

TRANSCRIPT

INTERVIEWEE: Jason Hardin

INTERVIEWER: David Todd

DATE: March 18, 2024

LOCATION: Oakwood, Texas

SOURCE MEDIA: M4A, MP3 audio files

TRANSCRIPTION: Trint, David Todd

REEL: 4198

FILE: WildTurkey_Hardin_Jason_OakwoodTX_18March2024_Reel4198.mp3

David Todd [00:00:02] All right. Well, good afternoon. David Todd here.

David Todd [00:00:05] And I have the privilege of being here with Jason Hardin.

David Todd [00:00:09] And with his permission, we plan on recording this interview for research and educational work on behalf of the Conservation History Association of Texas, a non-profit here in the state. Also, this will be a recording for a book and a website for Texas A&M University Press, and finally for, permanent, preservation at the an archive at the Briscoe Center for American History, which is at the University of Texas at Austin.

David Todd [00:00:36] And I want to stress that Mr. Hardin would have all equal rights to use the recording as he sees fit. It is for him. I want to make sure that's okay with you.

Jason Hardin [00:00:46] Absolutely. Sounds great.

David Todd [00:00:48] Good, good. All right, well, let's get started then. It is Monday, March 18th, 2024. It's about 2:40 p.m. Central Time. My name is David Todd. As I said, I am representing the Conservation History Association of Texas, and I am in Austin, and we are conducting a remote interview with Jason Hardin, who, if I'm not mistaken, is based in the Buffalo, Texas area, east of Waco.

Jason Hardin [00:01:15] Correct. Buffalo. Oakwood, Texas.

David Todd [00:01:18] All right. Good.

Jason Hardin [00:01:20] Mr. Hardin worked at Audubon Texas from 2003 to 2007 as the Program Coordinator for its Quail and Grassland Birds Initiative, and since then, he's been with Texas Parks and Wildlife, first as an Upland Bird Specialist and then for the last six years as the Wild Turkey Program Leader for the agency.

David Todd [00:01:40] Mr. Hardin also serves as Texas' technical representative for the National Wild Turkey Federation, and also for the Southeast Wild Turkey Working Group under the Southeastern Association of Fish and Wildlife Agencies, and also as a liaison for the Western Turkey Technical Committee under the Western Association of Fish and Wildlife Agencies.

David Todd [00:02:01] So, he wears many hats.

David Todd [00:02:03] Today we'll be talking about Mr. Hardin's life and career to date, and especially focus on what he can tell us about the wild turkey, its natural history and its protection and its restoration.

David Todd [00:02:16] So, with that little introduction, I thought we might just start by asking you about your childhood and early years and if there might have been family or friends or other people in your life that encouraged this interest in nature and animals that seems to have been much of your career.

Jason Hardin [00:02:34] Sure. So, I was born in Palestine, Texas in 1974. Grew up in Oakwood, Texas, for the most part. My mother was a teacher, so we moved around a bit in this general vicinity of the Post Oak Savannah - Fairfield, Texas, Madisonville, just to name a few. But, for the most part, I spent most of my life around Oakwood, Texas, and still have a Oakwood address today.

Jason Hardin [00:03:02] My family owns or owned a ranch here in Leon County, and I grew up on the ranch, working with my family, working cattle. I spent a lot of time with my grandmother. She was an enthusiastic birder. I remember driving down a county road one time, and I thought she was having a heart attack. She gasped, and I looked at her with great concern. "What's wrong?" She said, "Oh, painted bunting." So, it was little things like that, that helped me gain an interest in birds in general.

Jason Hardin [00:03:38] But we'd also, we would hunt and fish. There was a little creek that ran behind my grandmother's house where my cousin and I would go out with some salted bacon on a string and put it in the stream and pull crawfish out. So, that was our earliest fishing experiences.

Jason Hardin [00:03:54] And just things like that got us in the outdoors a lot. The outdoors was just where you went when I was growing up, or it was where you were pushed by your family when it was time for you to get out, out of their hair.

Jason Hardin [00:04:09] So, that was really a big part of the experience for me growing up in the outdoors. I had a few cousins who, mainly one cousin, who was just diehard outdoors, and he was a year older than me, and he dragged me along everywhere he would go. And that really helped me gain a greater appreciation for hunting and fishing, and just being out in the outdoors, ride our bikes with fishing poles as we'd go down the road, from one pond to the next, hopping fences, which was readily allowed for little kids at the time.

Jason Hardin [00:04:43] So, I went to school, graduated from Fairfield ISD, in 1992. And from there, I went to work at the Walmart warehouse and loading 18-wheelers, and at the same time, going to junior college at Trinity Valley Community College. Eventually, I found some friends that were getting a wildlife degree and, didn't know that was an option. I thought if you worked in the wildlife field, you were a game warden. And that was it.

Jason Hardin [00:05:12] And at that time, I switched majors, added at least an extra year to my college career, which was fine. I graduated from Stephen F. Austin with a degree in Forest Wildlife Management. Before I graduated, I started looking for jobs. I found one at Caesar Kleberg Wildlife Research Institute in their GIS lab. I moved down to Kingsville the week after I graduated and started work on June 1st at Texas A&M in Kingsville.

Jason Hardin [00:05:40] On my first day, I met with an employee of the King Ranch. He, I believe, is still employee of the King Ranch - Verl Cash. He went and put me in a helicopter, and we rode around looking at brushwork. And, I knew I'd made the right decision to pursue a

career at A&M - Kingsville. And I think I made 18,000 a year, and I couldn't believe they would pay me to do that.

Jason Hardin [00:06:02] And, within a year, working with Dr. Fred Bryant, who was the director at the time, he encouraged me to get a Master's degree. After all the time I spent with my undergraduate, a Master's degree was not my priority. But at the same time, I was not one to say no, especially to the director of the organization where I was working.

Jason Hardin [00:06:25] So, pretty soon I was working on a Master's degree under Dr. Leonard Brennan. He was the endowed Quail Chair there at Caesar Kleberg, and he had just come or showed up about the time that I was starting. And, I was his first graduate student there. I ran the Quail Associates program for him. That wasn't my Master's degree. But as he would say, load the wagon, and don't worry about the mule.

Jason Hardin [00:06:51] And then I also did my Master's degree was on the Hunter-Covey Interface theory. So, the idea proposed by Dr. Fred Guthery in one of his books, the idea that coveys may become educated over time, the more they're pursued. So, we radio-marked a bunch of quail, and we would follow along on hunts. I would, GPS-mark the bird dogs, see how they use the landscape. And it was wonderful. I got to go on 162 quail hunts in two years. And, it was a wonderful experience.

Jason Hardin [00:07:25] I grew up, as I mentioned, in Leon County, the last covey of quail I'd seen was probably when I was seven years old. So, to get to South Texas and run around the King Ranch and other properties and chasing bird dogs and seeing quail, it was a thrill. I loved every bit of it.

Jason Hardin [00:07:43] The analysis part at the end of my two field seasons was not my favorite thing, but I was able to get it done. I remember having nightmares of mathematical models in my head, but I got it done. We were able to publish that paper in the journal, Wildlife Management, and soon after went on to look for another career. And that's whenever I was hired by Audubon Texas to run their Quail and Grassland Birds program.

David Todd [00:08:13] Okay. Well, let's stop right there for a moment, if you don't mind.

Jason Hardin [00:08:16] Sure.

David Todd [00:08:16] You've given us a lot of good information there.

David Todd [00:08:22] So, I thought we might go back just a little bit and talk about something that is often influential for for people who are in your field. And that is, aside from your family, aside from your education, which you told us a good deal about, is just the public media, you know, what you read in the newspaper, in the magazines, journals, TV shows that you see, movies that you might attend. Is there anything like that that might have been influential for you in sort of leading you down this path?

Jason Hardin [00:08:54] I think the writing was on the wall, at least for my mother, in what my primary interests were. I didn't love to read, growing up. So, she would buy me the Texas Parks and Wildlife magazine. She would buy Field and Stream magazine, and try to encourage me to be a better and more well-rounded reader. I think it was, it was obviously strategic on her part and well thought out, and I appreciate her for that. And I believe that went a long ways.

Jason Hardin [00:09:27] Many people of my age would remember The Nashville Network. And every Sunday after church, we would watch Hank Parker going fishing, or Bill Dance fishing or, Jackie Bushman deer-hunting shows - things like that. And we thoroughly enjoyed that.

Jason Hardin [00:09:45] But I think by that time we were teenagers and and we were pretty well sold. But that was definitely our Sunday afternoons were spent watching shows like that. Really enjoyed it.

Jason Hardin [00:09:57] And then, you know, maybe even looking back, books like Old Yeller and Where the Red Fern grows, things of that nature would, you know, the handful of books that we would read, or that I would read, or stay focused on, and not be distracted thinking about other things I'd rather be doing. So, I think there were a few of those.

Jason Hardin [00:10:16] And since then, you know, getting older, you know, expanding my library of books and articles that I like to focus on. Yeah, it's always been kind of in that vein.

David Todd [00:10:30] Okay, well, that gives us some clues as to, you know, where you're coming from? And, so thank you for that.

David Todd [00:10:38] When I so rudely interrupted, you were telling me about your first job, which I gather, I mean, aside from the research-related work at Caesar Kleberg, was with Audubon. Is that correct?

Jason Hardin [00:10:52] Yep. Audubon was, I would say, the beginning of my wildlife career. You know, I grew up on a tractor on my family farm. So there was there was exposure to that, going to A&M Kingsville. But I always looked at that as continuing education. And eventually it turned into a master's degree. So it was truly continuing education.

Jason Hardin [00:11:11] But the first living wage, I guess, that I made in the wildlife field was with Audubon Texas, working. My major professor, Dr. Leonard Brennan, brought the job posting to me and encouraged me to apply for it. I remember one of his comments was that I was the Audubon that "he ought have been". And, so he was, he was thrilled to see one of his students getting a position like that.

Jason Hardin [00:11:42] It was the first, I was the first coordinator for Audubon Texas' Quail and Grassland Birds Initiative, and there were two that followed me. I don't believe that position is still there, but we worked closely with with Quail Unlimited. They provide us with a truck. We worked across the state. I met you for the first time, Mr. Todd, in that position on your ranch there in Colorado County, I believe. And it provided me a great opportunity to meet a lot of people, folks like Jim Willis.

Jason Hardin [00:12:14] One of the things we were really working on was trying to grow cooperative landscapes, landowners working with their neighbors to try to address some of these issues of scale. A lot of landowners who want to manage for quail may have 100 acres or 200 acres. And yet some of the research we know is out there that quail populations exist genetically connected across hundreds of thousands of acres. So the idea of creating connected corridors to tie in islands of remaining habitat was something that that we focused on. And we've worked with as many landowners as we could, and had some successes, and

some more so than others. But I believe like the Wildlife Habitat Federation there in Colorado and Austin County was a success. And it continues to be alive today.

David Todd [00:13:08] That's great.

David Todd [00:13:10] So, speaking of upland birds, and you mentioned quail, I think that is a whole other story that would be fascinating to learn about. But today I was hoping we might talk about wild turkey, and I was hoping that you could maybe tell us when you first saw a wild turkey and what the situation was.

Jason Hardin [00:13:32] Sure. So, I already mentioned, I grew up in Leon County outside of Oakwood, spending as much time on the family ranch as possible.

Jason Hardin [00:13:42] In the mid-1980s to about the late 1990s, Texas Parks and Wildlife had a restocking program that was ongoing. Up until about 1979, Texas Parks and Wildlife had focused on pen-reared birds and the release of Rio Grande turkeys. It was very difficult to get their hands on wild, trapped eastern wild turkeys. We didn't have them, or a robust enough population remaining in East Texas.

Jason Hardin [00:14:08] But then we started working through the National Wild Turkey Federation, and working with our neighboring states around mid-1980s in earnest to trap and restock eastern wild turkeys in East Texas. And what at the time they were going with was what they called a "block-stocking" approach to restoration. So, block-stocking, there's 5 to 10 locations per county, and they release 15 to 20 birds per site.

Jason Hardin [00:14:34] And later in life, digging through old federal aid reports, I was able to find my grandmother's name as one of the landowners who had signed up to be part of that restoration effort. Wild turkeys weren't released on her site, but they were released in Leon County around 1992, the year I graduated. And I remember driving through our property and the first turkey I'd ever seen in my life just took off running in front of me, like she was terrified.

Jason Hardin [00:15:00] And I was so excited to see a wild turkey. And that was the first and the only turkey for a long time that I saw, but very excited to see that. And, just so motivated that a bird had made it and found our property.

Jason Hardin [00:15:16] The interesting note is, you know, 25 years later, whatever it's been, 30 years later, almost the exact same location, you know, we've been doing restoration again in parts of East Texas, and to see another bird in the almost exact same location, another hen, and 30 years later was also just almost as exciting.

Jason Hardin [00:15:40] Because, like you, you know, growing up in an area covered with deer and all these other wildlife, we never had turkey. And to see them was really exciting. And that was my first experience of a wild turkey, and on our property. So, that was pretty fun.

David Todd [00:15:55] That's nice. It must be just really satisfying to see a bird coming back to its old haunts.

David Todd [00:16:02] So, speaking of old haunts, I mean, turkey were, back in the day, back in prior centuries, pretty widely spread. And I was wondering if you could talk about any of

the sort of early, early sightings of wild turkey, or at least reports of them. I mean, I've understood that some of the early explorers noted seeing wild turkeys in the Texas region, before it was Texas.

Jason Hardin [00:16:29] Yeah. For sure. So, I would say, you know, Native American populations were well aware of wild turkeys. I think there were different opinions of, you know, if they were utilizing those for food or what they were doing, you know, headdress, ornamentation, things of that nature. But some of the earliest European explorers, Cabeza and others who came through Texas, no doubt would have come across wild turkeys and noted the large numbers of those populations, some of those being in parts of East Texas, some of those being along the Texas coast, but obviously some observations there.

Jason Hardin [00:17:12] Frederick Olmsted wrote a book called A Journey Through Texas, in the mid-1800s and mentioned a young boy riding a burro through Nacogdoches, Texas, with a wild turkey strapped across the front of the burro. And I always found that those sorts of things always jump out at me. Later in the book, he talks about walking, you know, traveling through Leon County, my home county, and flushing coveys of quail.

