

TRANSCRIPT

INTERVIEWEE: John Young, Jr.

INTERVIEWER: David Todd

DATE: December 8, 2023

LOCATION: Austin, Texas

SOURCE MEDIA: M4A, MP3 audio files

TRANSCRIPTION: Trint, David Todd

REEL: 4182

FILE: Ocelot_Young_John_AustinTX_8December2023_Reel4182.mp3

David Todd [00:00:02] Okay. Well, good afternoon.

David Todd [00:00:04] My name is David Todd, and I have the privilege of being here with Dr. John Young Jr.

David Todd [00:00:10] And with his permission, we plan on recording this interview for research and educational work for a non-profit called the Conservation History Association of Texas, and for a book and a website for Texas A&M University Press, and finally, for an archive at the Briscoe Center for American History, which is at the University of Texas at Austin.

David Todd [00:00:30] And he would have all rights to use the recording as he sees fit.

David Todd [00:00:35] I wanted to make sure that that's okay with Dr. Young.

John Young [00:00:38] That is fine. Thank you.

David Todd [00:00:39] Great. Okay. Well, thank you.

David Todd [00:00:42] Well, let's get started then. Again, my name is David Todd, and I'm representing the Conservation History Association of Texas. And I'm in Austin, and we are conducting a remote interview with John Young Jr., who is also based in the Austin area.

David Todd [00:00:57] It is Friday, December 8th, 2023. It's about 2:15 in the afternoon, Central Time.

David Todd [00:01:07] Dr. Young is a wildlife biologist and he's served as an environmental specialist at the Texas Department of Transportation for over ten years. In the past, he has worked as a staff biologist with Blanton and Associates, and as a mammalogist for Texas Parks and Wildlife, and as a wildlife biologist with the Wildlife Habitat Council.

David Todd [00:01:26] For a number of years, among his other tasks, he has led efforts to reduce wildlife mortality at road and bridge crossings.

David Todd [00:01:34] Today, we'll talk about Dr. Young's life and career to-date, and especially focus on what he's learned about the study and protection of wildlife, particularly related to developing safe wildlife road crossings and improving landscape connectivity in general.

David Todd [00:01:49] So, with that little introduction, I wanted to again thank you.

David Todd [00:01:53] And I thought we might start by just asking you about your childhood and if there might have been experiences or people during your early years that influenced your interest in animals, wildlife and science.

John Young [00:02:08] Yeah, I think I'd have to look at my father started taking us fishing at a very young age. My mother now, as a grandmother, thinks she must have been half crazy to let six and seven year old boys go down 2 or 300 yards away from the home, completely out of sight, to go fish all day during the summer. But she warned us, you know, don't come back with wet feet. And I think those experiences with the fishing and my dad taking us out to hunt mushrooms and go fishing early on had a big part.

John Young [00:02:44] And then, when I turned 13, I started running a little bit with my grandfather. We bought a woodstove, to heat the house, and started having to cut firewood. And I spent a lot of time in the woods with him, learning all about how to manage a forest. And so, we cut a lot of trees. We would go through the woods and select ones that weren't going to make good timber, or maybe showing some signs of insect stress, or maybe had died, remove those.

John Young [00:03:22] And that's kind of what got me first enrolled in forestry at West Virginia University when I started there in 1984. And then, after a bit of time in the forestry program, I switched over to wildlife management, realized that timber production wasn't quite where I wanted to go.

David Todd [00:03:47] Well, interesting things that you've done.

David Todd [00:03:52] So, thinking about your experiences with your dad...

John Young [00:03:55] Mm hmm.

David Todd [00:03:55] Maybe we can just start there. So he's a mycologist. He's interested in mushrooms. And he would show you how to distinguish good from bad?

John Young [00:04:07] It was more foraging. Right? My dad had come from a poor family and wanted to impart to us things like how to go out and find your own food. So, you know, we learned how to dig cattails and what plants were edible and yeah, he'd have us go out in the pastures in the fall with him and our job was to run to where we could find a mushroom and stand there where the mushroom was until he came over to tell us, "Yes that's one we can pick, or no, that's a toadstool." So, yeah.

David Todd [00:04:42] That's fascinating.

John Young [00:04:44] Yeah. And it was a lot of fun, too.

David Todd [00:04:47] Well, and useful, practical things to know.

John Young [00:04:50] Yes. Yes, absolutely.

David Todd [00:04:53] Can you remember other plants that he tried to point out as useful or edible?

John Young [00:04:58] Oh yeah. Yeah. We had, we ate burdock and something called pokeberry. But, you know, you can only in a certain time of the year. Lots of the dandelion leaves. Marsh marigold was another plant that he taught us about.

David Todd [00:05:19] That is fabulous.

David Todd [00:05:21] And then with your grandfather, you were essentially cruising the forest looking for sick, stressed and vital trees? And were you also trying to distinguish between trees that were just the right species that you might want to cull or not?

John Young [00:05:39] Yeah. No, it was pretty much any tree that didn't look like it was going to grow tall and straight. So, we cut everything from curly birch to beech trees, a lot of maple trees and a lot of cherry. There wasn't a lot of oak on his place. And of course, we avoided the hemlock. The hemlock was strictly for timber.

John Young [00:06:05] And it wasn't until I was 16 or 17 that we cut any of the timber for harvest. And that was, that was really cool - to cut down, you know, a four-foot diameter tree with a 42-inch chain saw that it took the two of us to run because by that time Grandpa was in his 70s and then cutting the logs, you know, learning to cut them, learn how to grade them and then haul them to the local sawmill just up the street from where he lived. And then getting to watch them slab it out on a circular saw mill. That was really cool.

John Young [00:06:49] And then having to learn that, you know, once it's cut, now you put it up in the rafters of the barn for 3 or 4 years and let it air dry, because we didn't do a we didn't take it to a kiln.

John Young [00:07:00] So, I actually, just last year, went home and shed a tear or two because I got up in the old barn that's getting ready to fall down. And I found three of those boards, those big cherry boards that we had cut back when I was 17. And I brought those home with me. So, they're out in my woodshop right now, hung up, waiting to figure out what I'm going to do with them, if nothing more than just stare at them and have memories.

David Todd [00:07:31] Yeah, there's a lot of heritage there.

David Todd [00:07:34] And just to make sure I understand, this was, I guess in the Appalachians, what part of the country were you in?

John Young [00:07:42] Oh, western New York, right off the lake. Ripley, New York lives between Erie and Buffalo. Snow belt of the Great Lakes, basically.

David Todd [00:07:57] Okay.

David Todd [00:07:59] Well, were there any peers that might have also shared this interest in the outdoors, aside from your family members that you mentioned?

John Young [00:08:10] No, not really. I pretty much hung out with my granddad from the time I was 13. We lost my father when I was 13, so I pretty much hung out with my granddad from 13 to 18, 19 years old when I went off to college. He had a big influence on my life.

David Todd [00:08:29] Gotcha.

David Todd [00:08:32] What about teachers? Were there any people, or students for that matter, that you met in school? I mean, you've had a lot of schooling..

John Young [00:08:41] Oh yeah!

David Todd [00:08:41] From grade school through undergraduate and graduate school.

John Young [00:08:45] Yeah. So there was a, my senior year in high school, I took an advanced biology class and I failed it. And that biology teacher told me, you know, you're unlikely to succeed at college and you probably won't amount to very much. So, when I graduated with my Ph.D. in 2009, I found out he had become a professor at Edinboro State University up in Pennsylvania. So I applied for a job and sent in my résumé and included in there that I had taken his advanced high school biology class.

