

TRANSCRIPT

INTERVIEWEE: David Wolfe

INTERVIEWER: David Todd

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David Todd [00:00:04] Well, good afternoon. I am David Todd, and I have the privilege of being here with David Wolfe. And with his permission, we plan on recording this interview for research and educational work on behalf of a nonprofit group called the Conservation History Association of Texas for a book and a website for Texas A&M University Press. And then finally, for preservation at an archive at the Briscoe Center for American History at the University of Texas at Austin.

David Todd [00:00:40] And I want to emphasize that he would have all rights to use this recording as he sees fit as well.

David Todd [00:00:47] And I wanted to make sure that that's okay with you, Mr. Wolfe, before we go any further.

David Wolfe [00:00:55] Yes, it is great.

David Todd [00:00:57] All right. Well, let's get started, then. It is Friday, May 20th, 2022. It's about ten of two Central Time, ten of three East Coast time.

David Todd [00:01:13] And my name is David Todd. As I said earlier, I am representing the Conservation History Association of Texas and I'm in Austin.

David Todd [00:01:24] And we are fortunate to be conducting an interview, a remote interview with Mr. Wolf, who is based in the Tallahassee, Florida area, by way of a really brief introduction. David Wolfe has worked as a botanist and a biologist for consulting firms, including Raboli Environmental and Garrow and Associates, for nonprofits, including the Nature Conservancy and the Environmental Defense Fund for Philanthropy, the Knobloch Family Foundation, and for a joint venture, kind of a hybrid group, called the Northwest Florida Sentinel Landscape.

David Todd [00:02:04] And in these different positions, he's worked on many conservation issues. But today we will focus as just one example on his work on behalf of the golden-cheeked warbler.

David Todd [00:02:20] So with that little lead in, I wanted to ask David if he might tell us about his childhood and early years and if there might have been some people or events in his life that introduced him to animals and science conservation? Any of those topics?

David Wolfe [00:02:43] Well, as a boy, I grew up in central Florida in a somewhat rural area, surrounded by a lot of orange groves. And I really loved to be outside all the time. So playing with friends in the woods, in orange groves and riding our bikes, running around, we just loved being outdoors all the time. And so that, that, for me, is a special feeling just to be

outside in the world, enjoying the natural world. I get a sense of calmness and peace being out in the natural world, and that's, that started as a young boy and that's carried through all of my life.

David Todd [00:03:37] Yeah. It's interesting. I guess there's there are technical interests that can draw people in, but it's I guess maybe an emotional thing, too.

David Todd [00:03:50] [Before we go much further, I just wanted to check with you about background noise. Is there a dog in your room?].

David Wolfe [00:04:01] [There are two dogs in my room. Yeah.

David Todd [00:04:05] [Could they maybe take an exit for just a little bit? Because I can, I can hear them.]

David Wolfe [00:04:10] [Wow.]

David Todd [00:04:13] [Would that be a problem? Are they ... they're very bonded to you?]

David Wolfe [00:04:18] [They are. I'm trying to think because if I closed the door, they're going to scratch on the door.].

David Todd [00:04:24] [Mm hmm.]

David Wolfe [00:04:29] [Let's see. Let me think about a solution to that. Let's see.].

David Todd [00:04:54] [Is Beth around? Could she, maybe...]

David Wolfe [00:04:57] [She's, she's at her office.]

David Todd [00:05:00] [Okay. All right.]

David Wolfe [00:05:01] [Or that would be a potential solution.]

David Todd [00:05:04] [Yeah.]

David Wolfe [00:05:05] [An alternative ... If I can find a way to block them out of the room, but they could still see inside the room.]

David Todd [00:05:24] [You're a, you're a good dog owner. You know, you're very loyal to them and vice versa.]

David Wolfe [00:05:30] [Well, they're very old. And so ...]

David Todd [00:05:34] [Awww.]

David Wolfe [00:05:34] [Like me, they're very set in their ways. So we'll see if I can just put up a barrier.]

David Todd [00:05:42] [Yeah. Even if they're a little bit further away, it might help.]

David Wolfe [00:05:45] [Right. Right. Okay. Stay. Let's see if that'll work. Well, let's try it.]

David Todd [00:06:00] [Okay.]

David Wolfe [00:06:01] [They're just sitting there looking and if we go far enough away then we won't hear them now.]

David Todd [00:06:06] [Yeah. Or maybe if you're still, they'll be relaxed and...]

David Wolfe [00:06:10] [Yeah.]

David Todd [00:06:12] [Okay. Well, well, let's resume then. Thanks for accommodating us there.]

David Wolfe [00:06:18] [Sure.]

David Todd [00:06:20] So you talked a little bit about your childhood and your early years and this love of being outdoors. I wonder if you could also tell us about your education. I understand that you earned a B.S. and M.E. in agricultural engineering from the University of Florida and then went on to get an M.S. In ecology from the University of Georgia. And I was curious if during that part of your life, there might have been any classmates or teachers that you met in school that, that could have introduced you and encouraged your interest in nature and science and birds in particular.

David Wolfe [00:06:58] Yes. Well, in high school, I, like many high school students, I really didn't know what I wanted to do with my life. But a guidance counselor suggested that, since I was good in math and I enjoyed math, that I try engineering. So that's, when I went to university, I went into engineering - plenty of math - which I enjoyed. And I chose agricultural engineering again because of my love of being outdoors. And I thought this might be a type of engineering that gets me outside on a regular basis. So, I got a couple of degrees in engineering.

David Wolfe [00:07:38] And I worked, actually not very long, as an engineer because during that period (and I'm going to reveal my age here), but computers were really starting to appear quite a bit in the workplace and a lot more work was being done on computers around that period of time. And I was, I was discovering it as an engineer, even as an agricultural engineer, that a lot of the work was just sitting behind a computer. And I was still a little bit outdoors, but not nearly enough to satisfy me. And so, I left that career behind.

David Wolfe [00:08:20] And while I was taking a break, I met my, my wife-to-be, Beth. And she was very engaged in, in conservation and environmental issues. She was a member of every conservation, environmental organization you can think of, and got lots of newsletters and magazines from these various organizations. And so, I started reading those magazines and newsletters and learned more about conservation work in particular. And it was, it was really an epiphany for me because I really had not, prior to that time, been exposed to, hey, this could be a real career avenue, working in conservation of nature. I just didn't realize it. I didn't realize people did that kind of work.

David Wolfe [00:09:18] And so, the fact that Beth was a member of all these organizations and getting all this, this information and what those organizations were doing in the world of conservation was enlightening for me and revealed to me that this could be a really great

career path for me. So, I kind of honed in on the work the Nature Conservancy was doing with the conservation of plants and animals, and they showed these great pictures of the outdoor world, which were really appealing to me. And so, I ended up going back to school with the sole purpose of getting a degree that would get me a job in conservation, and particularly with the Nature Conservancy.

David Wolfe [00:10:04] And so I ended up going to the University of Georgia, their school in ecology, and it was a great experience. I was exposed to a lot of different types of ecosystems and got a great training to become an ecologist. I was able to volunteer with the Nature Conservancy in Georgia for much of my graduate school tenure, which exposed me to the work and gave me experience that I could put on my resume when it came to graduation time. And that put me on a great footing to come out of school and get a job with the Nature Conservancy in Tennessee, actually.

David Todd [00:10:52] That's neat. So, it's always interesting when there's this fork in the road, and you take, you know, one direction that is different from what you had before. And I guess this choice took you into conservation work. And interesting, too, that, you know, some of this, I guess, was spurred both by the newsletters and magazines, but also by Beth. And maybe you could talk a little bit about each and, and how the two, you know, the things in print and then the things that you might have heard from your, your wife might have encouraged this move to conservation.

David Wolfe [00:11:52] That's a really great point. I mean, it was, it was so great for me to meet Beth, and now we've been married 30-plus years. And the fact that she was a member of these different organizations and that there's so many organizations focused on conserving nature, conserving the environment, working to improve the environment for the benefit of all people, that, that was somewhat of an awakening for me, that this is, this is such an important area of work to benefit ... it doesn't benefit just nature, it benefits people because we're, we're part of the natural world.

