairies and stuff in the Rio Grande Valley. There's still a lot of potholes. If you look at an aerial photo, it's just full of potholes in northern part of the Rio Grande Valley that had water in them, and surrounded by dense brush.

Mike Tewes [01:00:56] Mr. Frank Yturria's ranch had probably the last two vestiges of what was called the "El Jardin", which means "the garden" in Spanish. But he had two tracts of brush. Each was about 200, 250 acres that was this wall of extremely dense brush. And I don't know of any other place like that within 15 miles of that patch.

Mike Tewes [01:01:23] And so when the Rio Grande Valley was recognized for its importance for agriculture, that was one of the first places to be cleared. It's kind of interesting that you had the delta, so you have all the fertile soils that the dense brush thrives on. So you have this matrix of potholes, water, entangling brush that was impenetrable. But the ocelots probably had a pretty large population in the delta there.

Mike Tewes [01:01:58] Coming on there, were, I guess, about three factors that really opened it up. The railroad in 1904 went from southeast Texas down to the Valley. And that for the first time made a connection for people to go from the Valley back and forth.

Mike Tewes [01:02:18] And that preceded the highway by at least I think, 20 years. I don't think, I think the highway, what is now Highway 77, wasn't developed until the 1920s and 1930. So, that was the second major human factor that allowed access to the crops, the potential crops, of the Rio Grande Valley for a potential market. So, you had a railroad train and you had finally a road.

Mike Tewes [01:02:51] But maybe another third, maybe the most important, was the opening of the Brownsville Ship Channel. And that, I believe that was in the 1930s possibly. So there you could export crops around the world or especially around the United States.

Mike Tewes [01:03:08] So, finally the economic incentive was there to exploit the soils and the great climate in the Rio Grande Valley, and then grow a huge variety of crops which have occurred since then.

Mike Tewes [01:03:25] And it rapidly changed - 1930s through the sixties. A lot of that brush was converted fairly rapidly for farm fields at that time.

Mike Tewes [01:03:41] And while I'm on the subject what's really, I think should be distressing. I mean, that was bad enough from an ocelot perspective. I like to eat like everybody else, so I don't mind the crops and the food that was produced, but it was at the expense of a rich diversity of life that occurred in the Rio Grande Valley, and ocelots and jaguarundis in particular.

Mike Tewes [01:04:06] And then we just recently published an article, Lombardi et al, that did modeling of the Rio Grande Valley, and it looked at human housing and agriculture from 19, I believe we looked at 19, about 1986 or '88, compared to 2016 and projected to 2050. And it's just amazing, the transformation of that area. Many of the agricultural fields are being filled in by one- and five-acre housing, houses. And by 2050, the Valley will be essentially all, a large part of it, it will be human habitation.

Mike Tewes [01:04:56] So, and what's interesting there is I haven't seen anyone put this on the radar. It should be on someone's radar, is that the Rio Grande Valley of Texas is the third most productive agricultural area in the United States after California and Florida, and it's disappearing rapidly. I have no clue what that means for our agricultural friends and people who like to eat food. But that's a serious thing that needs to be understood. And I don't know what you can do about it, but that's one of the fastest growing human populations in the U.S., for sure, the Rio Grande Valley.

Mike Tewes [01:05:42] And then, along with that, because of the road network, the roads - not only the increasing number of roads and road density, but the volume of traffic on those roads, so, which is going to cause the problem for that one population of ocelots on the refuge.

Mike Tewes [01:06:00] In 2019, I had the second, what I considered the second most important day of my life, professional life, was in April 2019, when I gave what was called the Annual Faculty lecture. The first, the most important day was March 2nd, 1982, and when I caught the first ocelot. But then, in 2019, the stars came together to announce or throw out the paradigm shift that I've been trying to get people to pay attention to for many years.

Mike Tewes [01:06:44] I remember having a conversation. I had five visits with three different refuge managers at Laguna Atascosa Refuge, trying to get them to understand a different, what I saw as a different future for ocelots. And I think they understood it. I'm sure they understood it. It's just that it was a scenario that they couldn't really have much interaction with or influence over.

Mike Tewes [01:07:12] And that being the following...

Mike Tewes [01:07:14] There are really two populations. All the focus seems to be on what we call, what I call, the refuge population, which occurs on and immediately around Laguna Atascosa Refuge, of which there may only be 12 to 17 ocelots there, maybe fewer. And that's what all the focus and attention has been on.

Mike Tewes [01:07:34] But the larger population occurs on what I call the ranch population, in Willacy, Kenedy Counties - counties where 80% of the ocelots live. And of the 80 to 100 ocelots that may exist in Texas, which is the United States population, most of them occur on a few ranches, in this ranch population.

Mike Tewes [01:08:04] But most of these ranchers have the attitude and position that they don't want to have anything to do with ... well, they don't want federal oversight or federal government really involved with their daily activities or means of livelihood.

Mike Tewes [01:08:24] And it's kind of a standard thing going way back to the Spanish days, I think, in terms of independence that we have here in Texas that goes back to the days of Spain.

Mike Tewes [01:08:37] So, so, many of these ranches and some of them to this day, they still don't, they don't want people to know whether they do or do not have ocelots. And I've done a very good job of honoring that desire by the ranchers.

Mike Tewes [01:08:53] There are three ranches that that don't mind me using their name - the Corbett Ranch, the El Sauz ranch owned by the East Foundation, and that's right adjacent and separate from the old El Sauz ranch. But I'm referring to the El Sauz ranch of the Foundation, the East Foundation, and Frank Yturria's Ranch. They don't mind.

Mike Tewes [01:09:17] We've done research there for decades on the Yturria ranch and an East ranch. And they don't, they don't, the federal, the Fish and Wildlife Service really does not want to disturb private landowners and they recognize the importance of private lands in recovery. So they don't want to disturb them. And the ocelots are probably going to be protected there way into the future, more than on the refuge population that's surrounded by human development.

Mike Tewes [01:09:50] So that was part of the scenario I tried to describe during what was called the Annual Faculty Lecture. Once a year, a faculty member here at Texas A&M University - Kingsville, is selected to give a talk on a subject they want to speak about. And I chose to speak about ocelots and how I think we had missed the boat in terms of recovering ocelots effectively in Texas.