John Young [00:09:19] So, that was kind of a, you know, an interesting point to be able to, after all those years, you know, after 20 some years, to write back and go, "Here's the kid who you said wouldn't amount to anything with a doctorate."

John Young [00:09:34] And then when I was at West Virginia University, I really met a couple of life-long friends. My friend Steve Schott, who wound up coming down to Kingsville and going and getting his master's degree with me. And Steve and I did a lot of stuff together through the years. We're still friends 30-some years later. He had a big impact on assisting me with getting through classes. And, you know, we helped each other through that - graduate degree and our undergraduate degree, then got really close during our graduate degrees.

David Todd [00:10:18] It's nice to have those folks that are sort of your co-pilots or, you know, your supporters and fellow travelers.

David Todd [00:10:29] Well, good. Good.

David Todd [00:10:32] And then other kind of sources - any kind of media?

John Young [00:10:39] Yeah.

David Todd [00:10:39] You know, I'm thinking about books, TV shows, movies.

John Young [00:10:44] The biggest show that had the most profound influence on me, and I think almost anybody my age at that time, would have been Mutual of Omaha's Wild Kingdom with Marlin Perkins. And I really wanted to be Jim. I wanted to go wrestle alligators and catch the snakes and, you know, jump out of a helicopter onto a wildebeest. Yeah, that show - I was religious about not missing that show every Sunday when it came on. Yeah.

David Todd [00:11:25] So, you didn't want to be Marlin, just sitting back there doing the blow-by-blow.

John Young [00:11:29] No, no. I wanted to be the one jumping out of that, like I said, you know, shooting the gun, throwing the cannon net over the animal. Marlin was cool, too, but I really wanted to be that rough and tough action character.

John Young [00:11:47] And it was fun because years later, when I when I first got down to, it was Kingsville, and it was Texas A&I, at that time, one of the very first times I ever got to

experience a Mutual of Omaha moment was when we were invited to go out on a deer drive and capture. And we did use a big long drive net. And they used a helicopter to haze the deer into the net. And then graduate students got to tackle and hold down the deer. So, I did get a couple of days of getting to play Jim there and tackle some animals.

David Todd [00:12:28] Very good. Very good.

David Todd [00:12:32] And then any books or movies occur to you?

John Young [00:12:36] Sure. Yeah. I was an avid reader as a kid, and I absolutely wore out my "Trap Lines North" book, "Call of the Wild", and "Swiss Family Robinson". I could read those three books and start them right over again after I finished them. I just absolutely loved those. And "Trap Lines North" was a really, really big influence too, always.

John Young [00:13:08] I did do a little trapping when I was younger. I learned pretty quick that that's a pretty rough, rough line of work to pursue. It's wintertime and you know where I grew up in western Pennsylvania, snow could be anywhere from 2 to 3 feet deep through the trapping season. So, you had to be dedicated to go out and jump in the creek and stuff your hands down into two feet of water to get that trap out when you caught a muskrat when I was doing it.

David Todd [00:13:48] Well, you have been in many different parts of the country, you know, from western PA to I noticed that you had worked as a forest technician in South Carolina, and in '89 and '90 got involved with some of those early days of providing artificial nesting cavities for red-cockaded woodpeckers. And I'd love to hear about that. That's a fascinating story.

John Young [00:14:15] Yeah. So, it was 1989 when Hurricane Hugo hit Charleston, South Carolina, and a large swath of South Carolina. It took out, it hit a portion of the Francis Marion National Forest, which was home to the largest red-cockaded woodpecker colony in the states at that time. And it knocked down 75% of all standing timber.

John Young [00:14:44] Red-cockaded woodpecker are dependent upon cavities inside of live pine trees. And they excavate these cavities themselves. So, with 75% of all standing timber down, they were in real serious trouble and in need of nesting cavities.

John Young [00:15:02] So, I was one of three people that were hired and trained in installing artificial cavities with what we called the "chainsaw technique", where basically you plunge-cut a hole in a suitable pine tree that's 20 to 30 feet above the ground level. And we installed what was basically a modified bluebird box, modified to fit a woodpecker and have an extra thick bottom, so they wouldn't drill through the bottom too soon.

John Young [00:15:35] There was another group that was trained in the "drill installation" technique, and they used gas-powered drills and a series of long drill bits. Their cavities were much more natural, but where they could install a cavity every two days, our chainsaw crew could install three or four cavities in a single day. And so, to get that immediate need for providing birds with homes, the red-cockaded with homes, we really were the ones, the chainsaw crew, was the one carrying the brunt of that.

John Young [00:16:15] And the way we got up into the tree, it's kind of interesting. The hardest part about that job was climbing the ladders. Now, part of the reason I got hired was

because I used to paint houses. And in New York and western Pennsylvania, every house is two stories. You need a 40-foot ladder. So, climbing ladders was not an issue for me, or so I thought.

John Young [00:16:40] When we got down to South Carolina and they had us start, the first thing they did was say, "Here's a ten-foot section of the ladder standing straight up against that tree. Now climb it and tie it in at the top, not at the bottom. Tie it in at the top. So secure it to the tree after you've climbed it."

John Young [00:17:01] And you've got a climbing belt that you're using to help hold you on. Right? So everything you're doing with a ladder violated everything I was ever taught. Right? Never stand a ladder straight up. You always go in at a 20-degree angle, or 25 preferably. And then being told, you know, we're going to hand you another section of ladder. And the ladders came together, they only had like a four-inch connection point. So, you'd slide one ladder over top of the other. And now this ladder's second section of ladder is sitting there flopping loose on the tree and you're told to climb it, and secure it at the top.

John Young [00:17:42] So, all of a sudden, ten feet off the ground feels a whole lot different. And then you get up there and it was so funny, especially once they sent us to Texas to watch the people who, you know, were just learning.

John Young [00:17:59] You really have to learn to trust the equipment that you're climbing with. And, you know, it took me probably 15 minutes to get talked into letting go of the belt.

John Young [00:18:11] And then and then to climb up, to be able to do the work, you have to be over top of the ladder. You can't have the ladder in front of you.

John Young [00:18:20] So, again, another thing that violates everything I was ever told about ladders: don't stand on the second from the top rung. Right? That's where I worked from - the second from the top row, 20 to 30ft off the ground. So, that was the hardest thing about the entire thing.

John Young [00:18:37] Running the chainsaw, doing the plunge cuts, you know, test-fitting in the box. We would test-fit the box until we got it to fit in the hole and then we would secure it with wood putty.

John Young [00:18:49] And then we would dress these cavities, right? Because we wanted to try to draw the birds in. So, we would debark a lot because that's one of the things the woodpecker does when they make a cavity. They call it, "scaling", where they go up and they scrape off all the loose bark that's around. And then they dig little tiny holes through the bark called, "sap wells", that gets the sap running.

John Young [00:19:18] And that's what gives that candle-like appearance to these red-cockaded woodpecker cavity trees where it looks like it's candle wax almost running down it. Right? It's tree sap.

John Young [00:19:30] So, we would try to mimic that. And we did that with wood putty. We would cut wells and then we would take wood putty after we'd scaled the tree and we would rub it 2 or 3 feet up and down the cavity.

John Young [00:19:42] And, you know, the first couple of times that we put one of these in, me and my partner would question, "Is this really going to work?" And literally one day we had just done a cavity. We'd just gotten our ladders down and a bird came right in and immediately took over use of that cavity.