David Wolfe [00:12:46] And so that, that was a whole learning experience for me that, that I benefited from in meeting Beth. She had that awareness and I really didn't before meeting her and getting her perspective on, you know, why are you a member of all these different organizations? Why, why is this work so important? And so, she could share that with me in person while I'm also looking through these magazines and newsletters, reading about specific conservation or environmental projects, which gave me, I guess, more of the technical aspects of the work, which is, that's obviously exciting to me.

David Wolfe [00:13:27] But the, the whole kind of moral aspect of, of doing the right thing for nature and the environment underlies all this work. And Beth had that ethic, and I started developing that ethic after I met her.

David Todd [00:13:47] Yeah. It seems like that can, can really drive a lot of hard work in the sun and the heat and the ice and the snow - I mean, more than the numbers and the words, just that sort of ethic, I guess a sort of conservation ethic.

David Todd [00:14:10] [Well, so while we're taking this break, I am starting to think, just when I'm speaking and you're not speaking, that we don't have the background noise and I have the feeling that maybe your mic is hitting your shirt or something. And I'm wondering if maybe we should go back to, you were sitting at a desk before. Is that right? And now you're sitting on a couch.]

David Wolfe [00:14:46] [Yes.]

David Todd [00:14:46] [You see, sometimes the mic kind of lies on you if you're reclining.]

David Wolfe [00:14:52] [Yes.]

David Todd [00:14:52] [That may be where we're getting the background that I think is coming through the recording.]

David Wolfe [00:14:59] [I'm going to sit in a chair here and make sure the mic is away from my shirt and face. And there's also an air filter running in this room. I'll turn that off.]

David Todd [00:15:12] [Okay. Thank you.]

David Wolfe [00:15:14] [So we'll see if this is better.]

David Todd [00:15:16] [Yeah, I think so. That may have been the, you know, it's always kind of a riddle. So thank you for bearing with me here.]

David Wolfe [00:15:22] Sure.

David Todd [00:15:24] Okay. Well, so I think this gives an idea of your background, from your childhood, through school, and then sort of those early married years, where you maybe had some epiphanies, as you said.

David Wolfe [00:15:44] Yes.

David Todd [00:15:46] Well, let's, let's jump into your experience with this, the "bird of the day", the golden-cheeked warbler. Could you tell us what your first encounter was with a golden-cheeked warbler?

David Wolfe [00:16:03] Yes. Well, soon after I arrived in Austin, I got to do a field trip with a fellow by the name of Dean Keddy-Hector, who is a, one of the world's foremost experts on the golden-cheeked warbler and who wrote the recovery plan for the warbler shortly after it was listed. And it was, it was a great experience to be able to go out in the field with him. He had worked monitoring warblers at a number of sites, and I was able to join him at a TNC Preserve on the west side of Austin. So, this would have been in the spring of 1993, I believe.

David Wolfe [00:16:52] And he took me out into this oak-juniper woodland. And, and immediately we were hearing a golden-cheeked warbler singing. And he pointed out the song to me. And then we were able to walk right under the tree where this warbler was singing. You know, it was 15 or 20 feet up, but you could still see it quite well, even without binoculars. And it's, it's one of those moments where you get kind of goose bumps to see, you know, for someone like me who, I'm just passionate about the conservation of these kinds of species. And so, to see an endangered bird like that for the first time was just a tremendously exciting experience for me. And, and of course, I've seen them many, many times since then. But it's always a special moment, especially in the spring when you first go out and after the warblers first arrive. It's a special moment to see them again for the first time, that year, that spring, and know that they've migrated back and are back in central Texas once again for the breeding season.

David Todd [00:18:16] So that sort of goose-bumps experience: do you think it's just, you know, the sort of extraordinary aspects of its life history and the niche that it fills? Or is it, is it maybe partly its rarity?

David Wolfe [00:18:39] It's a great question. I don't know that I know the answer to that. It's, certainly that species is special to me because it has been such a big part of my life and my career. But I've seen a number of rare species, both rare animals and plants, and it's always a special moment for me. I think, it's, you know, as people, we're passionate about things, a lot of different things. And so, for me, it's, it's these rare species that really depend, to a large degree, on, on humans to protect and restore and conserve their habitat for their ongoing survival. It's those rare plants and animals that, that I'm passionate about and that give me a special feeling whenever I see them.

David Todd [00:19:48] Almost a parental feeling, sort of this responsibility? .

David Wolfe [00:19:53] I think. I think, you, yes, I think responsibility is a big part of it. And it's like someone who looks at a fine piece of art and is just, and is moved by it. It's, it's something that's certainly integral to my life, that my quality of life is directly connected to the well-being of these species. So, in that, I think I do feel a lot of responsibility and that that my pathway in life is to help these, these species co-exist with us as humans.

David Todd [00:20:43] Gosh, that is a big job. You are a brave one to take that on.

David Wolfe [00:20:53] Well I feel lucky. I feel lucky, though, because I am passionate about this and I've been able to, to make my way through life and make a living by doing what I'm passionate about. And I feel so lucky to be able, have been able to do that, and I continue to be able to do that.

David Todd [00:21:16] That's a good thing. Good for, good for you and good for these creatures.

David Todd [00:21:22] Well, tell us a little bit about the, the warbler. Is there some sort of a layperson introduction you could give to the life history of the golden-cheeked warbler, and maybe a a basic kind of lesson about the ecological niche that the warbler fills?

David Wolfe [00:21:45] Certainly. So, the warbler is a, it's a small what we call, "neotropical migrant". So, it migrates from southern Mexico and Central American countries in the spring, arriving in central Texas around mid-March or so each year. And it utilizes the oak-juniper woodlands that are fairly abundant in what we call the "Hill Country" of central Texas. And it relies on those junipers, Ashe juniper, it utilizes the shreddy bark to build its nest. And it takes, takes that bark and builds a nest typically in an oak tree, like a Spanish oak tree, 12 to 15 feet up, and lays its eggs in the nests early spring and raises its young. And then usually by mid-July or thereabouts, all the warblers have migrated back south, back to southern Mexico and the Central American countries.

David Wolfe [00:23:02] It, it only uses that habitat in central Texas. It's found in no other state. So, it's got what we call a fairly narrow habitat niche of that type of woodland in that central area of Texas. So yeah, that's, that's kind of it in a nutshell.

David Todd [00:23:31] Okay. And the role it fills in the central Texas ecosystem, how would you describe that?

David Wolfe [00:23:46] Well, it's actually, a lot of neotropical migrant birds, a wide diversity of birds, come through central Texas and a number of them breed there, including the golden-cheeked warbler, but also a fair number continue northward into other habitats. So, it's, it's an insectivore. It eats insects exclusively., like pretty much all warblers do. So, it's, you know, you could say its role is insect control to some degree. Yeah. I don't know what else I could say about that.

David Todd [00:24:34] Okay, so this bird has become very rare. I guess it's, many different factors may have caused its slide. Could you talk about some of the major reasons for the troubles it's faced in its population and range?

David Wolfe [00:25:03] Well, as is the case for many rare and declining species, habitat loss is the primary threat to the warbler, both historically and ongoing. So loss of the oak-juniper woodland: you know, juniper is important because it provides that, that shreddy bark material for nest-building. But the oaks are very important because that's where much of the insect mass and insect diversity is that warblers rely on. So, you need, you need both of those components of the habitat.

David Wolfe [00:25:42] And so, areas have been cleared for development are obviously lost for habitat. But areas that historically may have been cleared for creating pasture for sheep, goats or cows, and then that may have been abandoned for one reason or another will recover, but they'll often grow back up in dense juniper or cedar, as it's called. And so that, that type of habitat, which is just dense young cedar, is not really that useful in terms of breeding habitat. And it takes, it can take many decades for that to, to grow up and for eventually oaks to, to fill in in certain spots and to create suitable habitat. So, it's not habitat that can be created quickly. Unfortunately, it can take decades to restore.