Jason Hardin [00:17:41] So, things like that just always jumped out at me. And, yeah, I think they were readily available and prolific across all of Texas for the most part, and with, you know, obvious exceptions in dry areas where they didn't have suitable habitat, places like the Trans Pecos where there isn't adequate roost trees, or perhaps not the moisture needed to support that large galliform.

David Todd [00:18:10] So, I think you've given us an idea of some of these early sightings, and I love the picture of the turkey on the burro with the the young boy. That's so evocative. I just see it in my mind's eye. So, thank you.

David Todd [00:18:27] Well, tell us a little bit about the wild turkey, whether it was back then or nowadays, what would be the typical life history and the sort of ecological niche that a wild turkey, whether it's a Merriam's or an Eastern, Rio Grande, you know, just sort of the general outline of these birds, what kind of life they'd have.

Jason Hardin [00:18:47] Sure. So, I'll go broad, and who knows which direction I may go, but, I would start out with there's only one species of turkey in North America. It's the North American wild turkey.

Jason Hardin [00:18:57] But, there are five subspecies. And you had the Osceola down in southern Florida. The Eastern turkey, which is the most widespread of the subspecies, can be found throughout the Midwest, all the way to the north, and east, southeast coast. And the Rio Grande across the Great Plains, imagine the middle half of Texas from the Pecos River to I-35 today, probably Trinity River historically, to the Blackland Prairie, north all the way into Nebraska. And then you had the Merriam's along the Rocky Mountains, and then the Gould's turkey, which would have been more in Mexico, but in kind of that mountainous region along the New Mexico / Arizona state line and further south.

Jason Hardin [00:19:45] In Texas, we would have assumed that we would have historically had the Eastern wild turkey east of the Trinity River, transitioning into the Rio Grande subspecies around the Trinity River again to the Pecos River and throughout the state, and a handful of Merriam's turkeys in the Guadalupe Mountains, and the Trans Pecos, right there

along the New Mexico state line. And, so that would have been the historic distribution in Texas.

Jason Hardin [00:20:15] And, you know, when we think about what turkeys need, they need nesting cover. They need brood habitat to raise their young, and they need places to roost. And the availability of those different cover tops would have changed across the landscape. The species of vegetation that they would have utilized would have changed across the landscape, but the structure of it would have been very similar.

Jason Hardin [00:20:35] They need bare ground with weeds for their poults. They need grass cover and weeds and low-growing woody vegetation for nesting cover. They'll nest anywhere, but that's what we consider in the book "ideal" nesting habitat. And then they need trees to sleep in at night. So that's kind of the general needs of a wild turkey.

Jason Hardin [00:20:55] And it comes in different ways that they're all put together, and the distribution of that species will be determined on the availability of all three of those categories of habitat types.

Jason Hardin [00:21:10] So, just a chicken or the egg kind of approach, we'll start, since we are in the spring today, early spring, we'll talk about breeding and reproductive behavior and kind of how that population changes over time.

Jason Hardin [00:21:25] So, throughout the winter months, you get these winter congregations of birds. You can go to the Rolling Plains, and you may see historical winter roost sites with 3 to 500 birds on them. In East Texas, you know, a flock of about 30 birds would be a big flock: 12, 15, 20 would be more on average.

Jason Hardin [00:21:45] But come spring, we start to see this, a bit of an explosion of that population. They start to scatter out across the landscape and try to space themselves out a little bit. Gobblers, the adult males, are going to strut and gobble. They're all year long establishing dominance with the other males in their flock. A lot of times those are related birds: could be brothers or cousins that have been together for several years. Usually there's a dominant male in that group that does most of the breeding.

Jason Hardin [00:22:17] And we think about lecks when we think about prairie chickens. They have kind of these exploded lecks. The idea is they'll go out across the landscape, they're going to strut. And when a hen becomes receptive, she's going to move into that group of males. She's going to select the male she wants to breed with. He does a little dance, she might do a little dance, and then, she squats on the ground. He gets on top of her, balances on her back. It can be quite comical to see him trying to balance, and then they copulate and it's over.

Jason Hardin [00:22:45] Typically, the hen, what we found in recent years, is that there might be multiple paternity in that nest. So, when we take DNA off eggshell fragments, you actually see that usually there's more than one father in the group. And, that's common in a lot of wildlife, but generally she's going to go with that dominant male, whatever cues are out there for her that she's looking at, if that's beard or spur or the waddle or the caruncles or whatever, something about him tells her that he's the most fit in that group.

Jason Hardin [00:23:18] And after that, she's gonna eventually go off and start nesting, all alone. She wants to get away from every other bird on the landscape. She's going to go walking through the woods. She's going to have her regular pattern. And then one day, she's

going to go and find a spot on the ground. A little depression in the ground, low-growing woody cover - weeds, grasses.

Jason Hardin [00:23:37] And she's going to lay an egg. She's going to walk away from that egg. She's going to go roost at night. She's going to come back the next day, lay another egg. And she's going to do that every day. She may skip a day here and there.

Jason Hardin [00:23:48] On average, she's going to have about 11 eggs in that clutch. It may be as few as four. It could be as many as 20. A lot of times it's dependent on how fit is that hen going into the nursing season. If she had a really good winter, maybe a mild winter, put on lots of fat reserves. Maybe there's an acorn crop and she just did really well. She'll probably have a larger clutch size.

Jason Hardin [00:24:10] Every night she lays an egg. Or every day, that night she's going to go roost in a tree. The last egg she's going to lay and she's going to start incubating. She's going to sit on that nest for 28 days straight.

Jason Hardin [00:24:22] We talk about precocial versus artificial young. And wild turkeys have precocial young, which means when they hatch, they're fully feathered. They usually leave the nest within about 24 hours. And they're following their mother across the landscape, and looking for bugs, basically.

Jason Hardin [00:24:40] That's why we think about the importance of brood habitat. And I'll step back a little bit and say that most of these nests fail. So, just imagine you lay an egg on the landscape. If you had a 12-egg clutch, and then the hen has to sit there for 28 days after her last egg is laid, you're looking at 40 days for that first egg to be on the ground - 28 days minimum.

Jason Hardin [00:25:02] We see a lot of lost eggs due to predation. We see a lot of hens down in the nest. Like I said, every day, every night she's going to stay in a tree until she starts incubating those eggs. And then she's on the ground every night, all night, for 28 days straight.

Jason Hardin [00:25:19] So, it's a precarious situation to be in for a wild turkey hen.

Jason Hardin [00:25:24] And we see that most of our mortality to our hens occurred during the nesting period. And she's also losing her eggs.

Jason Hardin [00:25:32] If we get a 30% nest success, that's phenomenal. That's as good as we can hope for. 70% of your nests are going to fail every year, at a minimum, and that's a good year.

Jason Hardin [00:25:43] So we've had some years where we've marked hens where you had zero nest success, for whatever reason. A lot of the nesting behavior is going to be driven by what were the climatic conditions leading into the nesting season. So, a mild winter like we had this year, early green-up, those hens get in better physical shape. They start nesting earlier.

Jason Hardin [00:26:04] You think about 2022 where we were getting triple digits in May. We had almost no moisture. It was a significant drought period, and we saw almost zero nesting attempts. So, just the effort that goes into it is often driven by weather and those conditions.

Jason Hardin [00:26:23] Average years, we're usually going to get a majority of your hens will at least attempt one nest.

Jason Hardin [00:26:29] And our populations are driven by nesting effort, re-nesting effort, and then nest success. And that's why we see these booms and busts. If you think about quail, you always hear about booms and busts. But we see that with wild turkeys as well. And in the more semi-arid regions it's more driven by moisture.

Jason Hardin [00:26:47] There are some areas, you can imagine deep East Texas, where you average 60 inches of rainfall a year. Rainfall generally probably isn't a driver for that. It could actually be too wet for those hens to be successful.

Jason Hardin [00:26:58] So, it kind of depends on where you're at. But a lot of what happens on the landscape is driven by weather leading into the nesting season.

Jason Hardin [00:27:06] So, we'll say we had 25% success. As soon as those eggs hatch, within 24 hours, they're going to be walking across the landscape, following their mother. The mother's not bringing them food. She's basically sticking with them, leading them to what will be an ever-growing home range as they grow.

Jason Hardin [00:27:27] So, the poults can't fly for ten days to two weeks. So, in those ten days or two weeks, they're trying to grow their flight feathers as rapidly as possible. So, they need very high protein. The hen needs protein to produce eggs, but poults need a lot of protein. And you're not going to get that from the seeds on the landscape. You're not going to get it from corn coming out of deer feeders. It only comes from insects, and those insects are very high in protein. The birds need them and they need access to them.

Jason Hardin [00:27:55] So, if you think about these little poults, you know, a couple of inches tall - can't fly. They have to move across the landscape, and they have to catch spiders. They have to catch beetles and grasshoppers and things like that to put on that high protein.

[00:28:10] So, one thing that's really important for those poults is bare ground. So they need to, if you imagine a hay meadow that's been fertilized and not yet cut, it's so thick, there's so little bare ground, that birds could move through those. Bahiagrass can be the same situation. Even a Bahiagrass field that has some bare ground, maybe a cattle trail, just imagine a tiny little poult just trying to, trying its best to push through that thick grass. They can become exhausted quickly and basically left behind.

[00:28:43] Poults are small. They can't fly. And they're not very quick. So, I'm almost 50 years old now, and I could actually run out and probably catch one of those poults when they're one, two, three days old. So, you can imagine every pet dog and cat and Cooper's hawk and everything else that likes to eat meat, or just murder stuff, like my dogs, would go out and be able to take those.

Jason Hardin [00:29:07] At the same time, the mother is super devoted to those poults. So the poults are moving slowly. She may act like she's dragging a wing, like she's injured - something to try to distract a predator away from her. But we lose a lot of hens during the breeding period as well, because she's so dedicated. She's not going to run away from this poults.

Jason Hardin [00:29:26] So, all things to think about when we think about managing to get from egg, to poult, to a bird recruited into the population.

Jason Hardin [00:29:37] So, hopefully there's lots of bare ground, we had a good spring, there's lots of wildflowers and other weeds out there in the landscape that are creating this canopy. You can imagine you're walking through a forest and you have this canopy of trees above you providing shade, keeping you cool from the heat, but you can still easily move through it. We want the same thing, but we want it for poults, but we want the scale to be a lot smaller.

Jason Hardin [00:29:57] So, we want them to have that canopy over them, providing shade, hiding them from those aerial predators or whatever predators are out there, but still lots of bare ground so they can move around.

Jason Hardin [00:30:08] We talked about 30% nest success being a phenomenal year. If 30% of our poults survive to two weeks of age, four weeks of age, that's a phenomenal year. So, we lose lots of nests. We lose lots of eggs, lose hens on the nest. But we also lose those poults before they're able to fly at ten days to two weeks.

Jason Hardin [00:30:28] If we are able to have three to four poults per hen in any given year, then we've actually averaged a really good year. We're going to see lots of recruitment. We're gonna see lots of young jakes and jennies in the population, come the fall, winter and then into the following spring.

Jason Hardin [00:30:48] So, that's a big driver of that annual population.

Jason Hardin [00:30:50] During the summer, later in the summer, we'll see these poults getting bigger. You'll see brood flocks start to form - so, multiple hens with successful broods. They'll start forming flocks. And you'll actually see those birds stay in flocks until about October or November.

Jason Hardin [00:31:07] Really, they stay together year-long, but as they start moving back towards their traditional winter range, you'll see these groups forming together, and they'll roost together and they live together throughout the winter.

Jason Hardin [00:31:19] And that's the period of our highest annual survival. You have lots of birds that are fully capable of flying. They're quick. They can get away from almost anything. So, if we're in good habitat and we can see the predators coming, then we're going to have really good survival. So, we lose almost none of our population, during the winter months.

Jason Hardin [00:31:39] Males, especially adult males, have very good survival. So, we're not terribly concerned about them once they're recruited in the population as a jake.

Jason Hardin [00:31:47] One of the highest mortality factors is actually hunting. Hunting can contribute for some of the highest mortality for adult gobblers.

Jason Hardin [00:31:55] But at the same time, if we see them getting eaten by bobcats or a fox or a coyote, that's also happening in the spring when they're out there strutting, gobbling, announcing their location and probably not paying as close of attention as they would be. If you ever see a tom out strutting on the landscape, and he's got that big fan behind him, at

some point his head is blocked by the fan. So, 50% of the landscape he's not even looking at. So, it's really easy to get ambushed by a wise predator.

Jason Hardin [00:32:28] So, I would say, leaving out a lot of information there, I'm sure, I would say that's kind of the annual life cycle of what you would expect from a wild turkey population.

David Todd [00:32:41] Okay. That's a great introduction. Really good summary. I know that, for an expert like you, you're probably leaving out things that are important, but, you know, this account is just a nice window into the bird that you have studied.

David Todd [00:32:58] So, one of the things I think would be interesting to know at this point is the kind of monitoring and survey techniques that you use to learn about turkeys - you know, all the different, you know, levels from a poult to an adult or, you know, for females and males, and those that, you know, have got a nest on the ground. And, you know, it seems like there are just so many aspects of this that you've got to have a lot of ears to the ground or eyes that are aware or remote techniques, maybe. Tell us about how you survey.

Jason Hardin [00:33:33] Sure. So, you know, surveys can take on a lot of forms. I guess I should start by saying that wild turkeys, and a lot of wildlife, are notoriously difficult to count. So, a lot of what we do is looking at trend data.

Jason Hardin [00:33:48] So, I think I'll start at the same period, you know, the brooding period. One of the surveys that's widely used across the country. And in recent years we've tried to make efforts - you mentioned the Southeast Wild Turkey Working Group and the National Wild Turkey Federation Working Group - so these biologists, my cohorts from across the country, have tried to get together to look at hen-poult surveys. So, we call these summer brood surveys or just summer turkey surveys.

Jason Hardin [00:34:18] So, during July and August we go out on the landscape and we're counting every turkey we see. And we're marking abothem down as male, female and broods, or poults. And we want to record all those.

Jason Hardin [00:34:32] And our goal is to get a hen:poult ratio. We'll do it for two months. It's happening incidental to other stuff out on the landscape.