John Young [00:20:04] So, it was something that was needed. It was, it was very successful. You know, they were temporary for sure, probably between 3 and 5 years, really, before they probably became inactive. Right? But that met an immediate need, and then allowed the drill team to make those more natural cavities over time.

David Todd [00:20:39] I see. So these initial of plunge-cut cavities were something that was just temporary - three, four, five years - and then the more authentic-looking drill-bit cavities would sort of take over. And then eventually, I suppose, the woodpeckers would peck out their own. Is that right?

John Young [00:21:01] Yes. Yeah. Yeah, it was, in time, they were expected to build back their own. But, you know with 75% of the trees on the ground, there were literally birds out there, you know, free-roosting in the trees.

John Young [00:21:15] And so, there were multiple times where we completed a cavity and a bird immediately came in and took it over. One of those times was we were out in a tree-clearing area. So, the Forest Service allowed a salvage operation. Right? So, a lot of loggers were coming in and we were actually in an area where they were clearing a lot of the downed timber. And I had just completed putting in, or I was working on a 30-foot tall cavity, and a couple of the loggers came by and they're watching us and they're like, "Does that technique really work?"

John Young [00:21:55] And I got down one ladder length, I'm still on the tree. Right? Still 20 feet up, but one ladder down. And a bird went right into that hole, while they were standing there watching and I was still on the tree. So, that was really impressive for them. They were like, "Wow, that really does work." And I said, "Yep, it really works."

David Todd [00:22:17] So. That's a great story.

John Young [00:22:20] Yeah.

John Young [00:22:20] And then we were invited. You know, eventually this became well known enough that it was looked at, well, if this is successful in helping red-cockaded woodpeckers where, you know, we had a natural disaster that affected them. What about in other areas of the states, like Texas, Kentucky, where there are red-cockaded woodpeckers, but they weren't doing real well.

John Young [00:22:46] So, our crew, both the drill and the chainsaw crews, were sent here to Texas in the summer of 1990. And we trained folks at both the Crockett and Angelina National Forests in how to put in the cavities, both drilling cavities and the chainsaw technique.

John Young [00:23:15] And that was the part where it was fun now, you know, I'm used to climbing trees and I'm very comfortable on the ladder and with the equipment, and watching somebody learn was so funny because, you know, they went through that whole thing of, I'm not going to let go. I'm not going to let go, you know?

John Young [00:23:37] So, seeing the shoe on the other foot was really fun.

David Todd [00:23:44] Yeah. Well, I hope nobody got hurt.

John Young [00:23:47] Oh, no. No one ever got hurt. That was one of the things that we were told early on: if anybody got injured with that chainsaw, we had to be super, super careful because they're like, if we get one injury, it'll be done. The Forest Service won't allow us to do this again. And so, we had a very good safety record, but we were we were extremely careful.

John Young [00:24:13] You know, we never operated without a ground person. Once you're up the tree, you were in full regalia. You had your chaps on, you had gloves, you had, you know, hard hat with shield protector. Chainsaws were limited in size to a 10- to 12-inch long bar, no bigger than that. You couldn't start a chainsaw when you were up the tree. The chainsaw had to be started and you had a rope that you would drop down. Your partner would start the saw, set the chain break and send the saw up. And then when you were done using the saw, you'd turn it off and send it back down.

David Todd [00:24:57] Boy. That's comforting to hear.

David Todd [00:25:01] Well, let's talk about other adventures in Texas.

David Todd [00:25:05] I saw that you, while you were serving as a mammalogist at Texas Parks and Wildlife, you led a Texas black-tailed prairie dog management plan. And in the course of that, did a of prairie dog inventory in 2010. And I was wondering if you could sort of give us an idea of the situation and the trends for prairie dogs in the state.

John Young [00:25:32] Sure. So, historically prairie dogs were pretty widespread across the Panhandle, down into the Trans-Pecos, and probably a little bit of the central part of Texas as well. The good news for prairie dogs is their distribution in the state is still just about that. Historically, their numbers were much, much higher. But, as far as the area in which prairie dogs occur, we're still doing really well. They're probably still in 85 to 90% of their historical distribution. Their numbers are much lower and smaller, but they're still widespread and fairly common.

John Young [00:26:23] What drove the black-tailed prairie dog management plan was, and this effort had been started just as I was, I was not at Texas Parks and Wildlife Department when this effort started. I came in in the middle of this effort and took it on. But it came, it started because the U.S. Fish and Wildlife Service had been petitioned to list the black-tailed prairie dog as an endangered species. And the eleven states where black-tailed prairie dog occurred said, "Well, hey, you know, hang on a minute. Before we do this, let us give us some time to get some information, and see what the status of prairie dogs really is, because it wasn't a species that was well-studied. Right? It had been historically studied, but no one had really ... they were they were common and widespread. So, no one really worried too much about them.

John Young [00:27:27] And so, the prairie dog inventory that we undertook (we undertook two) was aimed at answering the question, "Where are they? How did they compare with their historical distribution and their historical numbers?"

John Young [00:27:46] So, what we found was very positive. What other states found was very positive. And I think this is something that happens occasionally in conservation, a little

more frequently than maybe we'd like. Where, especially with our non-game species, we don't, we may not know the status very well, right, of the species. We may not know how many we have.

John Young [00:28:17] And so, these proposed listings or efforts to undertake listing, can help provide monies, because the Fish and Wildlife Service came forth with some conservation monies for the states to be able to do this and that, that helped us answer those questions. Where we didn't have money to do the actual surveys, the Fish and Wildlife Service came up with that money through the Endangered Species Act and provided it.

John Young [00:28:46] The downside of that was once we determined that black-tailed prairie dogs were good, that money went away.

John Young [00:28:54] But yeah, our prairie dog inventory, the two that we conducted, showed us that, you know, and I think our first was 2005 (we did it five years later), showed us again that prairie dog numbers were stable. Distribution changed a little bit here and there, but overall, black-tailed prairie dogs were in pretty good shape.

David Todd [00:29:22] And what was the concern about prairie dogs initially, you know about their range or their trends? What was the alarm that triggered this petition?

John Young [00:29:32] So that's a good question. I'm not exactly sure. Usually, a lot of the non-profit conservation organizations and the animal rights groups file because they can. And then they do have concerns over, you know, the lack of information that states may have.

John Young [00:30:02] You know, there's 200-odd mammalian species in the state of Texas. How do you know the status of all of those? It's very difficult, right, especially when you start talking about animals that are non-game and have no requirement to do population estimates or to set harvest limits. Right?

John Young [00:30:28] So we, you know, Parks and Wildlife, other states, will do surveys and will do estimates of populations to set harvest limits for things like white-tailed deer, ducks and geese, doves, things like that. But when it comes down to black-tailed prairie dogs or pocket gophers, you know, you have to pick and choose what you can and can't do as a state agency. And so, you know, a lot of the non-game species where there's no requirement, we just don't have a lot of information on.

John Young [00:31:18] And that was the concern that the Fish and Wildlife Service noted, and what the Center for Biological Diversity called out, were things like lack of information on status, concerns about disease, specifically distemper, that can cause mass die-offs of prairie dogs along with other rodents.

John Young [00:31:48] Lack of regulatory mechanisms is another one of those things that protect the species that the Fish and Wildlife Service looks at.

John Young [00:31:58] So, those types of things were what raised the issue and concern.

John Young [00:32:05] And once we had, once the various states did the inventory, and we found and other states found what we did, right, that distribution was still pretty much within its historical range, it was determined that we did, you know, we did have decent numbers.

We still had adequate regulations in place to protect the species. And so, the listing was deemed not needed at this time.