David Wolfe [00:26:38] And the warbler, the golden-cheeked warbler, range has always been limited to this kind of habitat in central Texas. So, it probably was never, it never had widespread abundance, so to speak. And we don't really know historically what the numbers were.

David Wolfe [00:26:59] But the good news is that, particularly beginning in the mid-nineties, there were a lot more cooperative efforts to work with private landowners as well on public lands to benefit the warbler. And you know, we've seen good responses to a lot of that, that great work. And so certainly I feel optimistic about the future of that species and its potential for long-term recovery.

David Todd [00:27:34] Well. And I gather there's a whole sort of mechanism that swung into action maybe as early as the 1982 or so when the warbler was listed as a Category 2 species under the Endangered Species Act. I gather that's right. And then in 1990, there was a petition to the U.S. Fish and Wildlife Service to consider the bird endangered.

David Todd [00:28:12] Can you talk a little bit about those, those various steps to trying to recognize the bird as rare and threatened and needing conservation help?

David Wolfe [00:28:29] Well, my experience of the warbler really got going in the early nineties, so I'm not as knowledgeable about what occurred prior to that time. But the typical

steps are that some entity will petition the U.S. Fish and Wildlife Service to consider a species for listing because they or, or others that they know have, have been monitoring the species and seeing a decline. And so that's, that's kind of a typical pathway for a species to kind of get on the radar, so to speak, for the U.S. Fish and Wildlife Service. And then the U.S. Fish and Wildlife Service will go through the process of gathering information from experts and others who have knowledge of the status of that species and begin an assessment as to whether a species should be considered for listing or not. And so that's a big part of the U.S. Fish and Wildlife Service's work.

David Wolfe [00:29:37] And so they'll, they'll look at the scientific information, the data that's available for species. And they have a number of different pathways they can go. They can propose a species for listing or say that there's, you know, the data don't warrant it at this time. And all these decision steps go out for public comment so the public can weigh in on the Service's kind of decision-making process.

David Wolfe [00:30:11] And there's often a case where the U.S. Fish and Wildlife Service is so, so busy with these decisions for so many species that a, a species may end up on what they call the candidate list, which means it's, it may be wanted for listing, but the U.S. Fish and Wildlife Service is busy with other listing decisions and are not going to be able to get to it for the time being. So, it's put in this candidate list for future consideration.

David Wolfe [00:30:45] So, all that to say that there are a number of steps that can occur before a species like the golden-cheeked warbler actually ends up being on the list. And so, you know, the warbler went through that kind of progression to some degree and ultimately did end up being on the endangered species list. Y.

David Todd [00:31:08] You know, what sort of strikes me, and just following up on your thought about how the Service is often busy and distracted with, you know, juggling petitions for many different species, is that the golden-cheeked warbler seemed to quickly go to the head of the line and was granted its listing in an emergency manner. And I, I was wondering how it sort of got to the front of the line so, so quickly that kind of dramatic consideration and then protection.

David Wolfe [00:31:53] It's a great question. And that decision occurred a little bit before I arrived in central Texas, so I don't know all the dynamics of that particular decision. But my guess would be the fact that much of the warbler data that was available at that time was from the Austin area, or very near to the Austin, the west side of Austin in particular. And so it was very easy to see that that development taking down that habitat in that particular location. And the U.S. Fish and Wildlife Service has an important office in Austin. So, I think part of it may have just been proximity to the threats and the fact that you could, every day, see this threat occurring on the west side of Austin. That's, that's my best guess as to why that particular decision was so quick, that emergency listing. I think, that's a very rare occurrence, these, these emergency listings. And I don't really know of any. I'm sure a few have occurred since that time. But I'm not, I'm not aware of any. So, it can't be more than a handful.

David Todd [00:33:11] Yeah, well, that makes perfect sense to me.

David Todd [00:33:17] Well, so maybe it's worth switching now to talk a little bit about some of the conservation efforts that ensued after this listing, when it seems like there was sort of an all-hands-on-deck effort to work with the bird and try to identify and preserve the habitat that it needed. Can you talk about what you know there?

David Wolfe [00:33:49] Yes. I'd be happy to do that. And I would, I would break that work into two general areas. One is the public lands piece and the other is the private lands piece.

David Wolfe [00:34:01] On the public lands side, we had a couple of significant efforts start moving forward rapidly after the warbler was listed. One was on Fort Hood, a large military base in central Texas that had tens of thousands of acres of golden-cheeked warbler habitat. And so the military is a federal agency. It's obligated as a result of that, that federal listing as endangered to manage using their authority to manage for the benefit of that species. And they really did a great job of doing that. So they, they identified sensitive habitat areas, protected them from potential negative impacts of training, and they also instituted cowbird control.

David Wolfe [00:34:55] So, brown-headed cowbirds are a nest parasite of golden-cheeked warblers, as well as many other neotropical migrant songbirds. And they basically take out the host songbirds' eggs from the nest and put their own brown-headed cowbird eggs in there. And the host bird would typically raise the brown-headed cowbird to the detriment of its own species. So, Fort Hood instituted cowbird control to, to bring the cowbird numbers down such that next parasitism was, was not such a detriment to golden-cheeked warblers.

David Wolfe [00:35:36] In addition to that, an effort got underway to create a new National Wildlife Refuge, Balcones Canyonlands National Wildlife Refuge, down closer to Austin, an area of tens of thousands of acres, ultimately, that was set aside specifically for the golden-cheeked warbler, as well as another neotropical migrant songbird, the black-capped vireo. And so that, that effort got underway to permanently protect lands for that species.

David Wolfe [00:36:09] So that's kind of a quick snapshot of the public lands piece of conservation. And then the work that I became involved in on the private land side in particular, as well as working with other partners, really, there was a strong, we made a strong effort beginning in the mid-1990 to build more cooperative relationship with private landowners, because there had been a lot of concern by private landowners over the, the federal listing of the warbler, concerns about potential loss of private property rights, and an infringement upon their ability to manage their land as they saw fit.

David Wolfe [00:36:55] And so we wanted to turn that around and see if we could build more cooperative relationships with private landowners to, to conserve and restore habitat for these species, while also enabling the landowners to carry on with their, their land management activities. And so, in my work, I moved forward with a combination of regulatory assurances and financial incentives to try to encourage and motivate more landowners to participate in conservation of the warbler.

David Wolfe [00:37:31] And so the regulatory assurances was primarily this tool called Safe Harbor, which tells the landowner that if you're willing to conserve and restore and enhance habitat for the golden-cheeked warbler and create a benefit for that species over time, then we're not going to restrict your future land management abilities.

David Wolfe [00:37:57] And this was very appealing to landowners because it gave them assurance in the form of a Safe Harbor agreement that they could be good stewards of the land for an important species like the golden-cheeked warbler, while also giving themselves future land management flexibility.

David Wolfe [00:38:15] And then the financial incentive piece was also a big motivating factor for landowners because it costs money to conserve habitat. It costs money to restore habitat. If you're thinning out juniper to encourage oaks to grow up to create better quality habitat, there's a cost to that. And so, by bringing some financial resources to the table, that was another way to open doors with private landowners and create these cooperative projects to restore and enhance habitat. And so that worked very well. There are plenty of landowners willing to, to do beneficial things if you bring the right tools to the table to, to help them be good stewards of the land.

David Todd [00:39:09] They seemed like really powerful tools, both. I mean, I guess the, the effort to immunize folks through the Safe Harbor program and then to give them incentives, cost-shares and so on, to protect and restore habitat.

David Todd [00:39:25] You know what would be helpful for us if you could maybe give us some examples of, you know, landowners that you approached and wooed and won, to take on these different efforts, either with the Safe Harbor program, or with the incentives that you were able to arrange for them. Oh, and, you know, if it's, if it's helpful, there's no need to to share names. But I think just to give us an idea of how these things happened and how, I guess, you approached landowners and tried to educate them and get their confidence would be really interesting to know.