Jason Hardin [00:34:41] In Texas, our staff do a lot of that work. Our game wardens and our wildlife staff. And, being a state agency, we record all our miles that we drive each day in our work trucks. So, we're able to look at that, look at our poult per hen ratio, but also, marginal measure of effort, by looking at turkeys observed per thousand miles driven.

Jason Hardin [00:35:05] So, that's one way that we approach it. And, we're doing it the exact same way as every other state in the Southeast, the Northeast and the Midwest, because we want to be able to compare apples to apples. Now, is that not actually a measure of population density? But once you start comparing it with our vehicle miles that we're driving, you can get a weak amount of data out there. And it pairs very well, especially on our poults. If we see a lot of poults during the summer, we usually see a lot of jakes and jennies in the fall and winter.

Jason Hardin [00:35:41] So, not a perfect survey, but it's out there and we can replicate it across large landscapes across United States. So, that's our hen-poult survey, summer turkey survey, summer bird survey. Same survey by lots of different names.

Jason Hardin [00:35:56] In Texas, we're dealing with lots of private land. With private landowners, we rely on them heavily to provide us a lot of their observation data. So, one thing we do in East Texas, since it requires so much effort, we haven't been nearly as successful in East Texas, as we had with the Rio Grande range across Texas. And we send out to all of our deer hunters who work cooperatively with us, our landowners who have deer hunting on their property, what we call our fall turkey survey.

Jason Hardin [00:36:24] So, opening day of gun season each year, they receive a survey and we ask them to record every turkey observation they have for the first two weeks. Working with those folks, we already have their ranch boundaries, all their information. So, we can look, create a distribution map and look at, over time, how are these populations expanding, contracting and moving?

Jason Hardin [00:36:45] Again, it's just, it's not a true measure of population density, but it is another way that we can kind of get boots on the ground on these private properties where our staff (a single biologist may have four counties) could never cover that much ground. So, we do incidental observations during the fall of the year.

Jason Hardin [00:37:06] On top of that, we, collect harvest data. So, in East Texas, we have mandatory harvest reporting, or really, even in Colorado County, every county with a one-bird bag limit today has a mandatory harvest reporting requirements. And we can look at harvest as a means of, "What is that population doing?"

Jason Hardin [00:37:24] So, if we're in a county that that harvests 15 birds a year annually, and then suddenly they're only harvesting five, and then three, then two, it gives us some information on what might be occurring with that population. There are some assumptions involved there. You know, you're assuming that hunting pressure is similar across the entire landscape. So, there's assumptions we have to get past. And they're not perfect, but again, it's difficult to count wild turkeys.

Jason Hardin [00:37:50] Now one of the things we've done across the state, and it's been done forever on lots of wildlife. You can go back to the, you know, the turn of the century, is we do lots of banding. And what we can do with banding is we can get harvest rates off of that. So, we banded close to several thousand wild turkeys from 2016 to 2021. We worked with Louisiana State University with a graduate student there and, Dr. Brett Collier. And we were able to come up with harvest rates that we were able to publish in the journal, Wildlife Management.

Jason Hardin [00:38:21] And we can look at those harvest rates in Texas paired with our mandatory harvest survey data, and then also with our small game harvest survey and get an estimate of population at the ecoregion scale. And that's probably the closest that we're getting on that. Part of that research actually came out and then suggested that we do a better job of getting harvest data. And with that, we're looking to do mandatory harvest statewide, so we get a better assessment of what harvest is at the state level.

Jason Hardin [00:38:53] So, on harvest, I mentioned the small game harvest survey. For a long time, that's been our bread and butter on what populations are doing across the state. So, historically, 20,000 hunters would receive a paper survey. We would get, you know, thirty, forty per cent return rates, and we'd be able to look at that data and say, "What is harvest doing from year to year on these populations?"

Jason Hardin [00:39:15] The harvest survey usually goes out right before the spring turkey season. So, a lot of our data is about a year and a half behind - so, not ideal. And that's why we're looking to go statewide mandatory harvest reporting, to try to get a better handle on what's going on in those populations.

Jason Hardin [00:39:32] It wasn't something we had a lot of concern with historically, but in recent years we see things like the Southeastern wild turkey decline. We see this Midwestern turkey decline where Oklahoma has recently changed season and bag limits. Kansas is reducing non-resident turkey hunting opportunities.

Jason Hardin [00:39:50] In the Rolling Plains in Texas, along the Oklahoma state line, landowners used to call us up and say, "Come get these turkeys. There are too many turkeys on my wheat field or my peanuts," today are asking, "What happened to all my turkeys?"

Jason Hardin [00:40:03] And, when you don't monitor that population at any fine scale, you don't capture those rapid declines. And when your harvest data comes in a year and a half after the season occurs, it just impedes your ability to be nimble and make rapid management decisions on how you're going to accurately and sustainably manage that population.

Jason Hardin [00:40:26] So, we're always looking for a better tool. We work with researchers. We've done hen-poult surveys. We've done flock counts from airplanes through research at Texas Tech. We're getting ready to wrap up a research project with Mizzou, where we used unmanned aerial vehicles, paired those with forward-looking infrared. We'd GPS marked birds. And we'd go fly over those birds while they're roosting at night to sit there and say, "All right, there's the bird. And how many of these birds do we see?"

Jason Hardin [00:40:58] It worked really well. We did find that vultures, or buzzards here in Texas with bald heads, actually look real similar to wild turkeys. So, that's something to consider.

Jason Hardin [00:41:08] But there's artificial intelligence. There's machine-learning software that's out there today that we're hoping we can pair with our FLIR and our unmanned aerial vehicles to actually count the birds for us.

Jason Hardin [00:41:22] So, there's lots of stuff that we've done historically. We talk about gobble counts in East Texas, you know, which really just gives you a distribution of their population, or a minimum number of birds that were gobbling while you were out there that day, at that point.

Jason Hardin [00:41:36] We talk about roost surveys, which work great, where roosting habitat is limited in parts of the Rio Grande range. But, where roosting habitat's not limited, it's not the best survey.

Jason Hardin [00:41:46] So, a lot of different approaches for different parts of the state. And we continue to use those. We continue to publicize those, make them available to our landowners. You know, here's some options if you want to monitor your population.

Jason Hardin [00:42:01] But it's a constant problem. How do you count turkeys accurately enough to make sound management decisions? I think it'll always be a struggle.

David Todd [00:42:12] I can imagine that they're elusive creatures and that there are these delays, that are probably unavoidable and gaps that are probably hard to avoid as well.

David Todd [00:42:26] Well, thanks for giving us a little idea of, you know, the life history of these birds and then how you've learned about them.

David Todd [00:42:36] I think it might be nice now to to understand a little bit about the history of the wild turkey in Texas and, you know, from the 19th century, when I guess they were quite common. And then there's this decline, as I understand it, in the late 19th century, early 20th century. And I was hoping that you could give us a little introduction as to why this decline occurred. What were some of the big factors and reasons behind it?

Jason Hardin [00:43:03] Sure. And that's a common question. You know, what happened to wild turkeys, you know, across the United States or in Texas, specifically, since that's my backyard, my job. But, you know, it's interesting. If you look at the, as European settlers began to come into into Texas, they first settled in in East Texas. And, they were harvesting timber. It wasn't, sustainable forest practices at the time. It was, "Let's cut these trees and move over. We'll cut those trees and then move over and cut those trees", and so on.

Jason Hardin [00:43:37] At the same time, when those settlers were coming in and industrial folks were cutting timber to send wherever it was going, we had market hunters moving into Texas. So, these market hunters were ... their job, and just imagine a bunch of twenty-somethings, late teens, looking to go out and have an adventure and carry their gun. They had essentially harvested all the easy birds in the other areas of the Southeast, and East Texas was the next on the list.

Jason Hardin [00:44:08] They moved in, and they would harvest every bird. There were no regulations to stop them. So, shoot them off a roost, shoot them all year long, wherever you could find them, if you could trap them, whatever it took.

Jason Hardin [00:44:22] And some of the earliest regulations, you can look in the 1880s. So, they recognized, at least at a local scale, that they were having declines in their turkey populations. In the 1880s, the first law was to have no more than 25 birds per day bag limit. So, today we have a four bird annual bag limit. So, if they wanted to get it down to 25 birds per day, they were obviously targeting these market hunters. And they thought that 25 per day would be relief on the birds.

Jason Hardin [00:44:51] So how many birds were these guys actually taking per day? I think it's really hard to, to really wrap your head around just the massive amount of population declines and take that were occurring.

Jason Hardin [00:45:04] In the early 1900s, they shut down hunting for five months of the year. They eventually shut down trapping.

Jason Hardin [00:45:12] So, there were all these different methods, attack, that were occurring from the 1880s into the early 20th century.

Jason Hardin [00:45:18] And there were no game wardens out there to stop that. It would be your local sheriff or constable or somebody along those lines who took a personal interest in that issue or had enough of their constituents calling, or not calling, but, I guess, reaching out and asking them to try to help them protect those populations.

Jason Hardin [00:45:40] Around the 1930s, restoration began. It was extremely successful across most of Texas for the Rio Grandes, but in East Texas it was nowhere near a successful.

Jason Hardin [00:45:51] And by 1942, the predecessor to Texas Parks and Wildlife, the Game, Fish and Oyster Commission, estimated that there were no more than 100 wild turkeys remaining in what historically would have been 20 to 30 million acres of occupied habitat.

Jason Hardin [00:46:05] So, just the population decline, the loss, is hard to wrap your head around. But just imagine 20 or 30 million acres occupied and now you only have 100 turkeys across that entire landscape, and in just a couple blocks here and there. So, it was it was, it was widespread. It was intensive. And, we still haven't recovered in East Texas from those losses.

Jason Hardin [00:46:30] When we look across the Rio Grande range, we saw similar declines, populations that were ... it could have been, you know, market hunters. You could have been, what have you. But you think about some of these large ranches like the King Ranch, the King Ranch down in South Texas, who had some level of control over take on their properties. They recognized those declines and made local, personal efforts to protect those populations. Same thing in North Texas.

Jason Hardin [00:46:57] But otherwise across most of the range, even for Rio Grandes, we probably never got below about 100,000 birds. But considering we have 500,000 today and are probably historically just as many in East Texas, we've come a long ways. We estimate about 500,000 birds today.

Jason Hardin [00:47:14] But yeah, the rapid loss: the settlers going out. They weren't going to their local HEB to get them a turkey. You know, they were growing it or they shot it. The market hunters, and then the rapid loss of habitat. Just imagine all those log cabins that were going up and timber leaving different areas that would have been historic roost habitat and just usable space for those birds that was now gone. And I think that was the primary role.

David Todd [00:47:42] Well that's interesting. So it sounds like cutting timber and a lot of hunting pressure were maybe two of the factors.

David Todd [00:47:53] I've heard that maybe fire suppression was a third. Is that something that you feel is true, or would you not put much emphasis on that?

Jason Hardin [00:48:03] I would think so. For fire suppression, I don't believe at the time when we lost most of our populations that that was a major contributing factor. I think, for the restoration of the population, fire suppression played a critical role. But I don't believe at the time, that there were enough people, and that fire suppression was widespread enough at the time.

Jason Hardin [00:48:29] Now, in East Texas, we'd lost all those trees. So, there are historic pictures and you just see these wide open areas of nothing but stumps. And again, they weren't going back in and replacing those. And that was a lot of virgin timber. So, that would have burned historically with Native Americans and, and lightning strikes or what have you. That change in the landscape would have changed the fire regime.

Jason Hardin [00:48:51] But I think the first thing that occurred was that loss of timber. And you have 20 to 30 years of regrowth that's occurring.

Jason Hardin [00:49:00] We had a boom in a quail population at that time because we created so much early successional habitat in East Texas that quail actually thrived. But ... our turkeys just were decimated.

Jason Hardin [00:49:12] Now, fire suppression today has a significant impact, especially in East Texas. And I would say has had for probably the last 50 years, fire suppression on a certain scale. But I think historically it was probably not a primary contributing factor. But again, the restoration has been an issue.

David Todd [00:49:32] I see. Okay. So, these declines, it sounds like, happened before fire suppression would have been a big factor. But then when the recovery phase came in, you know that is maybe a suspect.

Jason Hardin [00:49:46] Absolutely. I would say that that prescribed fire on the ground is one of the most limiting factors for establishing wild populations in East Texas today, especially the southern half of East Texas with things like yaupon holly, and in the northern portion of that range, eastern red cedar. These species that historically would have occurred in wet areas or areas where fire would have naturally been excluded, have now spread across a much larger landscape and created a lack - a wild turkey's main defense is eyesight. And if it can't see through the woods, it can't adequately use those forests. And it's going to be more, either not using that habitat, or it's going to be more susceptible to predation.

Jason Hardin [00:50:31] So fire, absent from the landscape today, especially in those landscapes where we get 30, 40, 50, 60 inches of rainfall a year, we see these rapid explosions in woody vegetation that are encroaching into our forest understory is a major contributing factor, I believe, to just the available usable habitat for wild turkeys. And if we don't have available usable habitat, then it's hard to sustain that population.

David Todd [00:51:01] Okay. All right. Well. Thank you.

David Todd [00:51:04] And you know something, when we had a little visit before we actually did a recording, you were telling me that, maybe one of the reasons why turkey seemed to persist in areas to the, maybe to the west, to the southwest of this East Texas area that suffered such big losses, was that there were Native Americans there. And, can you please explain what you're thinking there?

Jason Hardin [00:51:33] Yeah. And ... you know, I love reading books like Empire of the Summer Moon and things like this, where we talk about the Comanches that would have been on the landscape at that time. And, you know, thinking about Cynthia Ann Parker there in Limestone County, near Groesbeck today, and the fact that they had a fort to protect them from Native Americans. There was a true risk in going out on the landscape in the 1800s, especially the mid-1800s, when white settlers would have been moving into that landscape.

Jason Hardin [00:52:14] And, you have to imagine that Native Americans probably slowed down the progression of European settlers moving into portions of the Rolling Plains, the Crosstimbers, the Blackland Prairie, the South Texas brush country, the Edwards Plateau. And it's my personal opinion from reading those books and recognizing that there was someone occupying that landscape who was hostile to people coming in and trying to take it, that

perhaps, those market hunters may have slowed down a little bit once they got, you know, to the edge of the Blackland Prairie with the idea of what's waiting for me over the next hill.