David Todd [00:32:33] Okay.

David Todd [00:32:34] Well, that's really interesting to know that sometimes, you know, it's just a paucity of data and you need to, you know, fill in those gaps and that seems very useful.

John Young [00:32:46] So I think that you also, in the course of your career, managed contracts and research projects for the river otter, which I think, you know, had dipped and has come back to some degree. And I was wondering if you can give us an overview of what you learned.

John Young [00:33:06] Well, when I came to work at Parks and Wildlife Department, one of the first things that I was asked to do was take over the fur-bearing animal regulations and whatnot. And a friend of mine, Steve Dimazo, had just completed an effort asking Fish and Wildlife Service to allow us, allow Texas the CITES tags which would allow trappers and hunters to harvest river otter and then be able to sell pelt.

John Young [00:33:38] And the Service wrote back and said, "No."

John Young [00:33:40] Well, Steve said, "Here, this is your thing. Now, you know, you're the fur-bear biologist. This is their response. You decide what you want to do with it."

John Young [00:33:50] And I looked at that and I looked at the regulations related to river otter and the CITES tags. And it wasn't that the North American river otter was endangered. It was that the South American river otter was endangered. And because river otters in the north look like river otters from the south (they were from South America), they were listed, as under the convention, the International Treaty for Export of Species, CITES Act, because they looked alike. And it would be very difficult to tell if this was a North American river otter pelt or a South American otter pelt.

John Young [00:34:37] So, when I looked at that, I wrote back to the Service asking, "Hey, all we're required to do is certify that the trapping of river otter in Texas would not negatively affect the South American population. And we're saying that. So, we'd like our CITES tags, please."

John Young [00:34:59] And, you know, they wrote back and said "No". And I asked, "Well, how do we get these tags?" And they wrote back and said, "Well, go talk to all the other states." So, I did. I talked to all those states and found out that everybody was doing something different. In order to track the otter population and how well they were doing, Georgia was doing something like collecting teeth and doing cementum annuli estimates, annually of a set number. Missouri had just gotten tags and they were counting all the pelts that were going through. And North Carolina - this was the oddity of the group - North Carolina had CITES tags for their coastal Piedmont population while they were still reintroducing river otter in the central part of the state.

John Young [00:36:04] And so, that was the one that kind of, you know, threw a red flag for me. And at the time, the director of the wildlife program at Parks and Wildlife Department was supportive of me writing a letter to the Fish and Wildlife Service saying, "Hey, look, we called all the states. They all did something differently. They're all telling us they can't tell me

what they did to obtain their CITES tags. And you got North Carolina introducing otter into a part of the state and trapping in another part of the state. So, again, we're respectfully asking for our CITES tags. And if we don't get them, you know, we may have to pursue legal action." And at that time, they gave us the otter tags.

John Young [00:36:56] But we also did some research with Texas A&M. We looked at things like, we had otter surveys that we were doing. And so, we quizzed our biologists who were doing those otter surveys, found out that not everybody was really good at tracking otters and recognizing otter tracks. So that led us to providing some additional training.

John Young [00:37:33] You know, one of the one of the things as a wildlife biologist, when I look back, one of the things lacking from my training in college, on all levels, was tracking: how to recognize a track of a frog, versus the track of a turtle, versus the track of a deer. There were assumptions that you knew tracking. They taught us birdcalls. They taught us plants. They taught us trees. But no one ever taught tracking.

John Young [00:38:08] And so, it wasn't a real big surprise that, you know, not everybody was good at recognizing river otter tracks. But with a little bit of training, everybody became quite proficient very, very quickly and whatnot.

John Young [00:38:24] So, you know, I guess historically you could say that there probably were declines in the otter population here in Texas. There's not a whole lot of evidence that points to that. But just knowing how trapping in the 18th, 19th centuries affected animal populations, especially things like the beaver, you can assume that river otter probably were reduced in numbers as well within the state of Texas.

John Young [00:39:00] But right now, they're doing great. I mean, before I left Parks and Wildlife Department eleven, twelve years ago, we were regularly noting new county records for river otter. Trappers were reporting finding them in other areas. There were people who would report them as roadkill. So river otter numbers were definitely up and they were increasing their range back then. And I'm assuming that they're probably still doing that.

David Todd [00:39:39] That's really intriguing. And it seems like it's kind of akin to the prairie dog situation. Sometimes there just isn't as much known about a species as you might hope.

David Todd [00:39:52] So, we talked about those that maybe are not monitored real well. But one species that I think has been tracked pretty well, as an endangered species, at least until recently, is the brown pelican. And I think that you did some really interesting work on bridge rails and trying to deal with the turbulence around bridges that they can lead to, you know, collisions for these brown pelicans. Can you talk to us a little about that?

John Young [00:40:22] For sure. That would be down in the Pharr district in Cameron County on State Highway 48. There are two bridges down there that when the roadway was first built in the '30s and '40s, the road was built up and basically cut off water flow from the Rio Grande into what was known as the Bahia Grande Wetland Complex. And it dried that up for 60, 70 years.

John Young [00:41:02] And I think it was early, late 90s or early 2000s, when Fish and Wildlife Service, and others, decided to undertake and try to restore water flow to the Bahia Grande Wetland Complex. And they approached TXDOT at the time, asked if TXDOT would

raise those, these two locations, raise the road level and put bridges in so that Fish and Wildlife Service and others could dredge a channel and return water flow and tidal flow to the Bahia Grande Wetland Complex.

John Young [00:41:44] And so TXDOT accommodated that. And one of the largest wetland restoration projects ever undertaken was able to move forth.

John Young [00:41:57] Well, it was probably, I don't know, a number of years ago, but there started to become reports that during winter storm events, brown pelicans were falling out of the sky when they would fly over State Highway 48, specifically when they would fly over one of these two bridges.

John Young [00:42:20] And so when TXDOT heard about that, and I think I had just started, or was only a year or two here, they looked at things like, "Okay, well, what's you know, what can we do here?"

John Young [00:42:34] And our first thought was to borrow an idea from Florida, where we added pelican poles, right? Because the pelicans were flying over the roadway just about, you know, ten, twelve feet in the air. So we got these pelican poles, put those on the bridges to see if we could get the pelicans to fly higher thinking if they started to fly higher, they'd be able to make it over the road.

John Young [00:42:58] And that helped. We stopped getting direct collisions between delivery trucks and semi-trucks and pelicans. But it didn't really fully resolve the issue with pelicans falling out the sky. And literally, these pelicans looked like sometimes somebody shot them. They just, they don't, they don't come down gentle. They crash. They just drop like you pulled the rug out from under somebody.

John Young [00:43:31] So, there was a lot of speculation that went on about what was causing that.

John Young [00:43:37] And I got involved with it because I had an interest in looking at what effect the concrete traffic barriers were having on wind flow. And so we worked with the Texas A&M Texas Transportation Institute. We did a wind tunnel study and found out that, yeah, definitely concrete traffic barriers were affecting the wind. We took that information from the wind tunnel. We used it to inform some computer fluid dynamic models so that we could try to manipulate wind and whatnot.

John Young [00:44:21] And long story short, we found out that the concrete traffic barrier that was there was funneling the wind, making a faster wind. So if the wind speed was 30 miles an hour, the wind would hit that concrete traffic barrier. And it would roll up, and actually increase in wind speed. And then it would do that to about 15, 20ft in the air. And then as it leveled off and started to flow again, it had a downdraft.