David Wolfe [00:40:13] I think one of the best examples of my experience with landowners and how those tools worked, and something I'm particularly proud of, is a group of landowners out in western Bandera and eastern Real counties who - that's some of the most important and high quality golden-cheeked warbler habitat anywhere on the planet. We started working with a small number of landowners out in that area, and actually the way we got started with that work was through the interest in one or two landowners in property tax, the property tax, wildlife valuation. They were interested in, in moving away from an agricultural endeavor, cattle grazing in particular, and putting in place wildlife management such that they could, could get the wildlife valuation. They were much more interested in wildlife than cattle, but obviously wanted the property tax benefit as well. And so that's, that's a financial incentive right there. It's not a direct payment, but it's certainly a benefit on the property tax side of things.

David Wolfe [00:41:40] And so that was a process of educating those landowners about what they had and how they could manage to create more benefits for the golden-cheeked warbler to conserve existing habitat and restore and enhance additional habitat. And what we ended up doing is those, those neighbors were kind of sharing their experience with other neighbors in that area. And that's a great way for conservation to spread from landowner to landowner, because that's, landowners trust each other, typically. And they're going to, they're going to open the door for them to have a discussion much more rapidly than someone from a state or federal agency or a nonprofit organization. And so that was a great way to kind of spread the message of the benefits of matching for the gold-cheeked warbler.

David Wolfe [00:42:40] And there was there was so much interest. And, at the same time, the recognition from these landowners that there were a variety of threats to that area - development, pipelines, water diversion, drilling for natural gas, new highways being proposed, all kinds of threats. And so, the idea was hatched to build an alliance, a collaborative of the landowners in this area, which ended up being called the Bandera Canyonlands Alliance, to work together as neighbors to basically maintain the integrity of that landscape.

David Wolfe [00:43:26] So, what started with discussions about golden-cheeked warbler habitat and managing for wildlife to benefit from the wildlife property tax valuation, ended up becoming an entire alliance of dozens and dozens of landowners in this region, with a focus on maintaining the integrity and the aesthetic and the biological values and the cultural values of this, this important region.

David Wolfe [00:43:58] And, and so, it's a great way to build on the social component of conservation, which I think a lot of conservation organizations are beginning to realize how important the social aspect of conservation really is. You might be able to open the door with these regulatory tools like Safe Harbor and financial incentives. But if you really want to spread the message amongst a lot of landowners in a big landscape and to have, have a big landscape scale impact, the social component is really important. So, getting, getting people together to share ideas and concerns and to work collaboratively on identifying solutions to challenging problems, whether it's maintaining the biodiversity in a region or addressing a threat to the region that threatens the integrity of that landscape.

David Wolfe [00:45:02] This is a really powerful way of doing that, and it continues to be powerful. That Alliance it's getting close to being 20 years old. And it's, it's growing. They meet a couple of times a year to learn about cultural aspects, historic aspects, biodiversity issues, threats and challenges. It's just great to see that collaborative effort and how powerful that is for conservation.

David Todd [00:45:29] So I think you, you're talking about some of the tools in your toolkit for approaching landowners and trying to get them on board with conservation of golden-cheeked warblers and other rare wildlife. And I think that you mentioned this idea of the wildlife exemption, which I guess is the 1-d-1 program for folks to maybe move away from more active agriculture - farming, ranching practices - and move towards wildlife practices and yet still get the, the ad valorem discount on taxes. Can you talk about, you know, the origins of that program and what it meant to landowners to have that alternative available?

David Wolfe [00:46:28] Well, it was a case in the early nineties where wildlife advocates essentially from different entities - Texas Parks and Wildlife Department, nonprofit groups, wildlife conservation professionals - came together and developed this idea of a wildlife property tax valuation, which would be revenue-neutral. In other words (and that was a key part of it), in other words, someone already had to be in agriculture and, and be able to qualify for the agricultural valuation and being enjoying that level of property taxes before they could convert to, to wildlife management.

David Wolfe [00:47:21] You don't have to do it on the entire property, you could do it on a portion of the property and maintain ag on another portion. Or you could do it for the entire property, depending on your interests and goals.

David Wolfe [00:47:32] And, and the fact that it was revenue-neutral and was also strongly appealing to a lot of private landowners because there apparently were a fair number of landowners who had cattle but didn't really want to raise cattle, but needed to have them to, to qualify for the, for the ag valuation. And so, there was a pretty strong chorus of voices from the private landowner community that they would support this.

David Wolfe [00:48:03] And it's, it's better for the folks that, that do want to raise cattle because it, it reduces the number of cattle out there, reduces the competition, essentially, and

lets folks that really want to raise cattle and make a living from cattle, it's actually a better deal for them, too. So, it was pretty much a win all the way around.

David Wolfe [00:48:26] The fact it was revenue-neutral, obviously, was vital. You don't want to didn't want to reduce the county tax base.

David Wolfe [00:48:34] So, there was a lot of support. And, you know, it passed in the Legislature in the mid-nineties. I can't remember exactly what year, but during that time frame. And it has resulted in a lot more land, private land, being managed for wildlife. So, I think it's, it's created a lot of benefits.

David Todd [00:48:54] You know, one other aspect I wonder might be at play here is that, you know, over the last generation or so, it seems like the, the profile of typical rural landowners has changed, at least from what I've seen. And there seem to be more absentee landowners who have other sources of income and aren't subsistence or commodity operators, and that maybe they were less interested in grazing because of that. Is that fair to say?

David Wolfe [00:49:30] That's what the data revealed to me, as well. And I don't know all the factors driving that, but certainly I would think the way agricultural markets work and the competition kind of pushes things towards, often towards, bigger operations but may be fewer operations. And, of course, globalization means that some of these agricultural products, commodities, can even be produced fairly far away but be transported in for even less than they can be raised in Texas, for example. So, I think it's a variety of pressures like that that have changed the landscape, land ownership, certainly, to a large degree, as you describe.

David Todd [00:50:33] Well, that's interesting. So, I think you also talked about these incentives for folks to manage their lands in ways that were more conducive to the, to the warblers' success. Can you give us some ideas of sort of the on-the-ground measures that, that a landowner who was interested in warbler protection and restoration, what he or she might try to do on their land?

David Wolfe [00:51:13] Yes. Well, and it's become abundantly clear to me in my decades of conservation work how important education and technical assistance are to landowners for, for conservation. And those, those two things, education and technical assistance, can go a really, really long way with landowners, even in the absence of financial incentives. There are so many landowners who just want to learn what they have on their property, and how to manage it appropriately. And so having folks who are trained and capable of doing that is really important. And the more of those folks you can get out on the landscape, the more conservation is going to happen. I'm absolutely convinced of that. Again, even without any financial incentive.

David Wolfe [00:52:13] So, as a first step, we would typically meet with a landowner and learn about their interests, visit their property, let them know what they have in terms of existing and potential habitats. And so, for the warblers specifically, that's the oak-juniper woodlands that we talked about earlier. And that habitat can be in various stages. It can be young or old, or somewhere in the middle. And we could explain all that to the landowner, and let them know that once those, those junipers get to a point where they start developing that shreddy bark, that's a point where the warblers can use that, that bark.

David Wolfe [00:52:57] And that it's important to, as much as possible, maintain big blocks of that kind of habitat. It's not good to create too much edge or open corridors through that kind of woodland. The warbler likes what we call, "closed canopy". So, basically maintaining the integrity of oak-juniper woodlands. Areas that have been opened up: if, if the landowner is in a position where they can allow some of those openings to grow back up, even if it's just pure juniper for the first few years, that's still better than being an opening in the canopy.

David Wolfe [00:53:42] So it's, it's guidance like that. And all that's typically put into a plan for the landowner that they can use and make decisions. All that's, often that is enough to get a landowner at least thinking about how they can create benefits for something like the golden-cheeked warbler.

David Wolfe [00:54:07] And we look for areas of overlap in landowner interests. You know, if they're interested in hunting, we can point out the benefits of hunting by doing various types of habitat restoration and enhancement. So, you're always looking for that kind of overlap in goals and interests as much as possible. So that's the, that's the approach that we would use even before, you know, bringing up the issue of, of financial incentives. So, all that to say there's really a lot you can do for conservation just by educating a landowner about what they have, and what's the best way for the management to get certain outcomes.