Mike Tewes [01:10:20] And I went into that and I found out ... I spent a year working on that. I found out that it was two totally different presentations and the oral presentation that was only 45 minutes. But then the document, which was the key thing where I went into, had much more ability to go in the details of what was happening. And explained the failure, in my opinion, failure on four different fronts of recovery. And we can get into that in a little bit if we want.

Mike Tewes [01:10:56] But that was, for me, very important to finally get that message out. And I think it's done a lot of, it has been the basis for a lot of change, in my opinion, since that time.

Mike Tewes [01:11:07] But, yeah, so back to the, you have this human explosion juggernaut that's just taking over the Rio Grande Valley. And we all want our houses and our little property to live around. And I can't complain. I'm very happy with the house and five acres on my little ranchito.

Mike Tewes [01:11:30] But that just fragments. Fragmentation is so important in the conservation of ocelots. It's the fragmentation of land ownership, begets the fragmentation of habitat, which begets the fragmentation of populations.

Mike Tewes [01:11:46] So, I have like 100 different kind of crazy tourist stories and one of them is like the Steven F. Austin Effect. And I love Texas history. And my relatives go back to 1825 and had fought in the first rebellion, the Fredonia rebellion of 1827. But, so I can't complain.

Mike Tewes [01:12:12] But Stephen F. Austin came at the same time. And so, you had this series of generations in southeast Texas, generation after generation, that when they pass, when they die, they want to pass their property on to their children. And they often split it up and it becomes smaller and then their children receive smaller fragments. And that's been going on longer than maybe anywhere else in southeast Texas.

Mike Tewes [01:12:46] That's why I kind of tongue in cheek blame it on Stephen F. Austin. He started the early fragmentation process there.

Mike Tewes [01:12:53] But it's so important in conservation in general.

Mike Tewes [01:12:56] And as a human fragmentation of the land and habitats and populations, Rio Grande Valley, is an intense example of that.

Mike Tewes [01:13:07] There's an article, maybe Scientific American magazine, in 2002, maybe, about the human footprint. And it had these various criteria that define how humans' footprint affects the land. And the number one place that received the top ranking was Brownsville, Texas. And it beat out New Delhi, Calcutta. It beat out all these huge cities, again, according to their criteria and how they measured it.

Mike Tewes [01:13:42] But Brownsville, Texas, is very densely packed. And then you've got these other areas, the metropolitan Brownsville, San Benito and Harlingen area, and then the other side of the Valley, the McAllen area.

Mike Tewes [01:13:58] And then you have the roads that come with that, the loss of habitat that comes with that.

Mike Tewes [01:14:02] So in that lecture that I gave on April '19, I said. Prior to that, there were these grandiose corridors plans. And I don't know if you want to get into that at this time, but it was for years, there have been these major landscape corridors that have been, I guess, projected to save the ocelot and the valley and connect other wildlife, and connect it with other populations of wildlife.

Mike Tewes [01:14:45] And there's no doubt ocelot use corridors. They use them, but I call them home range corridors. They'll use a brushy fence line or brushy ditch canal, very narrow corridors that fit within their home range, of the home range scale.

Mike Tewes [01:14:59] These were what you'd call landscape-level corridors, very broad corridors. And I'll admit I was probably one of the first ones to, no, I was the first one to define the landscape, the coastal corridor, for good or bad. I defined the coastal corridor in 1983. I've got the slide that goes back to that.

Mike Tewes [01:15:21] And I was actually, I can, I've got the, I remember the slide in the presentation. I was trying to contrast it with what was called the Rio Grande Corridor. In the 1980s, that was a number one or number two funded land acquisition program by Congress in the U.S. Every year, they allocate a lot of money to buy these small units of tracts of land that

were 50, 100 acres along the north shore of the Rio Grande, with the idea of creating a corridor that would connect with them.

Mike Tewes [01:15:53] And for me, the very beginning was that wasn't going to be possible. I mean, there's just so much private land in between that it just wasn't going to happen.

Mike Tewes [01:16:02] But I do remember saying, at least on the coast, what's left now in 19..., mid-eighties is this very broad natural area that goes north- south, adjacent to the coast. So I remember saying that the Rio Grande corridor, I don't think, it will not be important for ocelots. But I don't know about the coastal corridor.

Mike Tewes [01:16:24] And here was a concept of what I called the coastal corridor. You look at a satellite image, you see all these native wetlands and coastal prairies sprinkled with some brush throughout on both the Mexico and U.S. side.

Mike Tewes [01:16:40] By the 1990s, I was convinced that wasn't going to work for ocelots either, but definitely it took hold. The idea of a coastal corridor existed, and I think it, I don't want to sound like I was great in instigating some things, but I do recognize the timing of it. And I remember the time that I threw out the idea of the coastal corridor out there.

Mike Tewes [01:17:09] And the very good part of that is it formed the backbone of land acquisition. I mean, it was idea. They wanted to connect the Mexico coastal zone with the Texas coastal zone to help ocelots, but also a variety of species. And it was for waterfowl, shorebirds and just natural, especially bird populations. It's so important on the Texas coast.

Mike Tewes [01:17:39] So there's a lot of land acquisition that occurred at the southeast tip of Texas and part of it was expansion of the Laguna Atascosa Refuge from 46,000 acres through, I think it's over, it's over a hundred thousand acres now. They expanded to the south and I'm very excited about that as being an eventual consequence.

Mike Tewes [01:18:01] It didn't help ocelots though. It didn't help. And I didn't see it ever helping ocelots.

Mike Tewes [01:18:07] But, originally you got to give a lot of credit to Fish and Wildlife Service. That Laguna Atascosa Refuge was created in 1946 as a waterfowl refuge, just like Aransas Refuge and some others on the Texas coast. When there was a bombing, it was a gunnery range, just like Aransas was a military range for aircraft. And when World War Two ended, they became refuges in 1946.

Mike Tewes [01:18:37] And Laguna, I call it Laguna Refuge - incredible waterfowl refuge, and has been. But Steve Thompson was really important in transforming the vision of that refuge, now not only waterfowl but ocelots. He became manager, I believe, in 1990, '89 or '90, into about '96. And he got everybody to recognize the importance of that for ocelots - the refuge. And I think it's definitely a high priority for the refuge now.