John Young [00:44:59] And basically, the concrete traffic barrier was creating a vortex where the pelicans would be flying along, if they manage to get through that increased wind speed, then they hit a soft spot of air where the downdraft in the wind would basically push them down onto the roadway.

John Young [00:45:22] So, after we identified that that was the issue, we looked at a bunch of different rail types that we could potentially use and we had to be careful because we have to

maintain safety on that bridge. And so, we had to have a rail type that would meet specific safety standards. And we identified one and did more modeling and noted that we reduced that wind speed, we eliminated a lot of the downdraft.

John Young [00:45:55] So, we went ahead and put new rails on the Gayman Bridge. The pelican poles seemed to resolve the issue on the other bridge where the birds were falling out. But we replaced the bridge rails and the approaches on the causeway around the Gayman Bridge, and that seemed to help as well.

John Young [00:46:21] Now what we're seeing when we have multiple pelican events during the course of the year. It's only been 2 or 3 years now since we put the new rails in. And pelicans still fall out of the sky. We still have pelican downings and landings in the road, but we feel that they're reduced from what they were. We're told now that pelicans are coming down only in one lane of traffic rather than dropping out into two different lanes of traffic.

John Young [00:46:55] So, there have been some other efforts looking at what else could be done from the standpoint of the road and what TXDOT can do. We've pretty much done everything at this stage that we that we feel we can, at least currently. And what other actions and steps might be taken down the road will be, we'll have to look at things like land management, shoreline protection, you know, what other type of development may come into the area. That's part of the Brownsville Ship Channel area. And some of that property may get developed and all of that could have an effect on, and help to reduce the number of brown pelicans that continue to fall from the sky.

John Young [00:47:59] But at this stage, TXDOT feels that we've done everything that we can to address that issue and that we've reduced road mortality and the number of events that happen annually. So.

David Todd [00:48:16] It's fascinating stuff. Thank you. Gosh, lots of thought put into this.

David Todd [00:48:22] Let's move to just another species that I think you've thought a lot about and in particular, the same kind of issues, not on the air, but on the ground. But you know how human structures, roads in particular, can interfere with the way animals move around. And that's regarding the ocelot.

David Todd [00:48:44] And I thought maybe as a place to start, maybe you can just give us a kind of overview of the life history and ecological niche that the ocelot fills.

John Young [00:48:53] Well, the ocelot's a kind of an interesting species, because here in Texas a lot of the research has been limited to federal lands and to some private lands for the last 20, 30 years. And in this part of their range, there was early on a lot of emphasis on the fact that they would only occur in this dense Tamaulipan thorn scrub, and "dense" meaning 90 to 100% canopy closure.

John Young [00:49:35] When you look at them across its range, down into South America, it's not dense thorn scrub. It's other types of dense habitat. So this could be why historically there are records of ocelot up into Arkansas and Louisiana. Now, there's some speculation that, you know, those populations, or those cats, would probably have been focused around riparian zones and riparian areas, not just widespread throughout that area, but specifically along major river courses and whatnot.

John Young [00:50:27] But, yeah, their habitat requirements in South America and Mexico are quite a little bit different from what we see here.

John Young [00:50:43] Trying to remember now, what's the other part of your question?

David Todd [00:50:45] Well, just, you know, you sort of described the ecological habitat that it might find most useful and familiar. Maybe you could tell us a little bit about their life history and we can go on from there.

John Young [00:51:02] Okay.

John Young [00:51:02] Well, you know, ocelot can live up to about ten years. They become reproductively active around, you know, two to three years of age. Females may become reproductively active in their first year, but it's not well documented. They'll have anywhere from one to three young and they'll have young anywhere from one to two years apart. Right? So they're not, they're not quite every year where they have young. So they're one of these species that invest a lot of time and activity in the young.

John Young [00:51:43] Males, of course, you know, once they're weaned and reach a certain stage, disperse. A lot of times the females stay near to their mother or take over a portion of their mother's territory, maybe not disperse quite as far. But definitely it's a male dispersal system.

John Young [00:52:07] The problem that we have here in Texas with dispersal is that there's not a whole lot of places for the cats to go. There's two known populations, one called the ranch population, which is in northern Willacy County, and then the population at Laguna Atascosa in Cameron County. And it's the population in Cameron County that is pretty well isolated by development and distance from other populations and especially from that population in Mexico.

John Young [00:52:48] So, historically, we lost connectivity to Mexico probably a hundred years or more ago. And we know that from the genetic studies that have been done looking at historic heterozygosity amongst the genes of the animals compared to what they are now, and looking at populations, the genetics of populations, in Mexico and Texas right now. So Texas has a significantly reduced genetic structure from what those cats do in Mexico, even though they're the same subspecies.

John Young [00:53:28] But, there's something going on. You know, somebody one time at the Laguna Atascosa documented this or termed this, called it "frustrated dispersal". And so, imagine you're a young cat and you decide, "Okay, I'm going to head out, try to find my own place", and you take off across the countryside and you can't find a suitable area. You can't find a mate.

John Young [00:53:57] So, what do you do? You turn around and go back home. And yet, there's really nothing for you there either, unless you can, you know, as a male cat would have to knock another male cat out of a territory.

John Young [00:54:14] So, that was kind of what was happening with the Laguna population, is that they would take off and then eventually come back, if they weren't hit on the road.

John Young [00:54:23] And that was one of the major sources of mortality for ocelot - road mortality. And TXDOT, Parks and Wildlife Department, Fish and Wildlife Service all started to try to address that in the early to mid '90s with developing wildlife crossings for ocelot. There wasn't a whole lot known about what made it suitable or what might make a suitable ocelot crossing or wildlife crossing back in those years.

John Young [00:54:59] So, there were a lot of culverts built that might have been marginal as far as potential for use.

John Young [00:55:13] But, you know, we did a study here a few years ago with Texas State University. We went back and looked at some of the historic ocelot crossings that were 18- and 20-inch culverts under roadways. And we found the animals were using them - specifically bobcat. Bobcat are often used as a surrogate for ocelot.

John Young [00:55:39] So, it was a real surprise, and a real welcome surprise, that these small culverts were being used by other animals, but especially by bobcat, which, you know, by extension, we think that they would likely be used by ocelot, if they were in the area.

John Young [00:56:03] And that's part of the challenge of developing these wildlife crossing structures, too, is that there are times where we provided structures, where we thought there were cats early on, but there may not be cats.

John Young [00:56:20] There was a lot of emphasis on in the '80s and '90s on collecting ocelot sightings and early conservation efforts relied on those ocelot sightings. But over the years, and Dr. Tewes can attest to this, over the years, it came out that people think they know what a ocelot looks like and they think they know what a bobcat looks like. But the two species are easily and readily confused. Right?

John Young [00:56:59] And so, while I was at Parks and Wildlife Department, we investigated a number of ocelot road kills and all but one that I can recall were bobcats that had been killed, not an ocelot.

John Young [00:57:16] So, that kind of had an impact on those early crossing structures.

John Young [00:57:24] I think there is a paper that came out a few years ago that actually kind of criticized, you know, or we shouldn't say, "criticize", was "critical" of past efforts to provide ocelot crossings because some of them were located so far away from a known population.

John Young [00:57:48] But what's lost, and, you know, you get to a certain age, you have memory. What got lost in that is the fact that when those crossing sections connected, it was honestly believed that there were ocelot in the area. So, when we put in ocelot crossings, when TXDOT put in ocelot crossings in the '90s up near George West on US 281, there was thought to be ocelot there, at that time.