Jason Hardin [00:52:58] Now, again, that's my personal opinion, but I believe that there probably was at least some degree there where the Native American populations may have slowed down the take of our wild turkeys and other wildlife.

David Todd [00:53:12] That's intriguing. Well, it does raise the question of why these Eastern wild turkey seem to have really suffered a major decline. But from what little I know it sounds like the Rio Grande turkeys further to the west and the south persisted in better shape. Is that a fair take?

Jason Hardin [00:53:32] Absolutely. When you think of the 20 or 30 million acres occupied in East Texas, down to 100 birds by 1942, and the Rio Grande range, where they probably had an 80% reduction, but never got below about 100,000 birds. So it occurred, but it occurred later, and I believe we were implementing more regulations around the time that European settlers were moving into that landscape, and there was a more concerted effort, seeing what had happened to the East, to protect those populations.

David Todd [00:54:06] Okay.

David Todd [00:54:08] So, I think you've tipped your hand a little bit there that this decline did not go unobserved, and that there were some efforts to try to protect these remaining flocks and maybe actually help them recover. Maybe we can just talk a little bit about trying to reduce the hunting pressure. And it sounds like there have been efforts to limit trapping and bag limits and so on. Can you tell us about those first efforts to try to control the hunting?

Jason Hardin [00:54:43] Sure. So in the 1880s, the, the first regulations came on board, and that was with the goal of reducing take. And it was, it seems, targeting those market hunters. So, the first regulation being 25 birds per day. And again, if you're taking more, if you're taking 25 birds in a day, that's not feeding just your family. That's birds being taken for a market approach.

Jason Hardin [00:55:11] So, even the idea of hunting being the problem, I'm not even sure I would categorize the market. I guess it's hunting, but the market take of birds, in my idea of what hunting is today, certainly, is a different approach from what those guys were. They were taking. So, but we do call it market hunting. So, and that was one of the first drivers. You can look at a lot of historical records where local communities would set their local ordinances on who was allowed to take wildlife. And, I find that interesting.

Jason Hardin [00:55:52] But at the same time, who's policing that, and who's overseeing it? And I don't, there were no official game wardens in Texas until, you know, the 1920s, maybe the 19 teens, when game wardens were out there. And it would have been a limited number to begin with. So, we set up these regulations, set up these ordinances. But who was enforcing that, especially at the statewide scale?

Jason Hardin [00:56:19] You go into the early 20th century and we see the removal of trapping as a method, we see a certain period of the year closed to the take. So, you think about the breeding season being shut down around, you know, the early 1900s. And then, we finally get to about a three bird per day bag limit, with a fall-only season, around the 1930s.

Jason Hardin [00:56:49] And that's whenever the Game, Fish and Oyster Commission was finally funded. We think about things like the Pittman-Robertson Act and things like that, where there was a federal excise tax that helped put funding into these states to manage their wildlife. And folks like Theodore Roosevelt and folks like that who really pushed for those bills to occur to make it possible for a state to hire game wardens, to do research, and do these things.

Jason Hardin [00:57:23] So, yeah, it took a while and we even continue to tweak that today. The resources we have available to us through very high frequency radio units on the backs of birds today, we put GPS units on the backs of birds.

Jason Hardin [00:57:38] You can read some old federal reports from folks like A.S. Jackson, who is, you know, a leader historically with the Game, Fish and Oyster Commission and then Parks and Wildlife. They would sit on bluffs and they would count turkeys as they would walk away and they'd record their information. I just imagine the field time that went into that for that early research. And a lot of what they did, you know, it still holds true today.

Jason Hardin [00:58:01] So, lots of changes over a long period of time, but, but I think it's worked well. And today we have state agencies in every state in the United States that are funded with Pittman-Robertson dollars to do research and have biologists in the field doing good things for our wildlife.

David Todd [00:58:21] Good thing. So, it sounds like the cap was being lowered, and the season was being squeezed, you know, over these years. If I'm not mistaken, there was a point where all hunting ceased, is that right - in the 1940s, maybe, for wild turkeys?

Jason Hardin [00:58:45] I'm not sure. I'm not sure of that, if there was ever a period when they were all shut down. There was no spring turkey hunting, I think, until 1969, in Kerr County. We had our first spring season. You think about Texas historically, in the Edwards Plateau, North Texas and south Texas, I'm not sure that there was ever a period where you couldn't take some birds, but it was always, a fall sort of approach. So, it would have been your Thanksgiving turkey or your Christmas turkey. But, I'm not aware if there was ever a period when all seasons were shut down for wild turkeys across the entire state.

David Todd [00:59:24] Okay. All right.

David Todd [00:59:26] I think you mentioned this, sort of dynamic where there were local, sort of patchy, control of hunting pressure. But the statewide big-scale control was more difficult to make happen. Can you talk a little bit about this, about sort of the some of the local efforts and the county exemptions? You know, I understand that some of the county attorneys and judges really didn't want to rule on these cases or prosecute these cases. Is that on the mark or not?

Jason Hardin [01:00:01] Absolutely. So, you think about the protection the species, or just wildlife in general, I think it was pretty obvious to a lot of people to see that rapid decline, especially the folks who had been here since Texas gained statehood or independence. So, places like King Ranch, these, you know, a ranch of a million acres or more, at the time, where they could actually have a true impact at a population scale, began providing protections for those populations.

Jason Hardin [01:00:34] Places in North Texas, again, on the edge of European distribution at the time, were recognizing those declines and providing protections. And it was truly up to those private landowners who made those decisions to not allow just anyone to come out and shoot birds on their property. They provided those long-term protections.

Jason Hardin [01:00:55] And you could look at our history of restoration. And there's just a handful of places, going back to the 1930s, where there was available broodstock for people to go out and trap and move those birds across the state and phenomenal efforts to do that. And, like I say, it's been tremendously successful for the Rio Grande.

Jason Hardin [01:01:15] A lot of our regulations weren't maintained at the state level. We didn't have a state game and fish agency to make those decisions. So, it would have been those local communities - the county judge, making those decisions on what could and could not occur. And it was it was widely, and this is not until just a few decades ago, there was a lot of differences between county to county on what they thought they could sustain, and what they could do, and what they thought was appropriate and wasn't. And, it's only probably until somewhat recently that the state is taking a more biological approach to that, based off available habitat, what the habitats like, and what those populations can sustain.

David Todd [01:02:03] Well, it it sounds like the recipe for trying to protect these birds and bring them back involved partly trying to tamp down the hunting pressure, but also, rearing them in captivity and then also capturing them and then moving them around and transplanting them. Can you talk about this next chapter of, I think you mentioned this earlier, these pen-reared turkeys where that was one of the first tools that was tried.

Jason Hardin [01:02:35] Absolutely. So, when we think about especially East Texas, and again, we talked earlier about, you know, what is the appropriate subspecies. So, some of our earliest efforts were with Rio Grande turkeys all the way to the Louisiana state line. And those populations sustained themselves, you know, for a couple of decades, but eventually faded away.

Jason Hardin [01:02:57] Early on, I mentioned 100 eastern wild turkeys remaining in all of East Texas. There was a concerted effort to go out and find nests, collect eggs from those nests, incubate those, in, you know, a controlled setting. Hatch those birds out and go release them across the landscape.

Jason Hardin [01:03:18] And every imaginable configuration of that occurred. So, they would bring wild Rio Grande hens, hatch eastern turkeys on an incubator, pair those poults with the hen, and then go release that Rio Grande hen with those poults.

Jason Hardin [01:03:36] They would build soft-release pens in East Texas. They would take all these birds raised in a pen, go take them out into a field situation, put them in what is essentially a coop. Eventually, after they were there for a few weeks, open the door, the birds would go out. And then that evening, they'd come back and they'd roost in the coop.

Jason Hardin [01:03:58] So, around 1959, there was some research that occurred. And so there's some of these old symposiums for talking about turkey research and what's going on across the country. They had a turkey symposium and one of the first ones, a publication in 1959, stated that, you know, they looked at pen-reared birds compared to the release of wild-trapped birds, and it was just night and day on the success of wild-trapped versus pen-raised birds.

Jason Hardin [01:04:30] Unfortunately, Texas continued, to go the route of pen-raised birds until 1979, so, 20 years after that publication and others had come to light that pen-raised birds were not sustainable.

Jason Hardin [01:04:43] Today, it's illegal to release pen-raised birds in the wild to try to establish a population. It still occurs. It's not the most enforceable law we have, but it's based on the idea of, we've done that. It's not a successful. And it actually can be a hindrance to establishing wild birds.

Jason Hardin [01:04:59] So, yeah, just about every possible way that you could try to let birds go - pen-raised, mixed pen and wild, acclimation pens and it occurred in your country, near Colorado County, and throughout the coastal counties. It occurred throughout East Texas. And, you know, they even tried to make hybrids pen-raised birds. So, they would mix the eastern genetics with the Rio Grande genetics. And they tried that as well.

Jason Hardin [01:05:32] And I'm not sure everything they did was wrong, but we do know today that that pen-raised birds simply do not work. And, we wouldn't invest in that. But we still get that question today. Why can't I just hatch them out and let them go?

David Todd [01:05:46] And what is your, suspicion about why pen-reared birds just don't seem to fare as well as a wild-trapped bird and its poults?

Jason Hardin [01:05:58] Yeah. So you imagine a galliform, so these chicken-like birds - quail, turkey. They're going to sit on that nest for, for a turkey, 28 days, a quail, 23 days. We've actually, researchers have placed microphones in those nests. And you can actually hear communication between the bird, the mother hen, and the poults in the eggs when they're getting close to hatching. This level of communication and learning begins in the egg, which is not something you get on an incubator when you're sitting there rolling for 28 days, waiting to hatch. There's no mother hen communicating with you.

Jason Hardin [01:06:39] As soon as they hatch, she's going to brood those poults. So, within the first hour, up until they're, you know, weeks, months old, she's going to be brooding those poults. So, everything she does, a level of communication that happens there, she makes one little, one little putt and all the poults freeze, and they lay down on the ground. They hide in the vegetation while she drops her wing and tries to lure a predator away.

Jason Hardin [01:07:06] When it comes time to roost in a tree, you know, she'll go up to a tree with some low-hanging limbs. They can't fly for the first ten days or two weeks. All they know is to be on the ground. And then she hops up in a tree limb and sits there and waits for them to hop on that low limb and crawl up to her.

Jason Hardin [01:07:24] There's all this learned behavior that occurs from a bird that hatched in the wild and then nested, raised poults in the wild. And, there's just something that's lost whenever you raise those birds in a pen. They don't know what a predator is. They don't know that they should hide. And there's just so much they're not aware of that, that you just learn from that other wild bird, that maternal bird that's able to say, "This is what you do, this is what you don't do." And even then, most of those are going to die. They're not going to make it.

Jason Hardin [01:07:59] And then you're asking a pen-raised bird, who never had any of that experience to do, as well as a wild bird that barely makes it every year. So, it's just tough to expect a bird raising in a pen to meet that level, to get to a sustainable population.

David Todd [01:08:16] I see. It's difficult in the best of circumstances, and these pen-reared birds just have even less of an edge.

Jason Hardin [01:08:26] Yeah. And we did it for decades, unsustainably. So, "been there, done that. Let's do the next thing."

David Todd [01:08:35] Well, so, the next thing seems to have involved a lot of trapping. And, I was hoping that you could just tell us about the mechanics of trapping these birds and transporting them, and then, you know, releasing them in a new location.

Jason Hardin [01:08:51] Sure. So, it's really evolved over time. You think about the Game, Fish, and Oyster Commission in the 1930s, going out and trapping birds, having never done it before, probably working with some of the old poachers that were out there that had these pole traps, following Native American strategies of creating what basically looks like a log cabin with a small entrance and a ditch dug so the birds go in and make their way into these, what they would call a pole trap.

Jason Hardin [01:09:21] Later on, we started creating these pens and fences and today we still use something similar. We call it a walk-in trap. It's just stock panels, that are built, you know, about 8 or 9-foot by 8 or 9-foot, has a roof on it. And we slowly close that pen as the birds get used to going in and out, and eating the feed that we provide them.

Jason Hardin [01:09:41] So, the same approach works today that historically did. We just have better equipment, better materials.

Jason Hardin [01:09:48] One thing that really helped, especially for the eastern Turkey restoration, there was not a lot of success using these walk-in traps. The eastern turkeys had been subjected to mass harvest and take and hunting for several hundred years before we got to East Texas. Right? So, those eastern wild turkeys were probably the ones that survived, were the smarter, more wary birds. The dumb ones probably were taken out quicker. And, the idea of being caught in a trap, you probably bred that behavior out of them.

Jason Hardin [01:10:25] And so, it wasn't until really the waterfowl world started using canon nets, so they could hide this long woven net, kind of like a fishnet. They would put black powder in these tubes. They would tie the net to these projectiles. They would set off a electric charge and "boom", it shoots the net from a folded-up, hidden position, probably under pine needles or leaf litter. And it shoots out over these birds that are lined up in front of your net on a line of bait.

Jason Hardin [01:10:57] And whenever we started using that, we went from trapping almost no eastern wild turkeys to trapping massive numbers of wild turkeys. And really, it was the 1960s when a lot of that began to occur.

Jason Hardin [01:11:12] We had the Lacey Act, which doesn't allow you to take wildlife across state lines. So, a lot of states were doing their own thing for a long time - going into these swamps or very remote locations where they had residual populations. And they started doing restoration in places like Alabama and Mississippi that had these populations forever,

were able to do restoration. As they were successful, that began to create opportunities for other states to work with those states to get birds.

Jason Hardin [01:11:45] East Texas did a little bit here and there in the 1970s. We started getting some wild-trapped birds, but not, nothing really in earnest until around 1979, and then the mid-1980s.

Jason Hardin [01:11:58] So some of those earliest transactions probably would've occurred with like Louisiana Department of Wildlife, where we traded pheasants, if you can imagine that, for turkeys. We traded otters for turkeys. We traded all these different things because it wasn't, a financial transaction. It was goods for goods, I guess you might say.