Mike Tewes [01:19:11] And then the land acquisition along the coastal corridor is valuable in terms of wetlands going all the way down to the Rio Grande there and there's some beautiful patches of thorn shrub in that area, north and south of the ship channel.

Mike Tewes [01:19:26] The problem is there no ocelots as far as we can tell. And we've surveyed many times in those areas. Great, great brush. So, we did a five-year survey. And the

only ocelot that was ever trapped was what I called Slim. He was trapped south of the Brownsville Ship Channel. He maintained movements east-west, about five or six miles, like a transient - an ocelot looking for a female and for a home. Couldn't find it. And then moved, it actually probably crossed the Ship Channel, the Brownsville Ship Channel, and ended up on the Laguna Atascosa Refuge.

Mike Tewes [01:20:07] So, of all the years of trapping down there, and there have been many rounds of trapping by different agencies and groups, that was the only individual ever identified down there. And even, even recently, another survey didn't show anything.

Mike Tewes [01:20:19] So, I, I said there's so much emphasis on the Rio Grande corridor and the coastal corridor, of connecting ocelots with Mexico with the idea of someday having ocelots with greater genetic diversity go from Mexico into the United States.

Mike Tewes [01:20:40] And, and for at least 25, 30 years, I've recognized that's just not possible. Maybe I should have said something, made it more of a forceful thing early on. Again, I tried through five meetings with three refuge managers. But I finally decided at the lower and middle level of that agency, I couldn't get my word out.

Mike Tewes [01:21:03] And that's why I did the lecture in April 2019 to get out a bunch of concepts. Well, really, to, I guess, voice my concern that things weren't working out for recovery, that we've lost a lot of important time, and we weren't achieving meaningful results from ocelot recovery.

Mike Tewes [01:21:26] So I identified four broad areas of failure to achieve meaningful results.

David Todd [01:21:34] Yes, please identify those or explain what those are.

Mike Tewes [01:21:37] Yeah, and it's in the document. It's online as well. And I don't know, hopefully it will go into the future. I made many copies to hand off to refuge managers ten years from now, by the way. But, so they'll be getting them somehow. I'll try to keep the idea going.

Mike Tewes [01:21:56] But, there are four areas of, in my opinion, failure.

Mike Tewes [01:22:02] One of them was road crossings that were constructed in places which simply don't have ocelots. So, that's an easy one to call, if you're building a wildlife crossing structure. Back then, they were for ocelots, clearly done for ocelots, on Highway 281. I remember mid 1990s, north of Mathis, just south of George West. Several, they went from a two-lane highway to double highway.

Mike Tewes [01:22:35] And so, I was involved as a consultant with several crossings that were put in there and they were based on a couple of anecdotes - two observations from the 1970s, 1971, an ocelot from around Lake Corpus Christi, and 1977, an ocelot that was killed in Agua Dulce, never a sign of a population. There may have been one there, maybe in as late as the seventies.

Mike Tewes [01:23:04] But so that's what was the genesis for those crossings.

Mike Tewes [01:23:09] Another cluster was around Laredo. Again, sightings. Sightings was a huge reason for doing a lot of things that just were not helpful for ocelots.

Mike Tewes [01:23:18] And I'll bring it back to what's called the precautionary principle. Ecological Services is the division within Fish and Wildlife Service that's tasked with the job of what's called Section 7 consultations to make sure that no federal agency either commits funding, actions, or developments that can impact an endangered species without going through due diligence in evaluating what could happen to the endangered species or the ways to mitigate that.

Mike Tewes [01:23:56] So I was involved with over 40 different consulting projects throughout South Texas. Roads were some of them, but I could make a little book out of that one. And now I look back on it. It was just lost time for that.

Mike Tewes [01:24:18] But it was a precautionary principle which, if taken to the extreme, and beyond where it should be taken, is that if there's even a chance that something may impact an endangered species, let's make a decision on the conservative or safe side of that.

Mike Tewes [01:24:37] Well, that was taken to the extreme many times because there were sightings here or sightings there, which I eventually found is I don't trust sightings for anything now. I don't trust sightings for biologists or as well as laypeople.

Mike Tewes [01:24:52] And it's just because I've had numerous examples of how that just doesn't work.

Mike Tewes [01:24:59] And now it's got to be a documented case of a photograph or a roadkill. Roadkills document endangered species. And in fact, I've read, I think it's unfortunate, but an effective form of documenting is roadkills.

Mike Tewes [01:25:13] If there were jaguarundis left in Texas, there would be roadkill and there hasn't been one since 1986.

Mike Tewes [01:25:20] And I go to the extreme. If there were any Bigfoot populations there, one would be roadkilled sooner or later. And they're not.

Mike Tewes [01:25:25] So, so that was an example of using sightings to justify the precautionary principle that that if you again go to the extreme, you can almost make a case for anything as to why it shouldn't happen.

Mike Tewes [01:25:41] And I don't understand it, as I'm sure there are philosophers and other people out there that know it much better. But that's not how it should be used in that extreme.

Mike Tewes [01:25:52] So that was one area of failure, is putting crossings in places where there simply weren't ocelots. And some of that's retrospective, we found out later.

Mike Tewes [01:26:01] But now there are many crossings in places near ocelots. And so that's a different story now. And they're getting much refined. TXDOT is doing a tremendous job now. But Fish and Wildlife, Ecological Services is telling Texas Department of Transportation, "You guys really need to put some crossings here and there." And so, TXDOT tried to do that.

Mike Tewes [01:26:25] And the second area of failure would be the, I guess, habitat restoration. There has been habitat restoration for ocelots has been ongoing since the 1990s - 30 years. And that was really kind of a frustrating area for me as well as there would be patches along the Rio Grande corridor where there were no ocelots except for one in 1995 that we documented and radio collared. Most of the corridor was inhospitable for ocelots. Even if you could get them to occur there, they would not, in my opinion, live long.

Mike Tewes [01:27:13] But this big land acquisition program that buys these small tracts wanted to enhance the small tracts, make them better cover and larger by planting brush. And the ocelots were used as a flagship species for that: let's buy land on the Rio Grande corridor and plant it with thorn shrubs to create habitat for ocelots to move up and down the Rio Grande corridor. And at least for the segment between McAllen and Brownsville, that was just an impossibility back in the 1990s, even, in my opinion.