David Todd [00:54:53] And then so once you feel like they have a good grounding in what the warbler needs, and maybe what it has on a piece of property, and what it lacks, maybe you can give us an example of, of, you know, how these cost-shares might work and what sort of projects a typical landowner might undertake.

David Wolfe [00:55:23] A typical cost-share that would benefit the golden-cheeked warbler would be thinning out small cedars in an area where you've got abundant cedar, especially with some, some younger ones. Filling in all the gaps. And we want to kind of accelerate the process of becoming good habitat. We would, you could go in and thin out the young junipers, create some space for oak trees. And we have also planted oak trees within those openings. And if water is available, water them to get them going. So, the whole idea is to jump-start habitat. So, that's, that's kind of one of the primary ways of enhancing habitat for the warbler.

David Wolfe [00:56:24] You know, another approach with financial incentives is, is if a landlord's interested in doing something to benefit the warbler but worried about loss of income, say, because they have a pasture for cows. And if there's a situation where we could allow some of that pasture to regrow into woodland, maybe to connect two pieces of habitat that have been kind of artificially separated that are blocking habitat by allowing some acreage to grow back up into woodland, but we're losing, the landowner's, losing some pasture acreage, would be to compensate them for loss of income as a result of restoring that habitat. So that's kind of a different pathway of, of financial incentives to accommodate landowners for loss of income, because they're doing something that benefits one species but might be adversely affecting their, their source of agriculturally-generated income.

David Todd [00:57:34] So, I guess my understanding is that these changes in habitat - you know, trying to regrow mature junipers and, you know, infill with oaks - may take decades, generations.

David Wolfe [00:57:52] That's right.

David Todd [00:57:53] And I am wondering if some of the advice you were giving these landowners was how to deal with sort of generational transfer issues - you know, estate taxes and offering advice about conservation easements and that sort of thing. Was that part of the package of what you would try to present to the landowner?

David Wolfe [00:58:18] When they're ready for it. That's not, yeah, that's not typically something you bring up with the landowner early on. And it's kind of funny because I had a handful of landowners when I first met them would say, "Now, don't talk to me about conservation easements, because I'm not interested in them." I'd say, "Fine, I won't." And then two or three years later, after they got engaged in a project restoring some habitat, they'd come back to me and say, "Well. Tell me about this conservation easement thing, because I'm, I'm, now I'm interested." So, it's kind of interesting how, how people change their thinking after they've been exposed to something different, a new idea.

David Wolfe [00:59:03] But anyway, the, you know, the long-term nature of this kind of habitat and the fact that, to really conserve it effectively, we need to think about long-term tools like conservation easements and estate planning. It would be something that we'd have in our back pocket, so to speak, but not bring out until either the landowner would bring it up and ask questions about it, at which point obviously we'd start talking about it and provide them information on it and folks to contact because that, that wasn't work that I did directly, that, that was work that partners did. But I would be happy to connect landowners with those folks.

David Wolfe [00:59:46] So, it was, it was generally a topic that would come up after we built some trust with the landowner and after they become engaged in the project and had reached the point where, yeah, they started thinking about longer-term maintenance of the good work that they've done. So, the ideal situation would be for the landowner to eventually come to us and ask about those kinds of options for long-term conservation, and then we'd connect them with the right people.

David Todd [01:00:19] I see. If, if I'm not off-base here, it seems like there's another tool that, that you all used for promoting habitat conservation involved credits that might be bought and sold through a mitigation bank to try to offset development in some other area. Is that, is that something that that you saw with golden-cheeked warblers?

David Wolfe [01:00:51] Yes. Specifically, a couple of examples of, of that kind of credit generation and sale: I'd mentioned earlier this group of landowners, the Bandera Canyonlands Alliance. They, a handful of them, had an opportunity to work with a colleague of mine who was involved in conservation banking to, to generate and sell credits for mitigation of warbler habitat. So, in other words, they would set aside golden-cheeked warbler habitat on their ranches, in perpetuity, through a conservation easement, and in return be able to sell credits to a developer, say, outside San Antonio who wanted to, to eliminate some warbler habitat and build homes or whatever. So, that was having a direct impact by eliminating warbler habitat. So, the developer would buy credits from these, these landowners in Bandera county. And actually, the bank has a name - Bandera Corridor Conservation Bank. And the developer's funds would be used to pay the landowners to permanently protect that habitat for the warbler. So, that's, that's one example of warbler credits.

David Wolfe [01:02:12] Another example is, we did a pilot project with Fort Hood and with landowners who had ranches right outside the boundaries of Fort Hood, who also had habitat that could be conserved and expanded. And in that case, we set up a system where those

ranchers could generate credits for enhancing and expanding their habitat, their golden-cheeked warbler habitat. And what that would do is Fort Hood would buy those credits and use those to offset impacts to habitat on the base that resulted from training. Now, in that case, these, these kinds of impacts were temporary. They weren't eliminating habitat but merely putting, say, putting foot soldiers through breeding habitat. So, it might temporarily disturb the warblers that were using that habitat on Fort Hood. But still, in the in the eyes of the U.S. Fish and Wildlife Service, that's, that's an impact, even if it's temporary. So, Fort Hood would pay the ranchers on those ranches outside the base to enhance and expand habitat on their ranches to offset those training impacts on the base. So, that was another example of credits, in that case for temporary impacts.

David Wolfe [01:03:34] Okay.

David Wolfe [01:03:35] When in both cases, I would say, you know, in both cases, that's, that creates a direct financial incentive to landowners to match for the benefit of the golden-cheeked warbler. So, it's, it's just another pathway of using financial incentives to conserve, enhance and expand habitat.

David Todd [01:03:54] Well. So this whole idea of mitigation banking and markets for conservation credits seems like such a powerful tool. I guess I've heard over the years two, two critiques, and I'd be really curious to hear how you'd respond. I mean, the perfect is probably the enemy of progress. But, so one critique I've heard is that, is the idea of distance between where the credit is generated and where it's used. And then secondly, whether mitigation banking does more than sort of hold things a net-zero kind of status where, you know, you're protecting habitat in one place, but you're losing it in another and they just kind of offset one another, but there's not any gain in the habitat that's protected. How do you respond to those kind of critiques?

David Wolfe [01:05:13] Well, with the distance issue, that's, that can be an issue. And the Fish and Wildlife Service tries to deal with that with what they call, "service areas", which are geographically delineated areas where they feel an impact can be reasonably offset ecologically, that the ecological conditions are similar enough, and the life history support mechanisms are similar enough, for a species like the golden-cheeked warbler, that credits can be traded within particular service areas. And so, it's, it's up to that agency to kind of make that decision of, of how proximate the credits need to be generated to the impact or how distant they can be. So, that's, that's their process for dealing with that.

David Wolfe [01:06:06] And absolutely, it's a valid concern. The science isn't perfect. But theoretically, the U.S. Fish Wildlife Service is using the best available science to make those decisions.

David Wolfe [01:06:19] The net-zero issue - yeah, absolutely - it's a concern. And again, in the eyes of the Fish and Wildlife Service, they see the mechanism of, of permanent protection through acquisition or through an easement that generates credits as, as improving the baseline conditions. Because theoretically, without that permanent protection, a landowner could get a permit and, and negatively impact that habitat.

David Wolfe [01:06:58] You know, in my opinion, I think one thing we need to be doing for a lot of these species like golden-cheeked warbler, is use the science to figure out how much we need to protect for these species to persist into the future. Because too often we're making these decisions on a piecemeal-by-piecemeal basis with development and credit generation,

rather than looking holistically at what the species needs across the range. And yes, development is going to occur, and we have to find a way to offset that. And in some cases, protecting existing habitat through these kinds of perpetual mechanisms may not be enough. We may need to do a lot more restoration to provide for the long-term needs of the species.