Jason Hardin [01:12:21] And, when the National Wild Turkey Federation came along, and started helping out, they created what they called the TARI 2000 program. They started working and creating these memorandums of understanding across state lines.

Jason Hardin [01:12:35] And with that, and the advent of rocket nets, which actually were safer and more, I guess, systematic - same charges, same rockets every time. We were able to really expand how many birds we could catch.

Jason Hardin [01:12:53] At the same time, all these other states - Mississippi, Georgia, states across the Midwest that have been successful - are able to send birds to East Texas. And we were able to buy those birds.

Jason Hardin [01:13:04] We did the same thing with Rios. We would send Rios to other states. If you can imagine it, there are Texas Rios in Hawaii now, there are Texas Rios in Oregon and Washington and Idaho and across the West. Utah was one of the last states that we provided birds to.

Jason Hardin [01:13:21] So, it created this opportunity for states to exchange wildlife resources across state lines. And that's when we were able to really engage and get lots more birds. I may have gone off-topic there.

David Todd [01:13:32] No, no, this is fascinating. It sounds like the mechanics of, the logistics of, capturing these birds is one hurdle to clear, but then also, this issue of the Lacey Act is something I hadn't really thought about: that moving birds or other wildlife across state lines, I guess, runs afoul of federal law. And, so how did the states maneuver that issue?

Jason Hardin [01:13:58] Whenever we started trading for the bird. So, like I said, early on, it was trading for wildlife - otters and pheasants - and, you know, maybe quail today. So, it was a resource that another state wanted. We wanted turkeys. They had it available, and we were able to do that.

Jason Hardin [01:14:16] One thing I left out, you know, we think about moving those birds. But how do you move those birds? Historically, these old wooden crates would have been built to transport those birds. Today, we transport birds with these NWTf boxes. They're built to fit a bird. They're waxed, they're stapled. Imagine the guy on the Domino's commercial, like, folding a box quickly as he can. So, we're able to do that. Take a box that's broken down and fold it into this deal that's able to transport birds, and has these vents on it, and these handles and everything.

Jason Hardin [01:14:47] But historically, they would have put a couple of birds in a wooden crate and shipped them across, you know, wherever they were going to go. And you hope for the best.

Jason Hardin [01:14:56] So it's, you know, every aspect of wild turkey restoration and management, from the restocking standpoint, has evolved over time and just gotten better and better.

David Todd [01:15:12] So, I think you've told us a little bit about the restocking of eastern turkeys from, I guess, the southeastern states, Alabama, Mississippi and so on, and then this movement of Rio Grande turkeys from Texas outward.

Jason Hardin [01:15:28] But, what about this, this third, subspecies, the Merriam's turkey. It sounds like there hasn't been as much commerce in them, trade. What is the story with the Merriam's turkey and translocation of them?

Jason Hardin [01:15:46] So, Merriam's turkey, the first restocking efforts, I believe, is in the 1950s in the Guadalupe Mountains. So, historically in Texas, we were in the southern tip of the Merriam's historic distribution, down to the Guadalupe Mountains. You know, if you're familiar with the national park there, it's, you know, as much in New Mexico as it is in Texas. Whenever, with habitat changes, and you mentioned the removal of fire and things like that, the Guadalupe Mountains historically would have been, at certain elevations, would have been dominated by ponderosa pine and these frequent fire events that would have kept a nice open understory.

Jason Hardin [01:16:27] And over time, that landscape has changed. It's more of a thick area, heavy brush, not a lot of ponderosa pine, which is required for roosting habitat. And that ecosystem has changed.

Jason Hardin [01:16:41] So, a big part of why those populations went away, they were hunted, just like everywhere else, up until we had regulations to protect them. But we also timbered a lot of that country in the Guadalupe Mountains and we had fire suppression that occurred in that area. So, we lost a lot of the habitat.

Jason Hardin [01:16:59] In 1982, while we're doing a lot of other restocking efforts of Rios in the Trans Pecos, outside the historic range, but at the time it was "if you can get them to establish, let's do it", it was less thought towards, "was this species here historically", and more of "we think we have suitable habitat, let's put them there."

Jason Hardin [01:17:18] So, in the 1980s, we're putting a lot of Rio Grandes along these riparian areas in the Trans Pecos that had these cottonwood draws. And it was successful.

Jason Hardin [01:17:27] And at the same time, around 1982, we received 40, maybe 42 Merriam's wild turkey from New Mexico and released them in the Davis Mountains. So, no historical record of Merriam turkey occurring there. Same for Rios. But they established. They did well.

Jason Hardin [01:17:48] Unfortunately, or however you want to look at it, they're all the same species. They are North American turkey. But the Rios did well enough that they began to expand into the Davis Mountains, into that ponderosa pine country. The Nature Conservancy has a piece of property there near Fort Davis and the observatory in that

country. And, they do a great management. It's ponderosa pine. Beautiful open understory, looks like Merriam's habitat. And the population did well.

Jason Hardin [01:18:17] But as those Rios began to move in, they began to breed with the Merriam's. And, a little tongue in cheek: I say they created "Mirios".

Jason Hardin [01:18:27] It's not an official thing. But, you know, they're all the same species, so it doesn't, you know, for people who just want to see turkeys up there and know that they exist, it's fine.

Jason Hardin [01:18:40] But, for those purists in the world who would like to see a Merriam's in Merriam's habitat, and a Rio in Rio habitat, and an eastern in eastern habitat, it can be a little frustrating. But there's so many different things at play there with, you know, neither one of those species historically occurring there as far as, you know, European history that we're aware of.

Jason Hardin [01:19:03] So, it's not something that I worry about drastically. We know there are Merriam's wild turkeys in the Guadalupe Mountains in New Mexico. We know they come over into Texas occasionally, but it will probably never be a real robust population, and that's fine. So, it's such a minor portion of our overall population: I think we estimate maybe 500 Merriams in all of Texas, compared to a half million Rios. So, the bird's managed as if it was a Rio Grande wild turkey.

David Todd [01:19:35] Okay. So, you talked about these different phases and the different subspecies, you know, capturing them with the different kinds of nets and traps, and then moving them around, and then, you know, dealing with Rio Grande wild turkeys and the Merriam's.

David Todd [01:19:54] Tell me about how you identify where you want to take them. I mean, it sounds like these birds have got pretty particular needs as to the habitat that would be suitable.

Jason Hardin [01:20:03] Sure. A lot of it, you know, we're a privately owned state - 95, 97% privately owned. So, a lot of times we're looking for those areas that may have a particular amount of habitat. Historically, for the Rio Grande, across where they're well-established today, we would have been looking for riparian habitat, large trees along those riparian corridors. And that's what would have driven that effort. Historically, we would have gone county to county to county. That's how we do most of our regulations at the county scale. And that was how we did a lot of our restoration.

Jason Hardin [01:20:41] Rios were not difficult to trap. We'd trap them in drop nets and rocket nets and walk-in traps, and what have you. And we had fairly robust populations: like I said, probably never less than 100,000 birds. And we were able to contribute a significant amount of staff time in doing that trapping effort.

Jason Hardin [01:20:59] So, exactly what would have been the cues for them historically? I can't speak to that. But I know based on what we know about wild turkeys today, I would assume they followed those riparian corridors, because that's where those birds want to be. And, if you look at the historic distribution of those Rio restoration sites, they were able to scatter them pretty broadly. And yet those birds were able to thrive and expand their populations.

Jason Hardin [01:21:26] And probably around 1992 is about the time we stopped doing restoration. And from 1992 until probably 2017, we saw this marked increase in that population, where you can look at Breeding Bird Survey data, and it just rapidly expands during the latter part of the 20th century, and then into the 21st century. So, that was probably what drove that.

Jason Hardin [01:21:54] During the block-stocking era - that 1980s, 1990s in East Texas: again, 5 to 10 locations per county, 15 to 20 birds per site. The idea was again to establish a population at the county scale, because that's how we regulate that population. So, let's put a lot of effort into Leon County this year, and then next year we'll put a lot of effort into Freestone County and Anderson County. So, that was their general approach. They would hit it real hard for a year or two and then move on to the next county.

Jason Hardin [01:22:27] For those sites, they were looking for large properties, large landowners, which was easier to find in the 1980s and early '90s. They were looking for locked gates. They were looking for lots of different species of oak trees, but they weren't necessarily looking at the habitat structure. It was more based on the success across the Southeast, of you just put the birds out there and they thrive, was the approach. It was less thought of as we just need to protect those birds and they will thrive.

Jason Hardin [01:22:56] Today we've moved away from block-stocking. We do what we call super-stocking, which basically replicates what we did for Rios because there were so many of them. Instead of 15 to 20 bird per site, five, ten sites per county, we'll go to some priority areas that were determined based off GIS mapping and these inputs, to try to say where do we have the best areas of connected habitat, based on these features we're looking for - habitat edge, riparian corridors, what we think would be usable forest understories.

Jason Hardin [01:23:28] Do that and then work specifically within those focal landscapes to identify the best available habitat at large scale. And that's how we do it today, is we're looking for the best available habitat within a priority landscape. The idea being that these river corridors, such as the Sulfur River, the Trinity River, the Neches River, are basically highways for wild turkeys. Establish populations within these travel corridors, these riparian corridors, these river systems, where over time there will be an exchange of genetics back and forth, up and down these watersheds.

Jason Hardin [01:24:03] It gets exceedingly difficult to get the numbers you need whenever you went from 15 to 20 birds per site to 80 birds per site. But, it's all an evolution of research over time. During the block-stocking, we marked a bunch of birds, had a bunch of research chasing them, and we learned a lot, and then we would grow from there.

Jason Hardin [01:24:22] So, it was kind of this plan, do, learn process. Put birds on the landscape. Mark them. Do the research. What did we learn? All right, let's apply that, and let's do it again and again and again. And that's where we're at today. And we continue to follow that model, where we put birds on the landscape. Today we're GPS-marking those birds. We're seeing how they use the landscape and, how we can improve upon our process.

David Todd [01:24:46] Well, so, you told us a little bit about capturing them, transporting them, and then these stocking decisions about once you actually release them. And I was wondering if that whole course of studying, you know, releasing them and, and then capturing - the whole cycle, if you've learned any lessons from some of the other big translocations that

the state agency has done, I mean, such as the whitetail deer, years and years ago, or desert bighorn sheep more recently, and pronghorn antelope. I sounds like Texas Parks and Wildlife has had a lot of experience in this field. And I don't know if there's overlap and shared lessons from each animal that you work with.

Jason Hardin [01:25:34] You know, the institutional knowledge that's gained over time, I don't know about across different species, but the opportunity to work with these technical committees that I work with across the country and all the publications that have resulted over the decades of this process, I think, have really helped us fine-tune our approach. As far as, I mean, there's so many tools that we use, that we take advantage of, today that someone came up with, someone figured that out, someone adapted it to wild turkeys and has been successful.

Jason Hardin [01:26:09] You know, I've mentioned going from cannon nets to rocket nets, and from pole traps to walk-in traps to, today, we have these different gate systems that we can use an app on our phone and close the gate once the birds walk in. It's just this evolution and experimentation that we're still doing today to try to be better all the time in our different approaches.

Jason Hardin [01:26:36] We've learned a lot. You know, we know that at certain temperatures, if you trap a bird, you're going to stress that bird out, and it's going to overheat, and it's going to die. We know that we need to trap in the winter months because of that heat, but also because that's when your populations are congregated together. They're easier to trap. Food resources are limited, so they get on bait better.

Jason Hardin [01:26:57] We know that the eastern subspecies is much more aware than the Rio Grande. So, our approach is using rocket nets versus a drop net or a walk-in trap. We know what works for these different subspecies and how we can address that.

Jason Hardin [01:27:11] We're dealing with urban nuisance turkeys in some states today, that perhaps would be easy to trap in some situations. But maybe you have a school downstream from where you want to shoot a rocket net off.

Jason Hardin [01:27:23] So there's this constant process of adapting and learning, and I think we try our best to learn from what has worked, expand upon that, and try to not keep doing the same thing over and over again if it's not working for us.

Jason Hardin [01:27:40] Looking at whitetail deer, you know, sometimes you get a little jealous because a white-tailed deer just seemed like he can survive almost anywhere. And then wild turkeys for that matter, too. But for some reason, in East Texas, they just don't do as well as we wanted them to. And that can be a little frustrating.

Jason Hardin [01:27:58] Sometimes, I go across the Rio Grande range, and I'll see Rio Grandes on overgrazed, beaten-up landscapes and like, "Why are you so successful here?" And, we go to a Lone Star Land Steward award-winner in East Texas and we can't get them established. And so, just things like that you learn from.

Jason Hardin [01:28:16] But we still, you know, bang our head against the wall sometimes on what we're doing wrong or how we could do it better and be more successful.

Jason Hardin [01:28:26] Well, I have a few more questions, but, I think I might just take a moment here. And I think that you are probably speaking on your laptop mic now. Is that possible?

David Todd [01:28:37] It could be. Let's see. Let's try that. Is that better? It is a little bit better. It gets a little boomy if you use the laptop mic. So, if you could continue using the one that's close to your mouth, that's probably going to work better for us.

Jason Hardin [01:28:55] How's that? Is that okay?

David Todd [01:28:58] Yeah, yeah. That's great. That's great. You have a good voice, and it's coming through.

David Todd [01:29:03] So I understand that despite this statewide effort, county by county, you know, lots of really diligent stocking that there are still these gaps, where you just don't see turkey. And I'm wondering if you have some sort of suspicions about what might be going on that would create these little openings between flocks and populations?

Jason Hardin [01:29:29] Yeah. So when you look at it historically, you know, you had this map that's provided to you in some old publications. And they showed the eastern wild turkey historically going to the Trinity River about, and then the Rio Grande going from there. And we look at that today, and the Trinity River, and really even further east, we have this void in the population. And you can imagine I-35 being kind of the eastern edge of the Rio, and maybe, Highway 59 in East Texas being this eastern subspecies, found east of that, and in between Houston and Dallas and San Antonio and Austin, there's just a huge void of unoccupied habitat.

Jason Hardin [01:30:17] And I think there are several things going on there. If we look at the Blackland Prairie today, yeah, it's hard to get away with calling it a prairie anymore. You know, it's been so developed by urbanization and then farming practices, especially these industrial farms that are just thousands and thousands of acres of bare ground, during outside of the growing season. And during the growing season, there's still not a diversity of habitat out there to provide everything these birds need.