Mike Tewes [01:27:49] But that was done, and even fairly recently, patches of brush, or at least until my lecture, would be planted and almost the day after planting the brush, it was declared that ocelot habitat has been created.

Mike Tewes [01:28:05] Well, a couple of major problems with that. One is most of those places there were planted didn't succeed, or at least succeed on a level that would be beneficial to ocelots, at least enough shrubs survive long enough to create a density that would be useful for ocelots, assuming they were even there.

Mike Tewes [01:28:26] So all those factors were problems.

Mike Tewes [01:28:29] That they weren't there is a fundamental problem, of course.

Mike Tewes [01:28:32] But, and it's challenging - habitat restoration - no doubt is challenging. And then I got to give kudos to all the people that have tried to do it and things that you try to do.

Mike Tewes [01:28:51] [Says my Internet connection is unstable.]

Mike Tewes [01:28:57] Herbivory in drought. And so It's hard for it to work even where there are ocelots. I mean, that's challenging enough, you know.

Mike Tewes [01:29:09] And probably the biggest thing was the scale. And to me, this is the problem to this day is we're not doing it on a scale that will have a meaningful ocelot, a meaningful benefit to ocelots.

Mike Tewes [01:29:22] Mr. Frank Yturria and I ... and I say that because for one female ocelot, it takes 50, 100, 200 acres of prime brush to find one. Most of these attempts only plant 50 acres of brush a year or twice that amount.

Mike Tewes [01:29:44] But then, if it survives through drought and fires and other things - invasive grasses, that's turned out to be a huge problem the last twenty years now, is these invasive grasses of buffel grass and Guinea grass. That's a super challenge.

Mike Tewes [01:30:03] But if it worked out, we're not doing it at a level to make a significant recovery for ocelots. We need a lot more at a lot higher scale. That was my second fundamental criticism.

Mike Tewes [01:30:15] In the year before I gave that lecture, Mr. Frank Yturria told me that, "Mike, you and I are going to go to Washington, D.C., and we're going to get some money to restore habitat for ocelots."

Mike Tewes [01:30:28] And that was a - I'll never forget - there was a surreal week that we spent in D.C. visiting very key people with the attempt to try to make a move to create habitat. And Mr. Yturria would start his ... we had a meeting almost every day with a key individual, a government individual.

Mike Tewes [01:30:54] So, he would start, "I've donated and sold 10,000 acres of my property for ocelots. Conservation easements - I gave the first Fish and Wildlife easements in the 1980s. I stopped clearing my brush for that. Two major easements to the Nature Conservancy in 2007 and '9. And sold the rest of my 10,000-acre ranch to the Fish and Wildlife Service. I've done my role. You need to do your role.

Mike Tewes [01:31:20] And I loved the way he's very assertive, telling these Assistant Directors of Interior what you need to do.

Mike Tewes [01:31:27] And he would say we need money for, funding for 10,000 acres of habitat restoration. So, he recognized as well that we're at a point, at a scale that we need to be doing magnitudes higher. And to this day, we still need to do that.

Mike Tewes [01:31:47] So I'll leave it at that.

Mike Tewes [01:31:48] It's challenging and for a variety of reasons.

Mike Tewes [01:31:53] The third one I'll talk about would be these landscape corridors. I mean, there are five major landscape corridors that were identified and developed and proposed by the Fish and Wildlife Service. To connect, really, I guess especially tracts of Fish and Wildlife Service.

Mike Tewes [01:32:14] A lot of land was purchased starting in the 1980s. Before that, they were only the Laguna Atascosa Refuge and the Santa Ana Refuge. It's since much expanded in terms of Fish and Wildlife Service properties in the Valley. But they needed corridors to connect them to theoretically move wildlife, especially ocelots, from one refuge to another.

Mike Tewes [01:32:42] And it sounds great on paper and it sounds great theoretically. And it, but for many, especially terrestrial species, it just wouldn't work because of the problems already described in terms of exploding human population and road network.

Mike Tewes [01:32:59] The Rio Grande Corridor, if you were a bird, at least you had a chance to fly from one patch to another. But if you were a terrestrial mammal like an ocelot, you had to cross road and a gauntlet of threats and negative outcomes, potential negative outcomes.

Mike Tewes [01:33:16] I used to use an example: every time an ocelot got to cross in a corridor or across a patch of brush at 360 degrees, it could travel. It didn't have a map where

these landscape corridors occurred, not to mention these corridors had very little habitat in them to begin with, many of them, or at least ocelot habitat for sure.

Mike Tewes [01:33:40] So, I tried for years to get the message across that corridors may be good for a variety of species, especially avian, not for ocelots. And to recognize that and to not use that as a selling point.

Mike Tewes [01:33:59] And I'll get that to, well, I'll go and touch on that now before I get to the last area of translocation.

Mike Tewes [01:34:07] The, so, in my lecture, I pointed out that I got the term from my friend. Bill Swanson is a veterinarian at the zoo and a very active cat, famous cat / ocelot reproduction guy, in my mind, and he gave me the term, "illusion of achievement".

Mike Tewes [01:34:30] We have used, at least somewhat, road crossings, but also the habitat restoration efforts, and these landscape corridors, as why things are going well for ocelots, and we need to do more of all of it.

Mike Tewes [01:34:46] But we're doing things. We're achieving things with these corridors, the coastal corridor and other things.

Mike Tewes [01:34:55] But when, in my mind, I'm not sure there's been a single bit of benefit from that for ocelots.

Mike Tewes [01:35:02] And so, I used these, I called them, I created some metaphors, or at least some terms, to at least try to get my message heard at the, during my lecture on things, and especially the thing I printed up.

Mike Tewes [01:35:20] I used things like "conservation charades", and "illusion of achievement. And I had one or two other things that would try to grab people's attention on those to just bring the highlight out that we really haven't.

Mike Tewes [01:35:40] And so in corridorphilia. I think I saw something where I threw out the word corridorphilia is, I think, something that someone needs to study in terms of human psych.

Mike Tewes [01:35:56] I was visiting with David Shindle, one of my early graduate students. Did his master's on ocelots, defining ocelot habitat in Mexico, Laguna and the interior ranches in the 1990s. He's since studied Florida panthers his whole life - eight years with the state, eight with an NGO. Now he's the lead on the Florida panther for U.S. Fish and Wildlife Service.