John Young [00:58:21] Since then, evidence kind of indicates that probably not. Even though there's suitable habitat, it's probably unoccupied habitat. And we're basing that on just a lack of road kill and whatnot, and the investigative studies that we've done on those culvert crossings, historic and just a few years ago. So.

David Todd [00:58:59] Well, are you seeing any trends in wildlife mortalities, particularly traffic-related, for ocelots or for other animals?

John Young [00:59:10] So, we haven't had an ocelot mortality in a few, well, other than I think it was one, two, two, three years ago, and then one two years ago. The one, there was one mortality in the last five years over at Pharr, west, well west of the known ranch populations over on 281 with the intersection of FM 186. And that was a male, probably a dispersing male. That's the furthest west known ocelot road kill in recent history.

John Young [00:59:59] But, overall, I would say I think that the numbers of ocelot roadkill has, they've always been small. But, the problem is, is when there's a small population, everyone is kind of critical.

John Young [01:00:14] But TXDOT has provided, I don't know, I think we're up around 30 ocelot crossings now on various roads that are both adjacent to known populations, but also lie on potential routes of dispersal that the Fish and Wildlife Service has recognized.

John Young [01:00:39] And, you know, can we get wildlife crossings on State Highway 100? Those are meant to help dispersing ocelots get into the Bahia Grande Wetland Complex.

John Young [01:00:52] Ocelot crossings are being built on U.S. 77. Those are aimed at helping ocelot get from the east side of U.S. 77 to the west side of U.S. 77.

John Young [01:01:10] And so, the road crossings are really instrumental in helping these animals to get across the road successfully.

John Young [01:01:21] And we've had success. We've had success with ocelots using wildlife crossings that we've put out on F.M. 106, right there adjacent to the refuge. And we would expect that, because we're right there next to the population.

David Todd [01:01:38] Well, that was a question I had. Is that, especially with an animal that's as rare and secretive as an ocelot. How do you identify where you should put these crossings, and then maybe you can tell us a little bit about what a typical crossing looks like, and if there's been a change in how you design these crossings over the past 30-odd years that they've been deployed.

John Young [01:02:03] So, there's a lot that goes or can go into them. One of the gold standards for determining crossings is if you have telemetry data, and the Fish and Wildlife Service has had telemetry on ocelots there at Laguna Atascosa National Wildlife Refuge now for 20, 30 years. So those telemetry locations tell us where an ocelot crossed the roadway, you know, not directly, but we can say, hey, it was at this point or at this point. It's likely that it crossed somewhere in here. And with 20, 30 years of records, we start to see patterns of where they cross.

John Young [01:02:49] We look at the landscape, both the landscape at the road intersection, but also the landscape further away, leading up to, you know, does it look like this would be a natural travel corridor for an animal?

John Young [01:03:04] We also have to take into mind the roadway, and work with our engineers, because not every place along a roadway is going to be suitable for a wildlife crossing. A lot of folks don't realize that the highway department builds roads, you would

think, so that people could drive on those roads. But really what we're aiming at is building roads so that when you drive off that road in an accident, you're not going to, you're going to survive. Right?

John Young [01:03:36] So, we have things, we have restrictions on what can be in what we call the "clear zone", what kind of structures can be in that "clear zone". We have restrictions on what kind of slope we can have leading up to a bridge. We can't just necessarily say this is where we want to have a culvert crossing and raise the road bed six, eight feet. If we're going to raise the road bed six, eight feet, we have to do that over a gradual rise.

John Young [01:04:06] And that's where the engineers come into play of telling us how far that slope may have to be, that in turn plays a role in how much a potential crossing might cost.

John Young [01:04:19] When I first started into looking at wildlife crossings for ocelots and started doing research, I thought there'd be one, one key item. Right? There's going to be that magic box culvert size. Right? It's going to be an eight by ten, or a ten by ten, or it's going to be a bridge.

John Young [01:04:42] And the more research that I have done, and the more that we've looked into this, it looks more and more like there isn't going to be one magic size. There isn't. It's not a bridge. It's not just a box culvert. There's a whole range of different size structures that animals have used.

John Young [01:05:05] When we look at State Highway 100, we have box culverts there that are ten by ten and have running water under them. So we put a concrete step in. And we have culverts that are three by four (and that's three foot tall and four foot wide), so very small. Right?

John Young [01:05:26] And we documented a mountain line going through the smallest culvert on State Highway 4 when we were doing UTRGV. University of Texas - Rio Grande Valley was doing the monitoring work for us.

John Young [01:05:40] So, in a way that is a good thing, right, because the diversity of sized culverts and different crossing structures that we could provide means that I have more options to work with that engineer. If an engineer tells me, "Hey, we can only get a three by three culvert in here", that is still potentially suitable as a wildlife crossing.

John Young [01:06:07] It may not be as useful a crossing as something that every animal can go through, like a like a bridge, right? A bridge crossing: deer, turkey, ocelot, they can all go through that. A three by three culvert? You're probably only going to get ocelots, bobcats, raccoons, and possums, and a host of other small species using them.

John Young [01:06:33] But we have documented in our work upwards of 24 different species using the culverts on State Highway 100 and F.M. 106. We've documented 20 to 30 to 40,000 animals going under and through those crossings.

John Young [01:06:53] So, we've done a lot of road mortality surveys and studies. But we're not focused on ungulates. A lot of other studies that have looked at road mortality, they're focused on deer collision. And so you'll see studies that say we reduced wildlife road mortality or wildlife vehicle collisions by 75%. And people go, "Well, can you tell me, is that what we see

in Texas with the TXDOT projects?" Those folks aren't looking at all wildlife road mortality. They're not looking at raccoons and bobcats and skunks. They're specifically limiting themselves to the ungulate community.

John Young [01:07:45] Our road kill information says that we have seen some reductions in the amount of animals that get killed.

John Young [01:07:53] We've also seen some shifts in where road mortality occurs, right?

John Young [01:08:02] But overall, if you look at the fact that we're passing 20 to 30,000 animals and say 25, 30% of those would have wound up dead on the highway, yeah, we're having a significant impact on the movement and the survivability of different species.

John Young [01:08:24] And we've documented a lot of state, what are called, "species of greatest conservation need" and state threatened species, even though we haven't gotten a lot of documentation of ocelot, we've documented a lot of other species that are using these. And so while these were aimed at ocelot, they're benefitting the whole entire wildlife community there in the area.

David Todd [01:08:49] Sure.

John Young [01:08:50] So, I was curious what's driving a lot of the interest, and I guess also funding and supporting these culverts (and I don't know if you're doing any bridges). Is it concern about the cost and physical injuries from deer collisions, or is it a focus more on, "These are rare and threatened species and they need to be protected".

John Young [01:09:16] Both. I mean, we certainly have concerns over safety for the traveling public. That's a huge, huge issue for TXDOT. We also have concerns with species declines due to road mortality and effects of highways on them.

John Young [01:09:39] And then there's just been an increase overall in the recognition that roadways do have an impact on wildlife. And we're just starting to understand that it's not just the physical road itself. But it's the traffic noise: it can affect animals, and how far off the road that might be affecting animals and animal movement. So, there's just been a really large increase in the knowledge and understanding of how roads are specifically affecting animals.

John Young [01:10:19] And then a lot of interest in how do we mitigate that, because we're not going to do away with roads. We need people to move. People need to be able to move. You know, it's the backbone of our country, and in most countries. So, the question then becomes, you know, how can we do this and minimize the impact that we're having on animals and on landscape connectivity.