David Wolfe [01:07:48] So I would like to see the conservation community and the U.S. Fish and Wildlife Service do more of this kind of work up-front and determine how much habitat do we indeed and in what distribution, for these species to persist in the future. And let's, let's do our development around that and not develop so much that we are not able to sustain these kinds of species into the future.

David Todd [01:08:19] Right. Right. That's, gosh, a high bar.

David Wolfe [01:08:27] So, one thing that that occurs to me, thinking about your efforts over the years to work with all these landowners, is that it's, it seems like Texas is a particularly tough nut to crack because it is such a private property dominant state. And is, do you think that that raises special challenges or gives you extra opportunities that might not be available in a state where, you know, the federal government, or the state, or the counties perhaps, own a good deal of habitat?

David Wolfe [01:09:10] It's a great question. And I've now, I've now had the, the experience of living in a state (I'm now in Florida), I've lived here for a little over two years now, and there's, there's quite a bit more public lands here in Florida. And with respect to rare and endangered species here in Florida, you know, the public lands are very important for those species.

David Wolfe [01:09:43] As an example, in the Panhandle, with national forests and military lands, there's a lot of land managed for species that rely on longleaf pine habitat here - red-cockaded woodpecker, gopher tortoise, indigo snake, many others. And there's been a lot of work on those public lands to conserve and restore habitat for those species. And they're doing fairly well. And there's also some work on private lands.

David Wolfe [01:10:12] But when you're in a private-lands state like Texas, it means a lot of that work, much of that work for many of those species, is going to happen on private land. So, it can create more challenges in terms of the fact that a landowner does not have to manage for the benefit of those species. The law doesn't absolutely require them to match for the benefit of those species. Now they're, it, for you know, an endangered species, yes, you may have to get a permit to develop or impact habitat, but it's doable. You can do that.

David Wolfe [01:10:54] Whereas these, these particular federal lands, they're obligated under the Endangered Species Act to use their authorities to manage for the benefit of species. So, there's a, there's a mandate for them to do that.

David Wolfe [01:11:10] And, and so we saw that in Fort Hood, one of the few relatively large pieces of public land in Texas - did a great job managing for the golden-cheeked warbler and black-capped vireo, and a lot of other species associated with the oak-juniper woodlands.

David Wolfe [01:11:34] So it's, you know, again, in my experience, it's kind of, it's nice to have both to give you a lot of different opportunities for conservation, so to speak. You want to have as many opportunities as you can with the different land types to manage for these

species. And, you know, with, with just private lands, there are more challenges since there's not a particular obligation there to manage for these species and the fact that it costs money.

David Wolfe [01:12:05] So, you know, raising the funds for that can be a challenge, whereas an entity like Department of Defense has, has money and can put money into habitat management. And it's really in their best interest to do that because if they can get those species off the list by generating more habitat, and more, or increasing the population as well, then it reduces those restrictions on their activities. So, there's a real incentive there for them, whereas you obviously have to create those kind of incentives from private landowners.

David Todd [01:12:43] Okay. You know, we've been talking so far about golden-cheeked warblers, largely, and how, whether it's a public landowner or a private landowner, might be encouraged to and taught how to restore the land for the warbler. And I realize that the warbler is just a really iconic species, you know, it's sort of a poster child for the Hill Country and maybe a keystone species. I don't, I don't know. But how, how do you feel about the warbler as kind of the litmus test for restoring this, this land in the Hill Country to something that's viable for a variety of species that might be of concern?

David Wolfe [01:13:37] I would say it's, it's an indicator of healthy, old-growth oak-juniper woodland, which is certainly, probably, you know, historically an important habitat type in central Texas. And so, it, it is representative of the fact that you've got older-growth junipers there with shreddy bark. You've got older-growth oaks which are, you know, provide food for a lot of different species, generate a lot of insect diversity for, for insect-eating songbirds. Very important for that, the central flyway for all those neotropical migrants coming through.

David Wolfe [01:14:27] So the warbler, if you've got healthy warbler populations, then to me that's a strong indicator that you've got the habitat needed for a lot of different species that rely on, on that old-growth, juniper, oak, woodland, and not the least of which are all those hundreds of different, hundreds of different neotropical migrants, species that come through, northward, every spring and southward, every fall.

David Wolfe [01:14:59] All that said, it's, the science tells us that a lot of this landscape at least burned, historically, from lightning fires or the indigenous people would set fires to clear open areas. So, I'm sure it was a patchwork which was kind of changing all the time. Some grasslands, some woodlands, some shrublands - and you know, the shrubland is important for other rare species like the black-capped vireo. So, I would expect that, at least historically, what we saw was kind of a patchwork, with everything from healthy grasslands, to old-growth woodland. Some of these areas in the canyons would be protected from fire, long-term. And otherwise, on the upland areas, the flatter areas, would be a matrix, would be a mix of different habitat types that really were controlled a lot by fire. So, it probably fluctuated quite a bit on the landscape, historically.

David Todd [01:16:08] So the, the warbler, you think, sort of acts as a, as an indicator of the healthy and pretty diverse ecosystem? Is that fair to say, that benefits, you know, a variety of creatures?

David Wolfe [01:16:27] Absolutely. And, some of the, you know, some of the greatest diversity in its habitat occurs in some of those deeper canyons. I mentioned Bandera Canyonlands earlier. If you go out into that landscape and into some of those really deep canyons, you get a really high diversity of hardwood tree species. Sure, the oaks are there, but you get hickories and elms and a lot of other hardwood species.

David Wolfe [01:16:57] And that's really premium golden-cheeked warbler habitat, because you get that kind of habitat diversity, that kind of tree diversity, that's going to directly correlate with insect diversity, which, you know, then you've got the whole food chain of all the creatures, not just the warbler, but all the other mammals and birds that rely on insects for food. So, you've got that whole that entire food web with that kind of diversity. And again, if the warbler's there in that situation, it's a good indicator that you've got that excellent diversity.

David Todd [01:17:38] Okay. Well, you've been nice to walk us through a lot of the aspects of the habitat, this juniper-oak woodland and the insects and the warblers and the vireos that rely on it. And we've talked some about, I guess, maybe one of the other puzzle pieces, and that's the public and the landowning community in particular. And I was curious if you could give us your insight about, I think some people have dubbed it the, "Warbler Wars", and how in the nineties and maybe the early aughts-aughts, there was just a lot of tension in central Texas over management of land, and protection of the warbler, and the role of government. And I would love to hear you sort of walk us through how that kind of tension first arose and then, you know, your efforts, I think, through all these partnerships and alliances, collaborative efforts, to try to, you know, rebuild that trust.

David Wolfe [01:19:04] Well, I, I arrived in Austin, in central Texas in, in late 1992 or early 1993, and right in the middle of a lot of controversy about potential designation of critical habitat, what's called critical habitat for the golden-cheeked warbler. And private landowners were actually marching on the state capitol in Austin, protesting the warbler and protesting critical habitat. There was real anger amongst a lot of private landowners about what this tiny, little, very colorful bird might do to their, their ability to manage their land and even the perception that the government might take some of their land.

David Wolfe [01:20:00] So, there was a lot of misinformation, a lot of animosity. And I really kind of wondered what I'd gotten myself into by moving to Austin, and working with the Nature Conservancy, and trying to conserve species like the golden-cheeked warbler. And a lot of it, as I came to learn, really boiled down to a lack of communication between those engaged in conservation, and particularly the U.S. Fish and Wildlife Service, and the private landowner community, about this whole process of listing the warbler and what it meant and what critical habitat designation means. It really only impacts federal lands and how they're managed for endangered species. It has, has no impact on private lands beyond what the ESA already says.

David Wolfe [01:20:58] So there was a lot of misinformation and lack of communication on what this all means. And if you have that kind of void, with no information, then it's understandable that, that landowners might get, might feel that they're not part of the conversation and that this is a real threat to their way of life. And so that's kind of understandable.