Mike Tewes [01:36:19] And we were talking about this. And they have very similar problems and parallels in Florida. And they've got these landscape corridors there. And as I said, I remember I said, "I can't believe how the public latches onto the term 'corridor' and how corridor is saving everything, and is so paramount to other conservation issues."

Mike Tewes [01:36:40] He said, "Yeah, same thing in Florida panthers. I can't believe it either. It's amazing how people latch onto these corridor ideas. And the cats have no clue what we're talking about."

Mike Tewes [01:36:53] So I throw out the word "corridorophilia" which is probably an odd word and not easy word and concept. But it's the idea that we give disproportionate attention to corridors as a solution to many of our conservation problems.

Mike Tewes [01:37:14] And the actual science behind is not really that strong. It's just not that strong for specific species being benefited by specific corridors. I'm sure there are a few out there, but it's not that well documented in the science.

Mike Tewes [01:37:34] And I used to get into arguments, friendly arguments, with my friend Larry Harris. He was a professor. Used to be a Parks and Wildlife game warden in East Texas, went and became a professor in Florida, and he wrote the book, famous book in my mind, "The Fragmented Forest". I believe it came out about 1986, and it won the Book Award from the professional Wildlife Society.

Mike Tewes [01:37:58] And there he talked about corridors and things, but he recognized as well, in fact, him and I talked about the Rio Grande corridor is just not going to work for ocelots. But he recognized that landscape corridors aren't the solution to everything, to unfragmenting fragmentation.

Mike Tewes [01:38:17] So that's the corridorophilia. It needs to be, it's really species-specific, case-specific, many other specific, regional specific. And it's raised too much when other things should be emphasized more.

Mike Tewes [01:38:30] Then, the fourth area of failure was translocation. We've recognized for a long time because these small isolated ocelot populations have been losing steady genetic diversity since our studies: we documented decline in genetic diversity from 1985 to 1995 to 2005. And we've, I had another student show inbreeding in both the refuge population and the ranch population. And that's, so they need genetic augmentation to help.

Mike Tewes [01:39:07] And the best way to do that would be to bring translocated ocelots from a healthier genetic population in Mexico or other countries into Texas. And that would be such a life saver for the existing populations, as well as any new populations that we would want to create as well.

Mike Tewes [01:39:27] So translocation we ... a little history here. It's kind of disappointing to me. We formed the ocelot recovery team. I started the ocelot recovery team in 1983. That's the first one that began. And I've been through all of them. So, I've got the record. The history, the mental history, the institutional or program history there, so both recovery teams.

Mike Tewes [01:40:04] We renewed the recovery team in 2003, ocelot recovery team. And then it was going on. We had our first meeting then.

Mike Tewes [01:40:16] What was disappointing for me in that first meeting was we had it in Brownsville, Texas. And it was a pretty big deal. And several landowners were invited as well as others, to kind of kick off this new effort to recover ocelots.

Mike Tewes [01:40:36] And we had Michael Corbett from the Corbett ranch was there, Frankie Yturria, and his grandson, George Farish, who's now taking on him and his family's continuing with the Yturria recovery of ocelots, and conservation of ocelots, was there. Representatives of King Ranch and other ranchers were there.

Mike Tewes [01:41:00] And it was structured in such a way that it didn't really engage landowners, the first half of the day. Most of them were gone by midday. I was watching them, one at a time, get up and leave. And it was not designed, I guess, or sure didn't come across to capture that once-in-a-lifetime resource that you had there. And that's the only time I've ever seen that come together like that.

Mike Tewes [01:41:27] And so, that first meeting was disappointing for me.

Mike Tewes [01:41:30] There was a lot of excitement, though, that a new effort was kicking off. And the goal was to revise the recovery plan, the ocelot recovery plan. The first one was done in 1990 by two folks from a zoo in Arizona, zoo personnel that created the first ocelot recovery plan.

Mike Tewes [01:41:53] So the process began in 2003. We met frequently to try to do that. It started getting bogged down by a few years later. And then, and that's got its own side story, story to itself.

Mike Tewes [01:42:16] But what was noteworthy at that time was that in 2007, Mr. George Hixon, Tim Hixon, - he and Karen Hixon have been supporters of mine since the beginning. They've been funding my research. He was on an advisory board. They funded the American ocelot film. They're one of the contributors for that. They've just been incredible conservationists.

Mike Tewes [01:42:43] And Tim's, to me, an international, was an international conservationist as well as a gentleman and fine human.

Mike Tewes [01:42:54] I've got a little latch up here. I can cover the camera real quick if I need to. And so, I just used that there.

David Todd [01:42:59] Sure. That will work.

Mike Tewes [01:43:03] But Tim was really important in the, he is really important in what we've done and I always consider Tim Hixon and Michael Corbett as fundamental in these early days.

David Todd [01:43:25] Mmm hmm.

David Todd [01:43:26] So, yeah, so he came in 2007 and said, "What we really need is a translocation for ocelots to save them. And I'm going to fund this for five years to get it going. And so that really changed the direction of recovery for ocelots. It hadn't been mentioned until that time at all. There's like one sentence in the old recovery plan but, so, we, that started this effort of thinking about translocation and putting it on the radar out there for people. What, regrettably, happened a year later is a couple of individuals at Fish and Wildlife Service, decided to, they created a translocation group.

Mike Tewes [01:44:31] And really this recovery team evolved from recovery into translocation about 2008. And our first meeting was in 2008. And we met every three months. It was intensive.

Mike Tewes [01:44:45] But, unfortunately, they formed a group of like 20 organizations, represented by 25 people, maybe 15 organization represented by 25 people. These large

groups to work on things that many people worked on had no expertise at all (the subject that we were discussing).

Mike Tewes [01:45:09] But in that very first meeting, this was kind of, really kind of the beginning for me to make a major effort to change things, was the original endangered species biologist from the regional office of Fish and Wildlife Service in Albuquerque. At the end, the very end of this two-day meeting, as now, why are we forming this meeting? And the local biologists said, "Well, we thought some people were getting ahead of the process."

Mike Tewes [01:45:35] And what that easily translated to me is they thought that this initiative started by Tim Hixon for the Kleberg Institute to try to start translocation, was not under the auspices or control of the Fish and Wildlife Service.