Jason Hardin [01:30:46] I-35 itself is a huge barrier. If you look at I-35 as it leaves DFW and goes to Austin, down to San Antonio, it follows right along the Blackland Prairie transition zone. And we have these large, robust wild turkey populations right on the west side of I-35, you know, right across that interstate and all the fragmentation that ties in with that. And there's almost zero birds on that landscape to the east about I-35. And that is a significant barrier that we've created on the landscape.

Jason Hardin [01:31:21] Historically, the Black Land prairie probably would not have supported its many birds as the Hill Country, just because it's a different habitat type. Those birds would have been subjected to living along those riparian corridors, but they would have easily spilled out of the Edwards Plateau and into the Blackland Prairie along those river drainages, and would have gone all the way over to the Post Oak Savanna, where they would have found more habitat.

Jason Hardin [01:31:45] We talked about the Blackland Prairie not being the Blackland Prairie anymore. It's blackland, but most of that prairie component's gone. The Post Oak Savanna is no longer a savanna. It's blocks of thick forest, closed-canopy, oftentimes with

yaupon understory, bordered by Bermuda grass and Bahiagrass pastures that simply, at such a large and dominant scale, does not provide adequate habitat to support that population.

Jason Hardin [01:32:15] And once we go from these just oceans of birds, and then we come to, we create these little islands of available habitat. You just imagine, how does a species that spends its entire life within a mile or two where it hatches, for the most part, how do they spread across that landscape and begin to occupy areas of, you know what, basically these just oceans of unsuitable habitat.

Jason Hardin [01:32:41] So, I think, that's a big part of it. So, one of the things, and like I mentioned earlier, you can see wild turkeys in, what I would consider not good turkey habitat, throughout their range, but they're part of an ocean of birds, or this huge connected population, versus that east of I-35, west of the Trinity River, where you just maybe have these dots of populations and they're just easily wiped out.

Jason Hardin [01:33:08] So, I think that's a big part of it is, is just what's occurred on the landscape, what's on the landscape today, these manmade barriers that we've created. DFW is a barrier. I-35 corridor is a barrier. You know, whenever we look at where we have population in East Texas, they're generally near southeastern Oklahoma, southern Arkansas, Louisiana. And when you get in those states, there are these large, robust populations. They spill into Texas, and eventually they hit Highway 82, or they hit the Toledo Bend Reservoir. You know, things that create these fragmented features on the landscape that prevent those birds from moving in.

Jason Hardin [01:33:52] And when they do begin to spill in and they find unoccupied habitats, the birds begin to disperse, and we see a lot of egress out of those areas, but we don't see a lot of ingress. So, the birds go out and they often don't find the birds and they die on the landscape.

Jason Hardin [01:34:08] So just a few of my personal opinions on what I think is happening there. But no doubt that places like DFW and I-35 are reducing dispersal patterns or opportunity for birds to find new landscapes. We know we have turkeys in high densities right on the west side of I-35. And we don't on the east side. We have turkey populations right around Fort Worth along the Trinity River, and yet we don't have them southeast of Fort Worth, DFW, on the Trinity River. It's a river corridor, but there's a lot of things preventing them from moving along those traditional travel corridors.

David Todd [01:34:51] That's fascinating: these boundaries between, you know, yes, turkeys, no turkeys.

David Todd [01:34:57] Yes. And they're stark.

Jason Hardin [01:35:00] Yeah. Sounds like it.

David Todd [01:35:01] Well, so, you know, some of these things are pretty fixed in, in space, you know, whether it's I-35 or the DFW megalopolis, but, are there methods of habitat management that might be helpful in restoring and reestablishing wild turkeys?

Jason Hardin [01:35:22] You know, I don't know that we're going to change the I-35 corridor at a level that will allow the birds to move through. I don't think we're going to change DFW,

but we do have our trapping methods. We have our opportunities. And here's things we're looking at.

Jason Hardin [01:35:37] So, just southeast of DFW on the Trinity River, we've done a lot of restocking in the last decade of the Rio Grande subspecies along the Trinity River, and we've so far seen those population do fairly well. We don't expect them to be in densities like we might see in Wise County, or somewhere a little further into the Rio Grande range. But there are some birds that grow and produce poults and sustain themselves.

Jason Hardin [01:36:06] We're getting ready to do some restoration efforts around Granger Lake in the Blackland Prairie, capturing birds just on the west side of I-35, and moving them over into that landscape along the San Gabriel, Turkey Creek and some of these other areas, where the Blackland Prairie has that ecotone with the Post Oak Savanna.

Jason Hardin [01:36:26] So, these are some things that we can do to try to just leapfrog those barriers. But it all takes time and a little bit of luck.

Jason Hardin [01:36:35] You know, the weather needs to cooperate with us. We need those birds to be successful. If we can have some of those 30% nest success years where we can grow that population. And we have to put out enough numbers to really be robust enough along those riparian corridors, so when a bird goes into a new landscape it's never seen before, do we have enough of them out there that can account for getting lost to predators, to account for being lost to an F-150 on the highway that was going maybe a little too fast. You know, these things that are out there.

Jason Hardin [01:37:08] So, we like, you know, continue to put birds in the ground, try to learn as we do that and make management decisions to address what we've learned.

David Todd [01:37:22] I think you mentioned how I-35 can be one barrier to the movement of birds. But if I'm not mistaken, you also mentioned Toledo Bend. And I'm wondering if some of these reservoirs that you find in some of the major river corridors have also provided a, you know, a gap where there aren't the roost sites or there's just this physical barrier of water and the birds, you know, can't or won't fly across these, these big open stretches of reservoirs.

Jason Hardin [01:37:53] So, we look at populations, so we go to Sabine National Forest and you go down south of Toledo Bend Reservoir, south of the dam, and you see these populations of turkeys that come across and move slightly up the west side of the dam and then fade away. And then you go north of that and they're not there.

Jason Hardin [01:38:11] And then you go over to southern Nacogdoches County, and you have the Sam Rayburn. And we have turkey populations in southern Nacogdoches County. You have water to the west, you have water to the east. And we don't have turkeys outside of that area.

Jason Hardin [01:38:26] So, I truly believe that those big reservoirs are fragmenting features of the landscape. These turkey don't have webbed feet, and they certainly don't fly that far - you know, a mile across a lake. So, yeah, they're absolutely barriers in the landscape, fragmenting features, just the same way that a metropolitan area or an I-35 would be. It's a barrier that those birds are not able to cross.

Jason Hardin [01:38:54] We're actually doing some genetics work right now, taking birds from western Louisiana around the Kisachie National Forest, and trapping birds in the Sabine National Forest and other areas in southeast Texas, and looking to see the genetic relatedness of our populations that occur in those areas to those birds from western Louisiana.

Jason Hardin [01:39:17] Hey, I hope, I don't know what I'll be telling you next time we speak when we have that data, but I'm confident that we're going to see a lot of genetic relatedness, western Oklahoma to southeastern Texas. And once we get away from that, those isolated island populations in southern Nacogdoches County, those populations in central Polk County. I think there's going to be a lack of relatedness there, because we do not have the connectivity that we probably would like to see on the landscape.

David Todd [01:39:50] To be revealed soon.

Jason Hardin [01:39:52] To be revealed soon.

Jason Hardin [01:39:54] Always doing research. Always something new. Hopefully being published. That's our, always our goal is to publish it. Peer-reviewed journals are what we really like to see. And then take those and put them in popular articles that we can provide to the masses.

David Todd [01:40:10] Good deal.

David Todd [01:40:12] Well, just want to explore a little bit more of the these, you know, issues that are maybe frustrating the wild turkeys restoration, and one that I've heard about, and I think this might be interesting to explore is, is issues of grazing and also the kind of grass that is found in pastures in, you know, modern ranching operations. What kind of role do you think those two factors may have in Turkey propagation and recovery?

Jason Hardin [01:40:47] I think it's significant. And we just use Bermuda grass as an example. You think about the transition of our landscapes, our open fields, from what traditionally would have been these native warm season bunch grasses, even cool season natives. We went from bunch grasses, where you'd have clumps on the landscape, interspersed with bare ground and fobs, wildflowers, weeds, whatever you want to call them. And we've transitioned that over to these carpet-forming grasses.

Jason Hardin [01:41:20] We look at East Texas. You can think of, Bermuda grass, Bahiagrass are our two big ones. You go further north, you get into, into, oh, my goodness, these cool-season exotic grasses like fescue that just basically become really thick.

Jason Hardin [01:41:42] So one thing we talked about earlier is, these poult hatch out of an egg, and they're, you know, they're two inches tall. They can't fly for two weeks, and they have to follow their mother across the landscape. So, if a poult wants to get access to insects, it has to be able to move across the landscape. It has to have its feet on the ground. If you drive what some of my family would point out as a hay meadow, then they're like, "Look how beautiful the green grass!" That's something that we see as being another barrier, but at a smaller scale.

Jason Hardin [01:42:14] Adult birds, no problem. They can use that day and night, no issue. But the only way you get adult birds is for them to go from that two-inch baby, to get to two weeks of age where they can fly, and eventually be recruited to population. And that's the

hurdle, is getting that little two-inch baby, to find enough insects on the landscape where it can grow up to be big enough to actually use those landscapes.

Jason Hardin [01:42:40] So, whenever I drive across the landscape in East Texas, or anywhere in Texas, I see lots of exotic grasses, carpet-forming grasses. Not as much, native, warm-season grasses or forbs. Where you see our most robust populations, like in South Texas, in the Rolling Plains, the Edwards Plateau, you know, just envision these wildflowers, these scenic areas: that's brood habitat.

Jason Hardin [01:43:07] But you go into my country here in the Post Oak Savanna, some of your country there in Colorado County, we're cutting Bermuda grass. If we're not cutting Bermuda grass, it's as thick as it can be. Fertilized, beautiful monoculture. No weeds in it. That's what everybody, a lot of people, I'll say, want that to look like.

Jason Hardin [01:43:25] Turkey poult cannot move through a fertilized monoculture, but permanent grass field, it is unusable habitat. It is basically a wall for them.

Jason Hardin [01:43:38] On the other end of the spectrum, we're cutting hay in the middle of the nesting season. So turkeys begin to nest, on average, the majority of your hens are sitting on a nest incubating the eggs on April 21st. And they're going to be on there for the next four weeks. In the next four weeks, almost everybody gets their first cutting of hay. And close to 12% of our nests are lost every year to mowing alone, so mowing and cutting hay.

Jason Hardin [01:44:01] If we imagine that we think 30% nest success is a great year and we just took 12% off the top ourselves. So that's an issue.

Jason Hardin [01:44:10] Once it's cut, it's about an inch tall, and a poult's two inches tall, and everything running across there is going to see that poult. So again, you went from too thick to now it's too short, and it's not providing brood habitat.

Jason Hardin [01:44:24] Bahiagrass, the same thing. If we graze it significantly, it's going to be short. It's going to fall over on itself. It's going to be matt-forming versus, that interspersed of bare ground. That tiny little poult needs to get his feet on the ground. He can't fly for two weeks.

Jason Hardin [01:44:40] So, yeah, the exotic grasses are a significant issue. We think about what traditionally would have been on the landscape. Even an overgrazed pasture would have had lots of croton, lots of sunflowers, or goatweed, I guess I should say. I was raised in Leon County. Broom sedge. You know, there's some grass snobs out there - a lot of my friends - who don't think a lot of broom sedge. But it's a native warm-season bunch grass that creates screening cover. It provides nesting cover for quail and turkey, and screening cover for poults, and usually has weeds mixed in there with it.

Jason Hardin [01:45:18] And I'm using weeds broadly. It could be wildflowers. It could be croton. It could be some, whatever - partridge pea. These are all great things, but they're not things that you see doing well for the most part in areas dominated by Bahiagrass, Bermuda grass.

Jason Hardin [01:45:34] And it's not a small problem. If you look at the amount of acreage that has been converted from native warm-season grasses and wildflowers, forbs, whatever you want to call it, to Bermuda grass. It is mind-blowing, just the millions and millions and

millions of acres that have been transitioned into that. And every bit of that has reduced carrying capacity for wild turkeys and reduced usable space for wild turkeys. It is a constant problem and it's so hard to fix.

Jason Hardin [01:46:08] The restoration of those areas requires chemical treatments, to go out and poison everything that grows there. It can take multiple years. So, you're taking something out of production. Maybe you grow some goat weeds or something out there in between? And then the cost and the investment in native warm-season grasses, which will never, will never get to the diversity replanting of what would have occurred historically or naturally. And the financial cost on top of that is significant. We're getting help from NRCS. Texas Parks and Wildlife has their Pastures for Upland Birds program. There's an effort to go back.

Jason Hardin [01:46:47] But to go back to those millions and millions of acres, the price tag alone is impossible. And then the will to do that really isn't there at the scale we need to provide the amount of habitat. There's things we can do to alter those with fallow disking, or different things we can do to try to improve those sites to make them more usable. We know that turkeys want to spend most their time on a forest edge. So, maybe we're strategic about where we go out and change these landscapes to get rid of that exotic carpet grass and provide more bare ground and usable plant communities so we can be strategic about it.

Jason Hardin [01:47:26] But it's a lot of work and it adds a lot, a whole other layer of what we're doing.

Jason Hardin [01:47:31] We think about fire and the value that it brings for our forests. But Bahiagrass and Bermuda grass love fire, they do just fine with it. So, we're not, we can't just go out and burn and create usable habitat, brood cover, nesting cover necessarily, that's going to be useful for those birds the way we need it to be to rapidly grow that population.

Jason Hardin [01:47:54] And that is a big, big factor for us - is what brood habitat is available and it's not available. And for the most part, we see a lot of birds today raised in forest, because the pastures just aren't usable. And historically, I mean, you know, if you walk across a pasture versus in your woods, there's going to be a lot more insects in that pasture, but are those insects available? And a lot of times they are not available to those poults.

Jason Hardin [01:48:23] So, we've definitely changed the landscape and its ability to produce and grow turkeys.

David Todd [01:48:33] That's fascinating, you know, just the thought of this little poult as kind of an indicator for the health of, you know, a million acres of grassland that may no longer exist in that kind of native form that it evolved to use.