David Wolfe [01:21:32] And so the Environmental Defense Fund, when I eventually moved to them in 2000, I really wanted to change that rhetoric. And then, and actually I should say, by the late 1990s, the U.S. Fish and Wildlife Service was making many more efforts to have discussions with private landowners and look for ways to work cooperatively with private landowners. And Environmental Defense Fund, EDF, wanted to put those discussions into actual work through these regulatory assurance tools like Safe Harbor that we talked about

earlier, and financial incentives, so, to move beyond talking about trying to, to help this situation, to actually bring the tools to the table to try and improve the situation further.

David Wolfe [01:22:29] And so a lot of that, I think, helped birth this idea of cooperative conservation with landowners, you know, beginning with a dialogue, and moving to identifying tools that would be appealing to private landowners and would help them both address their concerns, as well as help cover the cost of restoring and conserving habitat, and get to a point where we're starting to create positive outcomes for this species, and ideally get them to a point where they can be recovered, because that's to everyone's benefit to have thriving populations of these species and no regulation needed because they're doing well.

David Todd [01:23:16] Well, that seems like such an admirable goal, the sort of win-win where the bird recovers and gets de-listed and folks feel like they have more latitude about what they can do with their land. And, you know, the conservationists feel like they, you know, don't have to be concerned about the future of the warbler.

David Todd [01:23:45] So, during that process of rebuilding trust, it seems like one of the struggles was ensuring that field biologists had access to lands so that they actually knew what the status of the bird was, you know, where it was, what the numbers were. And I gathered this distrust that built up in the nineties really made that difficult, that folks didn't want to open up their land. Is that, is that accurate?

David Wolfe [01:24:23] That is absolutely accurate. Yes. It was very difficult for many years to get access to do surveys and even determine the status and better understand how a species like the warbler might be doing. And, this effort to create more cooperative conservation and create a productive dialogue and to build trust. A lot of this is about building trust so that we can find workable solutions to these kinds of challenges, and that we could do do so through, through a dialogue and brainstorming solutions.

David Wolfe [01:25:06] That, that process, and that trust-building, helped to open a lot of doors, too, to allow these kinds of surveys to take place. And, of course, again, there were important tools to advancing that effort. Texas Parks and Wildlife Department would have a landowner, provide a form to the landowner, that assured them that data collected from their land, their ranch, would be kept confidential. So, confidentiality of information that was collected also helped open doors.

David Wolfe [01:25:45] Of course, there's a there's a tricky balance there because you want the information to be scientifically robust. And ideally, this kind of information is something you want to be able to publish in scientific journals. So, there's a challenge there to maintain enough confidentiality to address landowner concerns, but create believable enough, robust enough, data that it's, it's valid scientifically, and valid to make informed decisions about the status of the species.

David Wolfe [01:26:24] So, that's still a challenge to, to, you know, address that fine line. It's not something we've figured out completely. But certainly, the level of trust is much greater. The level of cooperation is much greater. And as a result of that, there's much more access these days than, than there was in, say, the early nineties or even well into the nineties.

David Todd [01:26:52] Okay. You know, it might be good, if you don't mind telling us, maybe giving us an example, of an instance where, you know, you needed to broach the idea of surveying somebody's land and getting their, their confidence and support to open up their

gates, to, you know, explore there and get some sort of transects or surveys done. Are there any examples that come to mind?

David Wolfe [01:27:29] One example, one example stands out to me. I mentioned earlier this credit program with ranchers around Fort Hood, and this is a group of folks who were not very trusting of government, not very trusting of environmental organizations. But we had access to a landowner through the Texas Farm Bureau. A representative from the Texas Farm Bureau joined us. And that that gave us the ability to get in the door and talk with this landowner about this credit program. And so having, having a trusted representative with us when we went made all the difference to go in and talk to this landowner and ask if if we could take a look at his land and do a survey which would potentially qualify him to generate these warbler credits which he could sell to Fort Hood.

David Wolfe [01:28:34] And so that that worked really well. Not only did it work well with this landowner, but we informed him that if his neighbor, who also, we could see right across the fence, that habitat, if his neighbor, if he could encourage his neighbor to sign up, they would potentially both benefit even more, because it would be a bigger block of habitat. And so the landowner we were talking to actually called his neighbor right while we're sitting there at his dining room table and encouraged him to consider signing up and allowing us access to survey, so that that both of them could potentially participate in the program.

David Wolfe [01:29:13] So that was an eye-opener for me in a couple of different ways. One, about having a someone that the landowner trusts to go in the door with you, and then the effect of the potential benefit of this program was enough that the landowner called a neighbor right while we were sitting there to encourage them to consider participating in the program.

David Todd [01:29:40] That's really interesting. You know, you spent, I think it's 20 years, at the Environmental Defense Fund. And I think of EDF as a real proponent of market-based solutions, using the power of the almighty dollar to encourage people to do the right thing. But then on the other hand, it seems like people are more complicated than that. I think we started this discussion about how they're, Beth, your dear wife, you know, explained a lot of the moral and ethical reasons that people do this.

David Wolfe [01:30:25] That's right.

David Todd [01:30:26] And I'm curious, after, you know, thinking about both, maybe believing in both, ways of working, where do you come down? What, what do you think's the most, I don't know, persuasive way to convince people to do this conservation work?

David Wolfe [01:30:50] My thinking has really evolved on that point over the past four or five years. Because you're right, I spent 20 years working with, using and focusing quite a bit on the financial incentive piece. And in the last few years, there's been a growing body of science that indicates that there are some, some drawbacks to financial incentives.

David Wolfe [01:31:21] And, particularly in the conservation world, there's scientific evidence that if you make a direct payment to a landowner for a conservation outcome, it can potentially undermine their inherent stewardship ethic. And so, they could get to a point where they feel or believe that conservation is not worth doing unless I'm paid for it, which you really don't want that that outcome.

David Wolfe [01:31:48] So that really gave me pause. And so, I've studied the scientific literature quite a bit since then to better understand how we address that, because conservation does cost money. It's not free to conserve and restore habitat. So how do we deal with that challenge of we don't want to undermine their inherent stewardship ethic. We want to foster their stewardship ethic.

David Wolfe [01:32:19] So, to make a long story short, I've come to realize how important social science is to conservation, and really to any work in the environmental arena. And, and it also, in looking at how important social science is, it made me think back to that work in helping foster the establishment of that landowner group in the Bandera and Real counties, the Bandera Canyonlands Alliance, and how when we first started that, there was no there's no financial incentive involved. It was all about educating landowners about what they had, and answering questions about what they had, talking to them about habitat. And a lot of that is, is trying to unearth their inherent stewardship ethic, and build an appreciation within them of what they have and how important it is.

David Wolfe [01:33:26] And that really opened my eyes because I feel like that's one of the most important things I've done in 30 years of conservation work. And it involved no money, no financial incentive. It was all about the educational aspects, the social aspects, and the fact that a lot of landowners coming together and discussing these issues is really powerful for, for achieving the desired outcomes.

David Wolfe [01:33:55] So my, and this is something I think about every day now, as to how we can be most effective with conservation. And so, I think we have to start with the moral and ethical aspects of conservation and in, in fostering landowners' inherent stewardship ethic, you know, through education, and through building their knowledge of what they have and how they can manage it. And then once, once we've done that work, then we can think about, well, how do we bring in the funding in a way that, that continues to build on that stewardship ethic.

David Wolfe [01:34:41] And the science really tells us that we should, as much as possible, be doing this through collaboratives and alliances of landowners rather than one-by-one with these, these financial incentives. And when you think about it, that makes so much sense, because it's not very efficient, if you're trying to achieve landscape-scale conservation, it's not very efficient to work landowner-by-landowner-by-landowner.

David Wolfe [01:35:03] It makes a lot more sense to work with a group of landowners in a particular region or watershed. That's (A) it's much more efficient, (B) the science also, also tells us that collaborative groups come up with much better solutions to challenges even than the smartest person in the room. There's reams of data to show that that's true. And so you're going to, by working with these collaborative groups, you're going to get much better solutions to these kinds of conservation challenges than by working with individual landowners.