Mike Tewes [01:45:53] So, that's why this group was formed. Which met frequently. And then things slowed down with both the recovery process and the translocation effort around 2008, 2009, 2010.

Mike Tewes [01:46:14] Part of it, I'm convinced, was related to the jaguar Macho B that died in Arizona. That's a huge story in itself. But it created problems thereafter for, I think, endangered cats in the Southwest region.

Mike Tewes [01:46:35] And it started to just kind of dry up the activities. We went to Mexico City, had a group in Mexico City, larger than the group should have been, to talk with one agency. And one agency wasn't agreeing with another agency on some particular issues. And it became clear that that was going to be a difficult aspect to make translocation work between Mexico and U.S.

Mike Tewes [01:47:04] And then the second major dagger was the second weekend of February 2010. We had found the perfect place to translocate ocelots: it's Los Ebanos Ranch in Mexico, an 11,000-acre ranch that had 34 ocelots on the edge of a population that we eventually estimated to be over 500 ocelots.

Mike Tewes [01:47:34] But the second week of February was when a lot of the drug war broke out, when Zeta, my understanding was that Zeta group broke away from the Gulf cartel.

Mike Tewes [01:47:46] My student Arturo Caso was traveling down there that weekend to go to a study site. He went to these towns - Soto la Marina - along the coast. And all these little towns on that weekend had all the lights turned off. That's when all this explosion of violence broke out and people were being killed that weekend, and ever since, actually.

Mike Tewes [01:48:08] But intensive war broke out, which ended up to where ranchers left their ranches. I quit working in Mexico after that. They killed the ranch owner right next to our research ranch. And many people were just, were brutally killed. And I heard some statistics: over time, it was like 6000 people were eventually murdered.

Mike Tewes [01:48:38] But that was the second thing that slowed translocations. It just became difficult politically and violence.

Mike Tewes [01:48:46] To where about, we were trying to rekick it and restart it in 2014, 2015. And then, and for me, I guess, that was kind of a very important point. As we were trying to kick off the meeting in February of 2015, soon after the Texas chapter of the Wildlife

Society meeting in Corpus Christi, and we were informed that our group is probably not meeting what was called FACA Rules, Federal Advisory Consultant Act, or something like that - that what we may be doing may not be official.

Mike Tewes [01:49:26] And that was very aggravating to me, and to me was the end of the process. The 8-year intensive process that we're trying to do for translocation of ocelots, to me, ended then.

Mike Tewes [01:49:38] And so eventually that was the fourth area of failure.

Mike Tewes [01:49:42] And I, and so I finally tried to make that stuff clear in my talk in 2019, what the failures were in the past and what we needed to do in the future.

Mike Tewes [01:49:58] And there probably should have been a lot more about what we need to do in the future. But you can only do so much in a 45-minute talk, and even a printed version. And that printed version, I've read it several times since, and there's not a single word in there that I would change, even to this day. I try to be careful what I say, but also at the same time just voice the truth of what I saw.

Mike Tewes [01:50:20] And I, I think I had the sentence similar or something like ... it comes void now. But I may think of it a little bit later.

Mike Tewes [01:50:36] But essentially that what we've done is I'm afraid that over the last 20, 25 years we have not done anything meaningful for ocelot recovery. And all our population viability analysis show that they're going to decline, period. We're in the decline process and have been for the 40 years I've been studying them. And it's just a matter of time when a small population is so small, they just disappear. It's just by a variety of factors, they'll disappear. And we wasted that time, in my opinion, by not doing the things we should be doing.

Mike Tewes [01:51:11] Well, you said that...

Mike Tewes [01:51:13] Yeah.

David Todd [01:51:13] I'm sorry. So, you talk about these four areas of failure in policy over the last three or four decades. But that maybe your talk in 2019 didn't get to touch on where you think we should go forward and try to, you know, save what's possible. Can you maybe touch on those ideas?

Mike Tewes [01:51:39] Yes, exactly. And the first is recognizing the fact that we have two populations. Not all the focus should be on the dozen ocelots or 17 ocelots, whatever it is, at the refuge population, which is isolated, and going to get worse.

Mike Tewes [01:51:59] And in that talk, I said the overarching strategy there should be to shelter in place. It's going to be encapsulated. The refuge is going to be encapsulated by people, roads and like habitat. So, there are many things that can and I think is happening now to make that population as strong as possible.

Mike Tewes [01:52:25] Restoring habitat there is a key one. But doing other things as well. I think micro refuges - the Refuge has engaged me to share my ideas with them. And I'm very

happy about that. And I've been doing that and will do it for the foreseeable future as to things that they can do and to maximize their expenditures to benefit. And make it shelter-in-place.

Mike Tewes [01:52:53] They need to translocate some cats in there as well, create genetic diversity.

Mike Tewes [01:52:58] Recognize when the ocelots move south of the Refuge, they're going to go into the killing box. That was another term I used to bring recognition that the Rio Grande delta is one huge killing box. And when they left, we've had many ocelots go south of the Refuge, and it's just a matter of weeks before they get killed on the road.

Mike Tewes [01:53:21] Instead of letting that happen. Let's try to recover them. And do X, Y, Z with them, return them to a safer spot on that Refuge. Return them to the population on the ranch, to help mix those genetics up. Or use them for a new population. But don't let them just go get run over.

Mike Tewes [01:53:40] So that's a really important factor there. And we're not there yet even. It's going to take some bold moves to do that.

Mike Tewes [01:53:51] And here's another fundamental thing that I think is overarching in all this. There's a scientific paper that whoever in reading this into the future should look up, or watching and listening to this in the future, should look up. It's called, the paper is, the title, it's called, "Fear of Failure". And there it's documented the many instances of endangered species, where they get down to a very small population, individuals and policies are afraid to do things because whatever is done, whatever is done, that species may become extinct anyway. And if there's an action that can be pointed to that may be blamed or attributed as to why it disappeared, people are afraid to make that decision.

Mike Tewes [01:54:39] And I'm convinced that's fundamental to the failure for ocelots and other species. But that article ought to be studied.

Mike Tewes [01:54:49] We're down to 12 ocelots. If you move one or two ocelots to another population, and they die anyway, the population goes extirpated anyway, you know, the manager at that time, or whoever made that decision might be blamed. And so that's a problem with agencies or anyone that has to make these tough decisions.