David Todd [01:48:51] So, something else I thought you could give us some insight on as far as turkeys and their viability, is predator impacts. You know, I imagine, as you said earlier, you know, there are a lot of creatures that like little tasty bit of protein, and these poults are just bite-sized. What can you tell us about raccoons, foxes, feral hogs, other kinds of ... maybe Cooper's hawks, I think you mentioned.

Jason Hardin [01:49:19] Sure, sure. No, I mean, like a lot of animals in the landscape, there's not a lot of them that are dying of old age. About 70% of our nests fail. You know, some of that is human impact. But for the most part, those nest fail because they are being preyed upon by

whatever animal likes meaty, you know, sources. And those could be, carnivores or omnivores.

Jason Hardin [01:49:49] There's no lack of research that shows that, you know, most of our nests fail, and most of the nests fail because of some predator impact. Turkeys are quick to abandon a nest in some situations, especially if they haven't spent a significant amount of time incubating those eggs. And a lot of our hens that don't abandon die on the nest.

Jason Hardin [01:50:13] And the list of species that impact those nests is significant. And, you know, a lot of what we hear about is predator control, and I think a lot of people don't understand the scale at which predator control would have to occur to make an impact for, say, a six-week nesting window.

Jason Hardin [01:50:40] It's so intensive. And like everything, so when we talk about managing for wild turkeys, we're talking about prescribed fire on an annual basis. We're talking about, we're going to go out and mow to try to improve habitat or, or not. In some cases, we're making it worse. But there's a window there where you have to do it annually.

Jason Hardin [01:51:02] You know, these are things that we have to constantly be doing to improve habitat for wild turkeys. And the same would be true for any kind of predator component.

Jason Hardin [01:51:11] But when we look at a property that's dominated by Bahiagrass and we want to improve habitat for wild turkeys, first of all, well, maybe they nest in that hay meadow. But do we cut that hay meadow during their nesting season? If the nest isn't lost to haying and the poults do hatch, can they get out of that Bermuda grass field? Maybe the predator finds it. Maybe they don't.

Jason Hardin [01:51:37] So, I think the first thing we have to do if we want to sustain wild turkeys, is to think at a landscape scale. How do we create everything that bird needs - nesting habitat, brood habitat, simple, usable space. And that being something a turkey can see through and move through - not even quality habitat - but just usable.

Jason Hardin [01:51:58] What can they use? Imagine some of that country in Colorado and Austin County, where the woods are so choked with yaupon that you wouldn't dream of taking a jog through those woods, or even a brisk walk. That's not turkey habitat. It's not usable space.

Jason Hardin [01:52:12] So, I think the first thing we have to think about, when we think about mitigating predation, is we got to provide what they need as far as usable space at a large scale, across a large landscape.

Jason Hardin [01:52:22] For those landowners, and there are not a lot of them out there who are doing everything right for wild turkeys, you know, a lot of diverging, priorities on the landscape, but for those people that are doing everything right for wild turkeys, and they want to do a little more predator control, it might be something that would work for them.

Jason Hardin [01:52:41] But for those landowners who have that yaupon, thick forest understory, who want to go out and trap hundreds of raccoons, it's not one or two or five or ten. Hundreds of raccoons would need to be removed to have an impact. And it needs to be intensive.

Jason Hardin [01:52:59] For those individuals who want to impact coyotes and bobcats, there was an artificial nest study done in East Texas and American crows, in that study, were the top nest predator. Almost 50% of the nest loss were to the American crow.

Jason Hardin [01:53:15] Laws are hazy on if you can even take that.

Jason Hardin [01:53:19] We know that great horned owls are big predators on wild turkeys, while they are roosting in trees - just go up and grab them, rip their head off. Nasty little things, you know?

Jason Hardin [01:53:30] And, you can't, it's illegal to do anything to birds of prey. So owls, hawks, eagles, vultures: you can do nothing.

Jason Hardin [01:53:41] So, no matter how intensive you want to be, if you were to take predator control as an approach, and I'm all for anybody taking whatever they want to do to try to improve wild turkeys, there's going to be something that you can never do. You can never take some cohorts of those predators out of the population. So, they'll always be there.

Jason Hardin [01:54:02] And even if you do, just like fire, just like all these other practices, it will be an annual event. And a lot of people lose motivation when they realize you almost have to have a full-time employee out there doing that, at a certain scale, to have an impact where you're going to increase nest success or poult survival.

Jason Hardin [01:54:21] But again, I'm not opposed to people doing predator control. I think, under the right circumstances, it can have an impact. But I don't think a lot of people recognize that shooting that coyote out of their deer stand probably did not make an impact.

Jason Hardin [01:54:38] And a lot of our predator problems are stuff that we created ourselves. You look at deer feeders on the landscape. Raccoons - anybody that puts a camera on a deer feeder will realize that we are supplementing raccoon populations. Raccoons thrive on deer corn. There's been some diet studies on raccoons, and in almost every diet study for raccoons in modern history, corn is one of the major components in their diet. So, we are actually ... you know, we need to look in the mirror every now and then and recognize that maybe we're the problem.

Jason Hardin [01:55:17] So, yeah, I guess I get a little animated about the predator thing. But, it is an issue most nests fail due to predation. Most poults die to predators. And the solution is intensive.

David Todd [01:55:38] So, another factor that would be good to understand, you know, through your eyes, is weather conditions and actually climate shifts, you know, that a lot of Texas is drying and warming up. Does this have a role to play with turkey success?

Jason Hardin [01:55:59] I mean weather has always been a huge player for, especially you look at the semi-arid regions of Texas, where up until around 1992, 1995. I'm just taking a window here the last 30 years, and you see this kind of an average year, a wet year, an average year, a drought year, and it was a little more up and down. And our populations kind of were adapted to that.

Jason Hardin [01:56:26] In the last 30 years, we've seen average year, drought year, drought year, intensive drought year, extremely wet year, you know, so it's just the regularity of it. And, you know, there's always been this question of, in Texas, if you don't like the weather, just wait, you know, five minutes. But, the changes have occurred, and we're seeing earlier springs. We're seeing triple digits occur.

Jason Hardin [01:56:56] 2022, we had a significant drought where we were hitting triple digits in May. Last year was a pretty good year for wild turkey production, but it was almost shut down in late June due to the intensive heat that occurred.

Jason Hardin [01:57:12] So, it is something that plays a significant role, even in East Texas, where we have more predictable weather patterns. If it gets too wet during the nesting season, it could be a problem.

Jason Hardin [01:57:27] So, weather is probably one of the biggest drivers that we have for wild turkeys. You know, every year it seems like my dogwoods bloom a little bit earlier. Maybe that's just a short-term impact, I don't know, or a short-term change. You know, people don't live very long, so, I don't know that I'm seeing the full picture, but we know that weather plays a significant role, and we know that at least in the last 30 years, that the weather has been different than what it was the 30, 50, 100 years prior to that.

Jason Hardin [01:58:06] So, the long-term impacts, I think we'll see more intensive booms and busts and, in some situations where we end up with these island populations, we're going to be more susceptible to losing some of those populations.

David Todd [01:58:23] Okay. Well, just sort of wrapping up some of these thoughts about what some of the challenges are for these turkeys, I've read that some turkeys have been susceptible to avian pox, REV. Is that something that you feel is significant, and that's something that should be a concern?

Jason Hardin [01:58:48] It's something that we pay attention to. So, we get a lot of questions. You know, if we have a local population decline, one of the quickest things people will say is, you know, disease went through. We're having issues with disease.

Jason Hardin [01:59:01] So, one of the things that we do at Parks and Wildlife, or we've been more intensive about, is when we go out and trap birds, is we're collecting serum samples, we're collecting fecal samples, and we want to try to at least create these snapshots in time.

Jason Hardin [01:59:17] In 2024, we were seeing, you know, 1% of the population or 2% of the population had had avian influenza, or Low Path AI, or something along those lines. We want to create these snapshots in time. So, if we do see a decline or hopefully we continue to catch birds and collect those samples, if something does spike, we can capture that.

Jason Hardin [01:59:45] Every wild animal has diseases, or is exposed diseases. Almost all are exposed to parasites. But does that have a population-level impact?

Jason Hardin [01:59:56] One of the things we're looking at closely now is, lymphoproliferative disease virus. We say LPVD, for short. And we don't know what the long-term impacts of that is, but it's showing up everywhere we test it, somewhere as high as 70 to 80% of the population. It's believed that, a disease like LPVD may reduce fecundity. So how

successful is that hen at laying a certain number of eggs? Anytime that impacts production or recruitment will have an impact on that population.

Jason Hardin [02:00:29] But, you know, the jury's still out on what that's going to be.

Jason Hardin [02:00:32] But disease is something we've always looked at. But for the most part, we don't feel like it's a population-level influence - nowhere near like what our weather events are having in Texas.

Jason Hardin [02:00:45] Like I said, 2022, well, I call it the long hot winter because we didn't see green up until really late in the year. And we're having those triple digits in May and almost no nesting effort and very little nest success.

Jason Hardin [02:01:02] So, we know that those weather patterns have a significant impact. We know that available habitat has a significant impact. We don't know to what level disease influences that population, but we don't think it's significant.

Jason Hardin [02:01:15] You look at, waterfowl dying of High Path avian influenza. And sometimes we see chicken houses or turkey houses that have major influences.

Jason Hardin [02:01:25] We don't see that in the wild to any significant degree with wild turkeys or other galliforms. It's usually birds that are in a specific situation. It occurs very localized, and then it's over. So, as far as, you know, populations of wild turkeys across the landscape, being at waterholes where waterfowl visit and this AI is spread, it's just not occurring.

Jason Hardin [02:01:55] So it's not something that I have a significant amount of concern with right now, but it's something that we monitor and we try to keep tabs on.

David Todd [02:02:03] Good, good, good. It's nice to know that some of the problems that may be existing aren't ones that have impacts at scale.

David Todd [02:02:15] Well, good, good.

Jason Hardin [02:02:16] Yeah.

David Todd [02:02:17] Last question about some of these impacts that may be a challenge for wild turkeys. And, I'm wondering if we could go back to your master's when you were looking at quail and some of the covey dynamics with dogs and hunters. I imagine you still have an interest in quail. And I'm wondering if some of the challenges that you see with turkeys are also ones that you're familiar with another major upland bird, quail, you know, the bobwhite quail, maybe some of the scale quail and so on as well.

Jason Hardin [02:02:52] Yeah. I mean, it's a lot of habitat-driven stuff. It's a lot of weather-dependent issues.

Jason Hardin [02:02:57] So, quail being a smaller game bird that is exposed to a wider breadth of predators, typically occurs earlier. So, we look at the Rolling Plains and we have a lot of concerns over what's our quail population doing in the Rolling Plains. Is it going to remain sustainable? And that's something we've been paying attention to for at least the last

decade, if not more. And now, low and behold, we're starting to see declines, or what we believe were declines, in wild turkeys.

Jason Hardin [02:03:26] So, I believe wild turkeys are influenced by what is occurring to other galliforms in the landscape - quail, pheasant, what have you - but maybe at a different temporal scale. They're bigger birds. They're longer-lived. And they're much more generalist in the habitats that they will and can use.

Jason Hardin [02:03:49] So, I believe it's a slower process, and more opportunity for reversing those trends for wild turkeys because they are, you know, such generalists and they have such long lives that they're able to get beyond whatever maybe that short-term drought was, compared to a quail that's average lifespan is about ten months.

Jason Hardin [02:04:13] So yeah, we see, we do look at what's happening with quail and other galliforms in thinking about what impact would that potentially have on wild turkeys.

Jason Hardin [02:04:25] And a lot of times it's habitat-driven. But a lot of our habitat is driven by available moisture and the timing that moisture, rainfall events.

David Todd [02:04:34] Good.

David Todd [02:04:36] So one thing I just wanted to kind of insert here, if you don't mind. It's been fascinating to me - I got a chance to talk to, one of your colleagues, Jim Dixon - and he said that one of the most peculiar things that he has seen is that birds that are in what he thought was ideal habitat are not doing so well. But then, like you were saying earlier, there are these nuisance birds that are in suburbia that are doing great.

Jason Hardin [02:05:05] Yeah.

David Todd [02:05:06] And I was wondering if you can tell us, you know, why those two things may be happening.

Jason Hardin [02:05:11] Oh my gosh. You know, it's just so hard to to wrap your head around. You know, why would a bird... I can barely. I'm on a suburban street, on one of these, you know, small towns, or not small, but, you know, like Plano, Texas, on the edge of Dallas. And I'm getting called about a turkey in someone's backyard that's got fishing line wrapped around his feet and can I come help them.

Jason Hardin [02:05:38] And, you know, like, why is that turkey there in the first place? And in some states, I mean, there are urban populations that are causing so many issues that it's one of their primary concerns. It's not a primary concern in Texas yet. But it's getting there.

Jason Hardin [02:05:55] Sun City, a retirement community outside of Georgetown was having gobblers jumping up and attacking some of the residents along this creek in Sun City this year. And you go there and you try to trap these nuisance gobblers, these specific birds, and you look around the corner and there's three hens with this huge brood flock of babies walking through this neighborhood. And it's like, how is this possible that you can do this well, meanwhile, we built a 10, 20,000 acre co-op in East Texas where we're burning and doing everything right, and we're just praying for 10% nest success.

Jason Hardin [02:06:36] And it's just, it's really hard to understand and put your finger on. To some extent, you know, maybe there's a reduced predator population in those areas, in those suburban situations. You know, you see all these geese and ducks and their semi-tame and nothing's eating them. Why not? If there was a predator there that could get eat them, you'd think they certainly would take advantage of that easy little morsel walking around the landscape.

Jason Hardin [02:07:08] There's a lot of greenbelts out there. And again, I mean, leash laws. And you're not allowed to let your pets run wild like they do here in the country.

Jason Hardin [02:07:16] So, I can't really say. I could just kind of assume that somehow these birds are generalist enough that they've been able to acclimate to those people. And in some situations, maybe they think they're competition, where they're jumping on people and actually attacking them, and their cars, and other things.

Jason Hardin [02:07:37] So, yeah, I'm sure it's something that we'll have, as we see urban populations growing and expanding in Texas and across the country, that will become a bigger issue and maybe more research occurring to look at how to address those.