John Young [01:10:50] So, if you look at, you know, a lot of people, there's a bit of a misconception, in my opinion, about the cost of wildlife crossings. So, yes, an overpass like the Tobin Land Bridge, that's expensive to build. But we have upwards of 55,000 bridges in the state of Texas. Every one of those has the potential to be a wildlife crossing, right? Animals can either for aquatic species or for terrestrial species.

John Young [01:11:26] Not every one is suitable, nor should every bridge become a wildlife crossing. You don't want to create a wildlife crossing that leaves animals into downtown Houston. Right? But, if you have a state park and a local community park, maybe you do,

where animals might try to move across a highway that intercepts them or bisects them. That's a place that you might want to consider having a wildlife crossing.

John Young [01:11:58] So, there's a lot of places out there, I think, that are acting as de facto wildlife crossings that aren't designed or developed or recognized currently as wildlife crossings. And so, there's a lot of emphasis on "Well, you need to build wildlife crossings". When I see bobcats going through 18-inch culverts, that are 300 foot long, my question then becomes, "If a bobcat's going through there, what else is? And how many other 18-inch culverts do we have out there on the landscape that animals are using that we don't know about.

John Young [01:12:35] And that's the same thing that you could say about bridges. How many bridges are out there on the landscape that animals can freely go under? But we haven't designated that as a wildlife crossing.

David Todd [01:12:52] Okay.

John Young [01:12:52] So, you know. Yeah. Kind of a soapbox deal.

David Todd [01:12:57] No, no, no. This is good.

David Todd [01:13:00] I need to ask you, how much time do we have on your soapbox?

John Young [01:13:05] A little longer. I'm fine.

David Todd [01:13:07] Okay. All right. I've just got lots of curiosity about what you've been doing.

David Todd [01:13:14] So, one of the questions I had was that, you know, some of these movies animals are, I guess, rather local and year-round. But I was wondering if you are thinking about landscape connectivity and crossings for like seasonal migrations of pronghorn antelope or mule deer that may be, you know, just a brief but very intense kind of use.

John Young [01:13:46] Yeah, we do. And I'm not aware of any migrational movements within Texas. It's not like, at least not like what we see in Colorado, where animals come down out of the mountains and go into the flats. But we are concerned with where are... and we've been talking with Parks and Wildlife Department specifically about pronghorn, and we're working with them on some pronghorn issues on the Marfa Plateau, trying to identify where crossings might be needed, and what those crossings may look like.

John Young [01:14:34] But looking at, and trying to engage Parks and Wildlife in others right now, I actually just had this conversation with TPWD and my supervisor, "Where are the important landscapes in Texas and what landscapes, where are they? What are those landscapes? What species are in those landscapes? And then how do our roads intersect and interact with those? And how can we lessen the potential impact and make sure that we have landscape connectivity?"

John Young [01:15:17] And so, that's something that we are considering and Parks and Wildlife Department is considering. We're both looking at, you know, do we want to try to partner on one of these FHWA Wildlife Crossings pilot program to map what are the

important landscapes in Texas and look at how our roads intersect those and what actions we might need to take.

John Young [01:15:48] Because one of the other things about wildlife crossings is they get expensive when you don't have a construction project. And so, like with U.S. 77, when we build that roadway out, that roadway will be like that for the next 15, 20, 30 years. Right? Other than maintenance and repair, and maybe a few other minor rehabilitation things, it's going to be a four-lane interstate highway with interrupted service drives for the next 30 years.

John Young [01:16:21] So, now's the time to look at how that road disrupts landscape connectivity in South Texas. Because it's currently, it's coming up for construction. And so, now's the time where we can say we want to build a bridge here to provide more movement for large ungulate species to get across the road, to improve safety.

John Young [01:16:55] When we don't have an active construction project, things can get expensive really quickly.

John Young [01:17:02] So, a culvert wildlife crossing may run us \$15, \$20,000, a bridge crossing, maybe a couple hundred thousand, land bridges, like the Tobin Land Bridge, gets you into the million dollar categories very fast, very quickly.

John Young [01:17:20] And so, that's why it's got to be careful where you put those and plan for those to go.

John Young [01:17:26] But overall, I think there's a lot of opportunity that animals have and a lot of places that animals are using to cross a road that we don't call a wildlife crossing, but they're still using it that way.

David Todd [01:17:43] I see. So, one of the questions I had for you was how road structures, and I'm thinking about bridges and how they are sometimes used for bat colonies or maybe for cliff swallows or how roads, you know, can be a source of carrion for vultures. Do you ever think about that, the sort of the benefits of roads? I know there are a lot of costs, but are there some benefits that you have been interested in and thought about?

John Young [01:18:19] Yeah. Certainly, You know, from the standpoint of bats, especially in TXDOT has built and designed bridges specifically to try to attract bats.

John Young [01:18:31] Where were we?

David Todd [01:18:32] We were just talking about some of the benefits that are sort of offsetting issues from roads. And you were just about to tell me, I think, about bats and how TXDOT has tried to design and build bridges that I guess somehow accommodate bat colonies.

John Young [01:18:50] Well, we have developed and we know that bridges and culverts can be occupied by bats and we occasionally build bridges specifically to attract bats and culverts. And we also occasionally build artificial bat boxes. We have a special specification for districts that are interested, and in the appropriate area, we can add a bat box to the bottom of a bridge structure. It's usually where it's done, it's done underneath so that, you know, it doesn't interfere with traffic or doesn't cause a traffic issue.

John Young [01:19:29] So, yes, we have looked at how infrastructure can be positively used by different species.

John Young [01:19:36] And transportation infrastructure is of a keen interest right now because of the reduction in bat populations due to the white nose syndrome. And at least to date what we've noticed is that we don't tend to see the large die-offs in our bridges and culverts that they're seeing due to white nose syndrome in some of the caves and more northern roost sites.

John Young [01:20:10] So, there's a lot of interest in will transportation infrastructure provide an alternate refuge, and a safe refuge, from white nose syndrome for various species of bats.

John Young [01:20:26] And yes, anytime, we're very popular, our bridges are very popular with swallows. And, you know, we take a lot of care during the breeding season and whatnot to make sure that if we do have to do work on a bridge or whatever, make sure that we don't negatively affect those birds and we put restrictions on ourselves for different activities during the breeding season. If there are swallows on a bridge, you're going to have to wait until after they're done breeding to, you know, do your work or take those nests and knock them off the bridge so that you can replace the bridge or do work on it. So.

David Todd [01:21:13] And then tell me about this sort of interplay between roads and carrion and vultures, or between roads and milkweed and butterflies.

John Young [01:21:24] So, we have active programs aimed at providing native wildflower seed mixes along the roadway. Right? And that goes all the way back to Lady Bird Johnson and interest in wildflowers and looking at how we can improve ... I would say, early on it wasn't how we could improve the habitat for pollinators, but it was about making roadsides look, you know, natural and giving them some color and preserving the native wildflowers and plants of Texas. Whereas now, you know, we're recognizing that, while the wildflower seeding programs do all those things for plants, they are also providing a lot of pollinator habitat and are important, especially when in some areas, especially the areas of heavy agriculture or of heavy development like in and around Houston, the only nectar sources for some species may be the roadside plantings and/or, you know, flower gardens that people have planted in or around the community.

David Todd [01:22:46] Any thoughts about carrion and caracaras or vultures?

John Young [01:22:51] Yeah, there's not a whole lot that's been looked at, at least as far as I know. Certainly, you know, those birds, vultures, caracaras, other species are, you know, taking roadkill off the highways and whatnot. But I'm not aware of any studies that have looked at how important that is for any of those species. So, I really don't know.