Mike Tewes [01:55:12] The same thing was on the California condor to take those last few out of the wild. It was a huge argument. And this will be as well.

Mike Tewes [01:55:24] Another thing is if you exchange cats between the two populations, it would have some benefit, genetic benefit. Even if you can bring cats from the ranch population into the refuge population, they have lower genetic diversity too, but it's a different set of genetics probably, so they could probably contribute and augment some to the other population by exchanging them. That needs to be pursued.

Mike Tewes [01:55:53] And then bringing in from a much more diverse population, external to the U.S., will be important to help diversify the genetic diversity for the refuge and the ranch population.

Mike Tewes [01:56:05] Increasing connectivity on the refuge - there, corridors would be valuable, within a very small scale, increasing the connectivity there and overall habitat.

Mike Tewes [01:56:20] There should not be any habitat restoration that's done in the name of ocelots, if it's not done on Laguna Atascosa Refuge or Frank Yturria's extended area there or for all the conservation easements, the Fish and Wildlife easements, the Nature Conservancy easements. There's more than enough for the next several years to absorb any seedlings and restoration. So if it's done for ocelots exclusively, it should only be done there, in those two places.

Mike Tewes [01:56:50] That's why we're always saying: if you are going to restore habitat, restore where they are, either right in the middle of the population or within three miles of that population. It has a lot of suitable areas that have been waiting to be restored, and to be on the near horizon that will be supporting that. They will be significant. And that I'm excited about, myself.

Mike Tewes [01:57:15] So, that's restore habitat, bringing cats to the refuge population, and reducing it, make it as easy as possible for them to live.

Mike Tewes [01:57:28] Maybe someday augment prey during droughts. Droughts is another major concern. Every hundred years we'll have a 5- to 10-year drought. We had one in the mid-1700s, mid 1800s, 1857 to '61, I think, and the 1952 to '57.

Mike Tewes [01:57:47] If we get a seven-year drought like that, I'm not sure that population in Laguna will survive. And didn't get into the biology of that at all, but droughts quickly bring on problems, and they disperse, and then they die. And the ones that live there, there's some biological mechanisms that probably shuts down reproduction in the first year or two.

Mike Tewes [01:58:07] So drought - do anything you can to reverse possible future droughts on that population. And that includes: have a plan for augmenting ocelots.

Mike Tewes [01:58:23] And I'm going to throw out one of my hundred crazy theories. But 'possums - ocelots like to eat 'possums throughout the range and bobcats don't. You could have some little core feeding stations during these major droughts that, yeah, provide possums to ocelots. So I got that out. So that might have some usefulness.

Mike Tewes [01:58:49] And providing water and things like that. There are a number of things that the refuge is doing now, trying to prepare for.

Mike Tewes [01:58:56] The ranch population: the ranch populations is going to be the key to ocelots in the United States. While we've undergone this huge transformation of people, houses and roads in the Rio Grande Valley, it hasn't happened in the ranch population. By definition, the ranches, at least the ranches, with the exception of maybe one or two, ranches have maintained the integrity in ownership and in habitat, and look like they will, at least for the next 100, 150 years, be going that direction. That will be ocelots there for some time into the future.

Mike Tewes [01:59:38] And by definition, they're not going to build roads and they're not going to put in housing developments. So, that's going to be an important strategy.

Mike Tewes [01:59:47] And I'm talking especially of the ranchers that are on the east side of Highway 77. That's where the core ranch population occurs.

Mike Tewes [01:59:53] For some reason, we've never detected a, other than those first two ocelots I caught on Corbett Ranch, and maybe one other photograph, we've never detected ocelots on the west side of Highway 77.

Mike Tewes [02:00:07] So, they're trying to minimize mortalities of roads in both populations at several crossings. And this is one of the problems with translocation, is individuals, agency folks from Mexico say, "Why do we want to move ocelots from Mexico to Laguna Atascosa Refuge, when the habitat is already very limited and saturated, and it would only displace an existing ocelot so it can run out and cross roads and get killed?"

Mike Tewes [02:00:36] So they say, until road kills have been fixed and habitat is fixed, why should we give our ocelots to the United States?

Mike Tewes [02:00:47] And at that time, unfortunately, there was no discussion or understanding about the ranch population at all.

Mike Tewes [02:00:55] And if we ever have that chance to communicate again, the full picture needs to be described that, yes, there are many ocelots in the State of Tamaulipas. We've identified them. We've published scientific articles that show there's one population over 500, and they occur in many places. And then, that Texas has a large area that could receive some ocelots - the ranch population.

Mike Tewes [02:01:18] So if we're able to engage again with that opportunity to translocate, I think we'll have a much better outcome.

Mike Tewes [02:01:25] Plus, we've got some really great players that are in place now that weren't there before. Neal Wilkins is the CEO of the East Foundation. And for the last 12 or 13 years, the East Foundation is a tremendous outfit, named after Robert East, a descendant of the King Ranch. They own, I think, six ranches, close to 250,000 acres. And one of them, the Al Sauz Ranch, next to the Gulf of Mexico, has the largest known population of ocelots within a property boundary.

Mike Tewes [02:02:13] So, and we, our ocelot study was the first study on that ranch. I think I started in 2011, about, and they've been studied ever since. And I think this is in 2016, maybe '15 or '16. I've got the exact date recorded, actually. But I was driving my pickup on the ranch and Neil Wilkins, I see this pickup behind me and he's riding my tail. So, I stop and jump out. Neil Wilkins, the CEO, jumps down and we have a great conversation. Drop the tailgate and we talk.

Mike Tewes [02:02:50] And Neil is quick to grasp many things. And he grasps the importance of his ranch in the scheme of ocelot recovery. They've got the largest population, 20 to 30 at least in a year. And he made the statement that stuck with me to this day and I credit for beginning the paradigm shift.

Mike Tewes [02:03:19] He said, "You know, Mike, we need to have the Manhattan Project for ocelots, the equivalent of the Manhattan Project for ocelots."

Mike Tewes [02:03:27] And I thought, "Wow, here you have a landowner that makes that statement, and has the resources and the knowledge and capability of doing that, that's great."