David Todd [02:07:54] God. Yes. So when we're at the outset of this nice interview, I introduced you as a liaison with a number of groups outside of Texas Parks and Wildlife where you're employed. But it sounds like you work with these colleagues that are in other entities - agencies, non-profits, trade groups among different agencies. I think some of the groups that I've heard you are involved with - the National Wild Turkey Federation, the Southeast Wild Turkey Working Group, the Western Turkey Technical Committee. Can you give us some examples of how these groups work and why you find it a benefit to collaborate with them?

Jason Hardin [02:08:38] Sure.

Jason Hardin [02:08:39] So, you're looking at like-minded individuals, same background, same education, working to manage the same species across large landscapes. The issues that are impacting wild turkeys in the Southeast are very similar to what's happening in Texas. The issues that are impacting at least some of our Western states are very similar to what's happening in Texas.

Jason Hardin [02:09:03] The National Wild Turkey Federation takes all of them together and provides several meetings a year. So, we're able to sit there and talk about what are we doing for regulations in Texas, versus what's happening in Louisiana and Arkansas, in Oklahoma and Tennessee. How are you monitoring those populations? How am I monitoring these populations? Is there a way we can do it to be systematic?

Jason Hardin [02:09:25] I mentioned the summer turkey survey, bird survey, hen-poult survey - working with that group to compare apples to apples across multiple states. And see how our population is doing compared to their population.

Jason Hardin [02:09:41] There are some states that have these locust explosions and their turkey populations boom. And you can look at that across Kentucky and Tennessee and these areas where that occurs, you can see that, you know, it's not just, you don't just put a boundary around Texas and say, "Well, this is our population", you look at it across the entire range of that species and what happened there and, and why, and get those explanations.

Jason Hardin [02:10:10] I can look at how people are monitoring at large landscapes in Florida. They create this grid system across the state and try to look at distribution of the population. Well, I can just go there and steal that and use it in Texas.

Jason Hardin [02:10:23] And it's just this brain trust that creates opportunity to create new ideas, share old ideas and hopefully, maybe I can do it in this state, where you can't, and we'll see some success.

Jason Hardin [02:10:36] We did UAV, looking at research on how do you count turkeys flying an unmanned aerial vehicle with a forward-looking infrared camera. Well, Oregon's about or Washington's about to do that same research there. In Nebraska, Kansas, Oklahoma and Texas we're all collecting disease and parasite samples on the Rio Grande subspecies across our states.

Jason Hardin [02:11:00] And we're going to look and see what does that look like from state to state. Is there ... because we just drew these arbitrary boundaries. You know, the wild turkey doesn't recognize your fence line or a state line. It's going to go where it wants to go. And, we can start trying to see how do these change across the landscape.

Jason Hardin [02:11:20] And, it just is of tremendous value, to get there and speak solely about wild turkeys and what needs to be done. We create research priorities. What's your research priority? What's mine? Well, where's the funding for that? Let's show what our priorities are, send that to the National Wild Turkey Federation, and then they can put out a request for research proposals that specifically address what we identified as our research priorities in these different states.

Jason Hardin [02:11:50] So, it's just a collaboration.

Jason Hardin [02:11:52] We do it in Texas with our upland game or technical committee where staff in Parks and Wildlife are communicating: what do we need to do, how can we do better? And then we just grow that with the Southeastern Association, the Western Association of Fish and Wildlife Agencies and with the National Wild Turkey Federation at a national scale.

Jason Hardin [02:12:09] We even have people from Canada that participate in that. We've had people from Hawaii come and participate in that, you know, these far-away places that, you know, maybe they have some really good ideas that we can utilize and put on the ground here.

Jason Hardin [02:12:22] And if not, it's just information and education for us.

David Todd [02:12:26] Yeah, I can see that sort of cross-fertilizing. It seems like that makes a lot of sense.

David Todd [02:12:34] So, one more thing about these management and research issues: I think you've mentioned a number of times in the course of our visit that, especially in Texas, private landowners are a big part of the puzzle. And you and your family, I think have been running the Johnson Ranch near Oakwood for a number of years. And...

Jason Hardin [02:12:55] Yes.

David Todd [02:12:55] I'm wondering if there are lessons that you have taken home to manage turkey or manage habitat to make it more suitable for turkey, if, you know, they're not as common yet as you might hope.

Jason Hardin [02:13:11] Absolutely. You know, I think just through the education that I've had going to college, working with different agencies and working with Texas Parks and Wildlife wildlife biologist and all these different entities - the USDA farm bill with NRCS and Texas Forest Service - I've made an effort to get any biologist I can on my property to go out with me, and I don't care what agency they're from, and just ride around. Tell me what you think. What would you do here? What would you do different?

Jason Hardin [02:13:40] So ever since college, I've been burning on our property. It hadn't seen intentional prescribed fire for, I don't know, maybe 70, 80 years. I'm not sure how long it had been since that area burned. And we've been able to transition it from a forest with a chokey yaupon understory to a nice, beautiful, open understory, for the most part.

Jason Hardin [02:14:03] But it's ongoing. Every couple of years, we reburn the same burn units.

Jason Hardin [02:14:08] We've made a lot of efforts to restore native grasses where we can. We deferred grazing in places. We've tried to do rotational grazing practices.

Jason Hardin [02:14:18] But it's a labor of love. It's a lot of work, but it's something that gives me a lot of joy, an opportunity to share with my family. There's nothing more fun for me than watch my 14 year old son walk with a drip torch and light a fire.

Jason Hardin [02:14:33] And to be done with that and look back and see the results of that treatment: a lot of times in our jobs, we go to work and we do the same thing day after day, and you don't see the results. But when you work on a piece of property, you do a management practice, you turn around and you see the results of that practice fairly quickly.

Jason Hardin [02:14:52] But at the same time, over a year or two, three years, you see how the transition, the succession, takes place, and you have to go back there and redo that practice.

Jason Hardin [02:15:03] So, yeah, I think I've been very fortunate to have had a career that created an opportunity for me to learn all these different practices and then have a canvas that I can go out and paint that picture, to some extent. It's a little abstract at times, but, you know, it's fun and I enjoy it.

Jason Hardin [02:15:23] And, I learn from everyone around me, not only the agencies, but also other landowners and how they've been successful at what they do and, you know, try to replicate that when possible.

David Todd [02:15:36] Live and learn.

Jason Hardin [02:15:39] Yes, sir.

David Todd [02:15:40] Well, we're getting close to this generous amount of time you've given us, and I wanted to thank you first before we start to wind down.

David Todd [02:15:51] So, I would like to know - I mean you've really dedicated a lot of your life to the wild turkey - and I'm wondering when you think about the bird, what sort of value do you see in it? I mean, whether it's ecological or just sort of as an ethical thing to take care of a fellow creature on the planet? Or is there some personal, quirky thing that you see in this bird?

Jason Hardin [02:16:19] You know, I think it just expands all of that. So, just the idea of seeing the bird on the landscape, and the idea of just seeing a wild turkey walk across a piece of woods that I've burned someday just thrills me, that that opportunity could potentially exist out there.

Jason Hardin [02:16:40] So, I would say that starting at my own personal backyard, just the opportunity. You know, we talked earlier about that void in Texas where there are no birds. I'm in the middle of that void. And I think that motivates me to no end, to try to do something positive.

Jason Hardin [02:16:56] Same thing for quail. You know, I don't have quail on my property, but it doesn't mean I can't create that situation.

Jason Hardin [02:17:02] It serves as an education for me, and I believe it gives me the opportunity to go out and talk with our constituents across the state about not only is this the theory, but I've done it in practice and this is the result. So, I can show you photos of where we started and where we finished. So, I think it creates a real opportunity for me to share that with the larger community, if that's just birders, if it's just people in Dallas who just want to know that something positive is happening on the landscape.

Jason Hardin [02:17:33] You know, I learn all the time, a lot of the practice that we're doing is creating opportunities for, like, the Houston toad, an endangered species that occurs in the Post Oak Savanna, historically the same type of habitat that I have, and they love wild turkey management practices.

Jason Hardin [02:17:52] One thing that's a big concern today is water, quality and quantity of water in Texas. And a lot of the practices we're doing are reducing those invasive species that are water-drainers, and putting more native grasses on the ground and creating opportunities to infiltrate and save more water.

Jason Hardin [02:18:12] I think the idea that, you know, I grew up as a hunter. I didn't hunt wild turkeys until I moved to South Texas whenever I was 20-something years old. And to this day, I will travel anywhere in the country to go hunt wild turkeys. I love it. I've hunted wild turkeys in Oregon and California and Idaho and Oklahoma and New Mexico and, you know, mostly the Midwest and the Western states.

Jason Hardin [02:18:37] And I get so much joy of seeing new landscapes that I've never been to before, and seeing the same bird that I've managed living in the mountains, or living in the prairies, or wherever they may be.

Jason Hardin [02:18:50] So, that's, that's a great joy for me.

Jason Hardin [02:18:52] Getting out early in the morning and here in a bird gobble on a roost in a site where we've restored wild turkeys, or done the restocking efforts. To sit there beside

that landowner, just as the crack of dawn comes out and that bird's gobbling in a tree, and both of us just grinning ear to ear. It's his property. The birds are on his land. But it makes me so happy to see that happen, that we're seeing that sustainability. And then when the landowner sends me a picture of a hen with a brood of poults.

Jason Hardin [02:19:21] You know, a lot of people want to send you a picture of a gobbler with a big old beard. I don't care about that. I want to see a hen with a bunch of little babies following her. That's what really means something to me.

Jason Hardin [02:19:31] So, I think, just for our constituents, for people like me who are out there, those hunters, and then just the people who just want to know that that bird is on the landscape where it historically would have occurred. I don't know that I could say that one outweighs another. It's a whole package.

Jason Hardin [02:19:47] And, and yeah, I just am very fortunate. I often tell people that I have the best job at Texas Parks and Wildlife, and I may have one of the best jobs in the country. I don't know.

David Todd [02:19:58] That's a wonderful place to be.

David Todd [02:20:00] Well, you know, while we're talking about jobs, you have a couple of decades of being a wildlife biologist under your belt, and I was wondering, you know, as you look back, you know, mid-point in your career, lots more stuff to come, but a lot already happened. What do you think about this career of being a biologist, working on animals and landscapes?

Jason Hardin [02:20:28] Yeah, I think I'm exceedingly lucky. You know, I stumbled into this field just by meeting some new friends in college who were getting a wildlife degree, and some of them were doing wildlife management today and some aren't, but I just stumbled into it and got lucky. I stumbled into going to work at Caesar Kleberg Wildlife Research Institute. I stumbled into a master's degree. You know, there was a little bit of effort, but a whole lot of luck in getting to do what I do, and I'm not getting rich doing it, but, golly, there's more to it than money alone.

Jason Hardin [02:21:03] Just, like I mentioned, the joy that you get out of it. I think about myself as an early biologist walking around with a landowner and a landowner, said something to me, he said, you know, whatever practice it was, "You know how you can fix that, right?" And then I threw out, "Oh, I know, I know."

Jason Hardin [02:21:20] And I regret that so much. I wish I just sat there with my ears open and said, "Please tell me how you would do that." I think what a mistake I made early in my career was, was being an "I-know guy". And I don't think I did know. I think there was a lot I could have learned.

Jason Hardin [02:21:38] And so, I think since then I've tried to be more open-minded and do a little more listening than I do talking, which is hard for me sometimes because, I don't have trouble talking, but, but listening is something that I think is important in any part of your career, and in hearing people out, hearing what they have to say, hearing how they approach things. And maybe it works for you, maybe it doesn't, but at least, you know, you didn't walk around and say, "I know."

Jason Hardin [02:22:07] So I think, if anybody, any new biologist is out there that's going to listen to this, someday, just listen, hear what people have to say, hear them out and, and don't think you know at all, because you don't.

David Todd [02:22:21] Might learn something. Who knows?

Jason Hardin [02:22:23] You might learn something.

David Todd [02:22:24] Well, I've learned a lot today, and I really appreciate your time, teaching us. And, so I really only have one more question.

David Todd [02:22:33] And that is, did we miss something that we should talk about before we let you go?

Jason Hardin [02:22:39] You know, I mean, there's always different things that are going on with the job. If it's restoration, if it's all the meetings we go to, if it's dealing with our constituents and trying to trying to be the resource that they pay me to be.

Jason Hardin [02:22:54] You know, right now, regulations is something that we're going through. We have a Commission meeting next week. And, we always try to do what's good for our constituents and often feel that what's good for our constituents is what's good for the bird. We mentioned earlier, we're always trying to learn how to do a better job of counting those animals, how to manage the population for what's there. And, we don't always get it right, but it's a constant learning process.

Jason Hardin [02:23:26] And as I get ready to go to the Commission next week and talk about regulations that we'd like to propose and see implemented, I hope our constituents will be patient with us as we, we try to learn and do the best thing for the species, so in turn, it will be the best thing for our constituents.

Jason Hardin [02:23:44] But we don't always get it right. But we're trying and we're working with the best information we have.

David Todd [02:23:49] Yeah, well, you're moving in the right direction, I'm sure.

David Todd [02:23:54] Well, again, thank you for taking us down this road of, you know, research and restoration for the wild turkey.

David Todd [02:24:00] And I wish you the best. And, again, want to just thank you for taking some time today to, you know, give us a picture of what's going on.

Jason Hardin [02:24:12] Well, thank you. David, it's been a pleasure. Got to meet you 20 years ago or so, whatever it was when I was in Audubon. And you don't look a day older. I know you do wonderful things for prairie restoration and management and appreciate everything you do, and this as well - getting the word out and the history of what has been done and maybe where we're going into the future. So, thank you for what you do.

David Todd [02:24:39] Well thank you. Kind of you to say that.

David Todd [02:24:43] Have a good evening. And, good luck the rest of the week. I guess you're out of the office and on to new things.

Jason Hardin [02:24:49] Yes, sir.

David Todd [02:24:51] Maybe no more meetings for a while.

Jason Hardin [02:24:53] For a little while.

David Todd [02:24:56] All right. I'm going to turn off the recording and let you go.

Jason Hardin [02:24:59] Thank you, David.

David Todd [02:25:00] Thank you so much.