David Wolfe [01:35:40] And so we're now looking at ways to bring in funding through grants to these collaborative groups that they can then decide, as a group, how do we most effectively spend this money to achieve conservation outcomes in our community and our watershed? And that's, that looks like a much better avenue for avoiding those, those pitfalls that we're seeing with incentives and how they can potentially undermine an individual landowner's stewardship ethic.

David Wolfe [01:36:11] So that's, that's kind of how my thinking has evolved as related to financial incentives - still very much evolving. There's a lot of social science work being done now in the conservation arena. And I think I'm seeing many, many of my conservation partners start to understand how important social sciences. The U.S. Fish and Wildlife Service is in the process of hiring many social scientists to work throughout, throughout the country with its partners.

David Wolfe [01:36:41] So I'm very excited about the potential of this, because I think this is a real pathway forward to change that we have not been able to achieve just through financial incentives.

David Todd [01:36:56] That's a really powerful insight. I mean, it's, it's something that really points to how complicated people are and their motivations.

David Wolfe [01:37:08] That is right. Despite what a lot of economists say and think, we are not rational creatures. Just because just because something makes economic sense doesn't mean we're going to do it. If our, you know, if the neighboring landowner is not doing something, none of our neighbors are doing it, it may make financial sense, but if your neighbors aren't doing it, you're going to be much less inclined to do it.

David Todd [01:37:34] Right.

David Todd [01:37:36] Well, you've been so generous your time. I don't want to eat up your day, but I did want to ask a couple more questions. You know, you've talked about the creature, you know, the golden-cheeked warbler, and the habitat, this oak-juniper woodland, and then about the, the landowners and, and the different regulatory and incentive programs.

David Todd [01:38:06] I was wondering if you could tell us a little bit about the perch that somebody like you fills. You're a man of many hats and talents. You worked for the government, with the Florida Department of Environmental Regulation, worked with consulting firms, Raboli Environmental and Garrow and Associates, and then with nonprofits, like the Nature Conservancy and EDF, and then I think recently with the philanthropy, the Knobloch Family Foundation, and then this joint venture, which I think you're currently involved with, the Northwest Florida Sentinel Landscape. I'm curious how you sort of compare and contrast what those different positions have meant to you about what you can do to move conservation forward, whether it's for the golden-cheeked warbler, or for other creatures.

David Wolfe [01:39:03] Well, I feel lucky. You know, I talked about this being my passion. It really is. And I'm lucky to have been able to have lived it and continue to live it. And I have been lucky more specifically in that I've, I've worked in several different states across the country and seen a lot of different habitat types, met and worked with a lot of different landowners, a lot of different conservation partners. I've done stewardship work. I've been on a lot of prescribed burns. I've put up fences around sensitive, natural areas, and I've directed teams of scientists to collect data on these, these rare and endangered species. I've been able to help develop and apply tools to encourage private landowners to participate in conservation. I've been exposed to the science. You know, I've talked about the social science that's coming out now. It's, I feel lucky to have been exposed to that, that variety of work within conservation.

David Wolfe [01:40:12] And I now, I feel like it has brought me to a place where I can now offer that experience to other conservation organizations and entities, you know, the next generation that's coming up, through my current roles as an advisor to the Knobloch Family Foundation. I'm engaged with a lot of different conservation entities that the Foundation is helping fund - everything from bird-friendly coffee in Central America, to Audubon conservation ranching, which is, you know, basically bird-friendly beef, and a lot of different projects in between.

David Wolfe [01:40:54] And then through this Northwest Florida Sentinel Landscape, I'm helping coordinate the private lands work in the entire Panhandle of Florida. So, I have, I feel like I have this great opportunity to share my experience, and particularly what I've learned about both the values and limitations of financial incentives, because a lot of these programs, a lot of conservation, has been funded through, for example, Farm Bill conservation programs. That's where most of the money, the conservation federal conservation money, is. And those, those programs are essentially the same as when they were designed back in the mid-1980s or early 1990s and haven't changed much.

David Wolfe [01:41:42] But we know the world has changed tremendously in that time. The economics, the agricultural systems, have all changed. And so, I feel that my role now is to encourage much more critical thinking about the limitation and value of these different tools. And we need to be very open-minded about the new science coming out and how we can use it to be more effective as conservationists.

David Wolfe [01:42:13] So, and I feel change is happening. There's, there's no doubt in my mind that change is happening. And my role now is to help foster that change, to bring, bring the science and the experience that I have to these different entities I'm working with to get better outcomes, to achieve the landscape-scale conservation, and the thriving natural world and thriving human systems that we all want. And I, I feel like, you know, I'm in a position now to help foster that, and I'm really excited about it.

David Todd [01:42:49] That's great. I guess there's such a long incubation period, both for figuring out how to do this and then actually making it happen on the ground that it takes, you know, many generations. And it's nice that you are kind of giving back to others that are working on these same problems.

David Wolfe [01:43:16] Well, let me just ask one last question, if you don't mind. You've covered a lot of ground, and I'm grateful for that. But I'm curious if there's anything you might like to add that we just have given short shrift to, or skipped over entirely during our visit today.

David Wolfe [01:43:38] I would only add that, I'm just going to stress how important it is for for us in the conservation world to be open-minded to new ideas, and to challenge the status quo of just because we've been doing something one way for a long time doesn't mean it's the best way or the most effective way. And there are emerging ways of thinking.

David Wolfe [01:44:11] This whole concept of systems thinking, for example. I didn't really touch on that. And I think that is so important for all of us in the conservation world to try to be more complete systems thinkers. And by that, I mean if you're working in the grasslands in the Great Plains, for example, to, before you start coming up with strategies to try to conserve grasslands, it's really important to understand the system you're working in. And it's not just the ecological system, it's the economic system of ranching and the federal policies that

impact how, how grasslands might be converted to, say, growing corn for ethanol, which is taking away grassland from grassland birds.

David Wolfe [01:45:03] So it's not just about financial incentives to try to keep ranchers ranching. It's, you've got to address these other systemic factors, if we're going to be successful at any kind of meaningful scale for these species that are dependent on vast acreages of these kinds of ecosystems, or grasslands in that case.

David Wolfe [01:45:27] So, so, the message there is, is to be open-minded to these new ways of thinking - systems thinking, for example, and the social science tools for bringing about behavior change and social change. Because it's, as you mentioned before, it's, it's not all just about the money. We're not rational creatures. We make decisions for all kinds of reasons. And in the private lands world, a lot of it can depend on what the neighbors are doing.

David Wolfe [01:46:01] And so, you know, my eyes have really been opened to how change actually occurs. And there was a great book that came out earlier this year. It's called "Change", by Damon Centola. And he just gives example after example of how something might make economic sense, but, but landowners don't do it until there's kind of a groundswell of, of change from what he calls, "change agents", people who are willing to change and willing to work through their social networks to, to foster that change and spread that change.

David Wolfe [01:46:35] So, so I think that there's, there's lots of new ways of thinking and new sources of information that we, as conservationists can tap into, and need to tap into, in order to have the impact we want to have.

David Todd [01:46:52] Well said. Well, it's clear that you are still changing and learning.

David Wolfe [01:47:01] I hope so.

David Todd [01:47:01] That's what you hope for.

David Wolfe [01:47:02] That's right. That's, that's where I want to be. Yes. Continually learning and willing to try new things and see what the science is telling us about how we can be more effective.

David Todd [01:47:15] Yeah, well, that's the bottom line.

David Todd [01:47:18] Well, David, thank you so much. Like I say...

David Wolfe [01:47:23] My pleasure.

David Todd [01:47:24] Really appreciate you taking time to contribute your memories and thoughts to this little project. And I send you all the best from Texas to Florida. Say hi to Beth. I hope your, your path somehow leads you back to Texas for at least a brief visit. It would be great to see you.

David Wolfe [01:47:46] Yeah, that sounds great. I really enjoyed the conversation and do look forward to an opportunity to visit in the not-too-distant future.

David Todd [01:47:53] I'd enjoy that. Okay. Well, thank you, David. Have a good one.

David Wolfe [01:47:58] Thank you. You too.

David Todd [01:48:00] Bye-bye.

David Wolfe [01:48:01] Bye.