Mike Tewes [02:03:38] So, I consider that - the two days I consider is that day in 2015 when translocation essentially was dissolved, in my perspective, and then when Neil Wilkins gives this idea that there could be a whole new vision for recovery for ocelots with private landowners.

Mike Tewes [02:03:58] And so, to me, the paradigm shifted with those two things, shifted away from this idea of a grandiose corridor or habitat restoration, land acquisition program, that was not going to benefit ocelots, to one, a scenario that will benefit them.

Mike Tewes [02:04:16] And those two events galvanized or at least crystallized in my mind what needed to go forward. And really, I guess I was working on that lecture ever since and I was able to get that lecture out, to capture a lot of information, and those ideas and perspectives.

David Todd [02:04:42] Well, this has been really helpful. I think that you've given a nice reprise of the 2019 talk and, you know, 40 years of work on the ocelot, to boot.

David Todd [02:04:55] I think that this might be a time to see if we can draw this to a close. And I'm wondering if there's anything that we may have missed about the ocelot, or your thoughts about wildlife conservation in general, that we should just make sure we cover before we shut her down.

Mike Tewes [02:05:15] Well, let me first begin by that, this has not been a one-person effort by any stretch of the means. It's been a team effort, a huge team effort. I've had many, many excellent graduate and undergraduate students working on different aspects of ocelot ecology, many staff people, many good Fish and Wildlife agency people, Texas Parks and Wildlife. It's been a huge group of people that have worked and helped formulate these ideas that have evolved over time.

Mike Tewes [02:05:50] And these ideas, I mention them because they're on my mind. But I'm sure the genesis and the seeds of these ideas came from all these other people that I've had connections, interactions with.

Mike Tewes [02:06:04] And then the ultimate team and credit goes to my family - my wife, Bonnie, and my daughter, Christina. They've tolerated all my grinding of teeth over the years. I've got six capped teeth from grinding my teeth. And I attribute that to the negative parts of this ocelot effort. And in fact, I just had one put back on yesterday, at the dentist.

Mike Tewes [02:06:33] So it's been a group effort. It's a huge effort.

Mike Tewes [02:06:36] Going into the future, people always, one of the hardest questions for me to answer is, "Why did we care? Why do we want to save the ocelot?"

Mike Tewes [02:06:43] And I struggle with that to this day. And it probably depends on the person. There's so many potential answers, and each one of them by themselves may sound, may come up short, you know.

Mike Tewes [02:06:54] But, collectively, I think they make a great argument.

Mike Tewes [02:06:59] But, really I just jump to the point where we're really past that. We've made it as a society, especially as Texans, we just want ocelots to be maintained here. We want them to stay here in Texas, for whatever your particular reason, you want them here.

Mike Tewes [02:07:14] And so I start with that. I start with the fact that we've already decided whatever the money, whatever time it takes, whatever human capital it takes, we want to keep ocelots here. And you get creative groups.

Mike Tewes [02:07:29] We've got this really young good biologist, Lisanne Petracca. We can talk about successional planning, but she'll be leading ocelot recovery well into the future. She's very young, bright, capable and she's going to be doing a lot of good things for ocelot recovery. She already is, and she just started in January. And I'm personally excited about her presence and her future that's she going to be here.

Mike Tewes [02:07:55] And she's got all the technology that I didn't have and all the money I didn't have. So, all the other more positive things for her to succeed and many other things.

Mike Tewes [02:08:05] And we have agencies like Texas Department of Transportation incredibly stepping up with funding for years to come in their wildlife crossings and their pursuit of ocelot recovery.

Mike Tewes [02:08:20] John Young has got to be mentioned there. One of my former students is working at TXDOT and he's brought things - the first attention to wildlife crossings in Texas. And it started with the ocelot, and it's expanding in many other areas now.

Mike Tewes [02:08:35] So, that's going to be an important thing that I'm very optimistic about.

Mike Tewes [02:08:41] I worry about, well, things I worry about is just, you know, these things that are beyond our control in just the way human society's going. And you could pick it: you know, artificial intelligence, robotics.

Mike Tewes [02:09:01] Really that's the only thing I beat Stephen Hawking on, is, I'd seen enough movies so I knew about it. But, I realized that the quick advancement of A.I. and the advancement of robotics is going to merge pretty soon. And, just before he passed, Stephen Hawking said that's the greatest threat to human civilization, is that.

Mike Tewes [02:09:21] So, if we can get through the next 50 to 100 years, hopefully we'll still have ocelots here. So, I kind of contrasted with that.

Mike Tewes [02:09:28] Yeah, ocelots are important and we're making it important to Texans and people in the U.S.

Mike Tewes [02:09:34] And it's amazing the work that Ben Masters has done to bring the story to the public is what's so critical. He did a PBS nature program that came out November 8th called America Ocelot, and he got phenomenal footage. We kind of suggested where he might want to put some cameras and he took advantage of that. And it's telling the story of the ocelot.

Mike Tewes [02:10:05] And if you don't have ... the old saying, you know, there's a quote from 1968, this one individual from India spoke at the United Nations. He said, "We only save the things that we love, and we only love the things that we understand."

Mike Tewes [02:10:19] And that's kind of, I guess, important to me. And then fundamental for many of the things that I do. So, we're trying to help understand things so we can love and then we can save it.

David Todd [02:10:33] Well put? Thank you, Doctor Tewes.

Mike Tewes [02:10:37] Well, thank you, David.

David Todd [02:10:40] This has been really helpful and interesting. And thank you so much for doing it.

Mike Tewes [02:10:46] It was my pleasure. Enjoyed doing it. I tell people all the time, I'll talk all day about cats, and not just ocelots. I love to talk about cats and their evolution and adaptations. Amazing.

Mike Tewes [02:10:59] But ocelot is the ultimate in the animal kingdom. Can you think of any other animal that's more beautiful?

David Todd [02:11:09] True. Gorgeous.

Mike Tewes [02:11:11] Beauty is in the eye of the beholder. But I've got this one. It's hard to beat ocelots.

David Todd [02:11:16] I totally understand.

David Todd [02:11:17] Well, thanks for keeping them on the planet, and thanks for all your work. And good luck with these next efforts. Appreciate it. Yep.

Mike Tewes [02:11:26] Great. Thank you.

David Todd [02:11:27] All right.

Mike Tewes [02:11:27] Appreciate it.

David Todd [02:11:28] Thank you.