John Young [01:23:21] All right.

David Todd [01:23:22] Well, we've covered a lot of ground, and I know you have other tasks and people and dogs to help. I have two more questions, and maybe then we can wrap up.

David Todd [01:23:34] The first thing is just about your role as a biologist. And I think it's just, it's a really interesting profession that, in my mind at least, is kind of a mix between this sort of idealism about conservation, and then a skill for science and sort of being inquisitive

about the natural world, and then also just a way to make a living. And I was wondering how you, you know, you're a generation in now to being a biologist, how do you think about your role?

John Young [01:24:08] Hmm. Well, in a way, I look at myself as kind of a rarity because I worked early on with corporations on managing their lands for wildlife. And so, I see in development and building of infrastructure, in mining locations, I see opportunity. Others see habitat loss. And I like the challenge of working inside those landscapes. You may not have potential ocelot habitat, but you certainly would still have, in some instances, habitat for a whole lot of other species, pollinators, bats, etc.

John Young [01:25:07] So, I don't know ... A lot of people in my profession don't look at, at least in my opinion, don't look at development in brownfield sites or urban areas as important for wildlife or as even usable for wildlife.

John Young [01:25:31] I think one of the funnest things that I ever got to do was consult on a Superfund site. And that was because there was no amount of money, they didn't care how much. Whatever I suggested, they're like, "Eh, we can do that. Yeah, we can do that." Money wasn't an issue, right? Where so often in wildlife management, how much something costs can really drive, whether or not you get to implement it.

[01:26:05] So I really enjoyed working with Superfund sites. I like landfills. I look at landfills as future grasslands, right, managed the right way. I worked with some companies. Browning Ferris Industries comes to mind, Waste Management Institute, where when they closed the landfill, they manage those for songbirds, and quite successfully managed them for songbirds.

John Young [01:26:41] So, I see opportunities that not a lot of folks see in our field, in our profession.

John Young [01:26:48] That said, in hindsight, I'm not sure if I could go back and find 20-year old John Young that I would recommend he stay in the field of wildlife management and I might recommend going into engineering after I get my bachelor's degree. Right? And even though I'm in my 50s, I've occasionally thought about going back and getting an engineering degree, because one of the things I see is biologists, we know what's attracted to animals. We have ideas about what can and can't be done.

John Young [01:27:26] What we don't know is, why engineers design roadways the way they do. Right? Why does this roadway, why couldn't this roadway not have to be elevated? Why did we span the water with this bridge, but on this bridge, we had to put columns in the water? You know, those types of questions that I have. And while I work with engineers and I can have conversations with them, I think it would be very helpful if I had that engineering background at this stage. But I'm a little old to go back to school.

David Todd [01:28:11] No, it's good that you had that that curiosity and drive to maybe consider options.

David Todd [01:28:19] Well, so one last question. You know, we've talked about your role and stake as a biologist that thinks about animals. And I'm wondering if you could talk about what your attitude is towards animals. I mean some folks see them as having just a critical sort of environmental services role - pollination, for instance. Others see them as having some

sort of ethical, moral role. And then some people see them as almost like a spiritual religious thing where they have a soul. And I was wondering how you think about animals.

John Young [01:29:00] So, years ago I read a book, I believe it was the introduction to a book by Paul Ehrlich. And it talked about how Earth was an airplane. And you're getting ready to board Airplane Earth. And this is kind of a long-term memory, at least. And as you're getting on Airplane Earth and you're mounting the stairs to get on your airplane, you see a gentleman standing over there with a chisel and a hammer, and he's knocking off pop rivets off the side of the fuselage of your airplane.

John Young [01:29:39] And you stop and ask him, "Hey, what are you doing?" And he goes, "Ah, well, you know, the airplane will hold together. You don't need all these pop rivets to keep this airplane together."

John Young [01:29:48] But how many pop rivets can you lose before things start to come apart?

John Young [01:29:53] And I look at the environment, and the world, as an airplane. And as we lose species, we don't know what long-term effect that may have. You know, intuitively, you could say we could lose some and probably not miss them. But there is a point at which you can't lose things.

John Young [01:30:14] So, I look at animals as not only what they can provide from the ecosystem services side of things and whatnot, but they're important. We can't live without our pollinators. There won't be food if we lose all of our pollinators. And there's real danger in losing a lot of pollinators. We've already lost a lot, and numbers of even common species like the American bumblebee are in decline now, and there's concerns about.

John Young [01:30:47] You know, and I'm always think too, you know, I wouldn't be a good wildlife biologist if I didn't hail back to Aldo Leopold and the comment that "there are some who can live without wild things and others who can't. And I'm glad to be one who can't."

John Young [01:31:06] And I think that really speaks volumes. I mean, we can learn so much from the natural world. Yes, we do have, for lack of a better word, we owe it to other living creatures on the planet not to drive them into extinction and off the face of the planet.

John Young [01:31:31] But at the same time, you know, there has to be a balance maintained. We still need to have resources. We still need to have roads and cars to move our goods and services. We still need to have heating and cooling.

John Young [01:31:50] But I think we're seeing improvements and ways that we can accommodate both, for the majority of things.

John Young [01:32:03] And I think a lot of it's going to fall, almost all of it's going to fall on ... it can't just be the federal and state governments and federal and state lands that do this. Departments of transportation, when you look at how much property is owned in a linear fashion, DOTs have a huge impact and can have a huge impact. Individual homeowners, you may only own 200 square feet, but in that 200 square feet, you can provide a whole lot of habitat for animals.

John Young [01:32:40] And I'm just going to end this was saying if there was, if I could be king of the world and change one thing, I would change our love of mowed lawn to a love of the waving tall grasses, instead of this idea that only mowed landscapes are pretty, because I think that has been one of our larger issues with the impacts, long range and long term, that we've had on the environment.

John Young [01:33:16] I like to think back, to go, you know, in 1840, 1830, 1850, if you'd have told somebody in Texas that every square inch of rangeland would be under fence, they would have called you crazy. That 90 or 80% of the warm season grass, native prairies would be converted to cool season grass pastures. Right?

John Young [01:33:46] So, we can turn things around because we have. You know, we fenced the entire state. We've changed 90% of prairie. We can change that back. You know, we have the ability. It's just do we have the willpower to do it?

John Young [01:34:07] And I like being a part of the changing in how the transportation industry is looking at, you know, yes, we build roads. Yes, we're here to move people. Yes, we're about project delivery, but we're also tasked with preserving the environment, protecting the environment, and looking at how the different things we put on the landscape - bridges, roads - how we could minimize those impacts.

David Todd [01:34:40] Sounds like you are operating in the real work-a-day world - practical, pragmatic things.

David Todd [01:34:51] Well, so we've covered a lot of ground, thanks to you. And I was wondering if there's anything that maybe we gave short shrift to, something you feel like we didn't give good attention to that we should just mention towards the end here.

John Young [01:35:08] No, no, I can't think of anything.

David Todd [01:35:13] Okay. Well, we'll leave it as it is.

David Todd [01:35:16] Thank you, John. I really appreciate your time and especially appreciate you being willing to go over a little bit of the time that you plan to set aside for this. So thank you so much.

John Young [01:35:29] Yep. No, thank you.

David Todd [01:35:31] All right. Well, I hope our paths cross some time. Maybe on a road. Who knows?

John Young [01:35:35] All right.

David Todd [01:35:36] All right. Take care.

John Young [01:35:37] Bye.

David Todd [01:35:38] Bye now.