

**TRANSCRIPT****INTERVIEWEE:** Dean Keddy-Hector**INTERVIEWER:** David Todd**DATE:** June 7, 2022**LOCATION:** Austin, Texas**SOURCE MEDIA:** MP3 audio file, Zoom MP4A recording**TRANSCRIPTION:** Trint, David Todd**REEL:** 4111**FILE:** NorthernAplomadoFalcon\_KeddyHector\_Dean\_AustinTX\_7June2022\_Reel4111.mp3

**David Todd** [00:00:03] Okay. Well, good afternoon. David Todd here. I have the privilege of being here with Dean Keddy-Hector. And with his permission, we plan on recording this interview for research and educational work on behalf of the Conservation History Association of Texas, and for a book and a website for Texas A&M University Press, and finally, for permanent storage and cataloging and public access at the Briscoe Center for American History at the University of Texas at Austin. And he will keep all rights to use the recording as he sees fit as well.

**David Todd** [00:00:50] And I just wanted to make sure that that's okay with you.

**Dean Keddy-Hector** [00:00:53] Oh, yeah, that's fine.

**David Todd** [00:00:55] Great. Well, then let's get started. It is Tuesday, June 7th, 2022, and it's about 2:10 p.m. Central Time. My name, as I said, is David Todd. And I am representing this nonprofit group, the Conservation History Association of Texas. And I am in Austin, and we are conducting a remote interview with Dean Keddy-Hector, who is also based in the Austin, Texas area.

**Dean Keddy-Hector** [00:01:31] Mr. Keddy-Hector is a wildlife biologist who has worked with a number of organizations - the Chihuahuan Desert Research Institute, as well as at Texas Parks and Wildlife, in its Natural Heritage Program, within the Endangered Resources Branch. And he's also worked as a staff scientist at Texas Public Employees for Environmental Responsibility, also known as TXPEER, and has taught biology at the Austin Community College and Huston-Tillotson University.

**David Todd** [00:02:03] Today we will hear about his life and career in general, but also focus in on his work on behalf of two birds, the aplomado falcon and the golden-cheeked warbler, as an example of the kind of work and impact that he's had.

**David Todd** [00:02:21] So with that short introduction, I just wanted to thank him for being here with us and maybe ask a preliminary question.

**David Todd** [00:02:30] And that is, I understand that you were born in McAllen, but grew up here in Austin, and I was hoping that you might tell us about your childhood and early years and if there might have been some people or events in your life that influenced your interest in animals and conservation.

**Dean Keddy-Hector** [00:02:52] Well. We lived in Three Rivers, Texas, actually, between McAllen and Austin, but, gosh, I actually remember most about Three Rivers. We had good friends, the [Dean] Metts, who had a big ranch outside of Three Rivers. Being out there and having one of the wranglers give me a garter snake he had captured that I kept for a while,

and I still remember that really vividly. And then just being outdoors so much in the Three Rivers area, you know, somewhat in McAllen, and, I mean, trips to the beach and of the dove barbecues, in the aftermath of white wing dove hunts down there that my dad would participate in.

**Dean Keddy-Hector** [00:03:40] But then we were up, we moved to Austin, probably coincident with one of the big citrus industry devastating freezes in the Valley, by the time I was seven, as I started second grade there. And I think, like later in elementary school, I took some classes at the Austin Natural Science Center, which in those days was over in the back of Deep Eddy swimming pool. And I got to go out snake-catching, herp-catching with, I guess, an undergraduate from Texas A&M. And I really enjoyed that.

**Dean Keddy-Hector** [00:04:19] My parents got me books about snakes and my godmother, Mrs. Huntley from McAllen, got me a book about falconry when I was about ten. And, you know, my parents are pretty permissive about keeping reptiles in the house. Later on, I even kept poisonous snakes at home. A lot of parents wouldn't put up with that, but mine did.

**Dean Keddy-Hector** [00:04:42] And then I had great experiences in the Boy Scouts back in the days, when they were much more outdoor-oriented, so you could do canoe trips on the Colorado River every August, nice and cool in August, and be catching turtles, pulling turtles off of people's trout lines. And then I had a turtle pond in the backyard, in the aftermath of some of those trips.

**Dean Keddy-Hector** [00:05:05] And somewhere along in there, later, probably middle school, I raised a red-tailed hawk that was kind of linked up with my interest in falconry and birds of prey in general.

**Dean Keddy-Hector** [00:05:19] And, that was a kind of a nice upbringing. You know, you have to be outdoors to encounter wild organisms and sometimes it's nice to catch them and keep them in captivity for a while, so you really get to know them.

**Dean Keddy-Hector** [00:05:38] And I think nowadays things have been shifted a little bit more towards buying reptiles and amphibians in pet stores and people kind of lose the, oh, the fun of going out there and developing a searching image for them, learning enough about their ecology in the wild, their appearance, so that you can actually find them. And, you know, then when you're, you know, you have them in captivity for a while, releasing them back to the wild.

**Dean Keddy-Hector** [00:06:05] But that was pretty much it for probably up through high school. I had a lapse, I think, in my natural history orientation when I got into sports in high school and kind of got back and found that, linked myself back up with natural history in the aftermath of high school.

**Dean Keddy-Hector** [00:06:29] But, you know, good upbringing, I guess at the time we were in Austin, Northwest Austin, a lot of the area around Murchison Middle School in Northwest Parkway hadn't been developed yet, and so I could go roam around there along the creeks, and catch snakes and turtles and, you know, on occasion, trespass on some of the ranches that were adjoining, you know, some of these public land sites that have long since become high-density subdivisions. And, you know, it's nice, nice for kids to be out there just exploring without adult supervision. But yeah.

**David Todd** [00:07:09] Did you find that there were any opportunities to do this with, with other kids who had that same interest in, you know, turtles or garter snakes or, you know, other kinds of wildlife? Or was this more like a solitary kind of journey?

**Dean Keddy-Hector** [00:07:31] Well. I guess in middle school I ran into, made friends with a guy named James and Chris Knox, whose family, I guess his grandparents had owned the Knox Ranch, which was, I guess they owned about half of the quarry where Murchison Middle School is now and had the old ranch house there. And Chris's parents lived there. And he was really into reptiles and amphibians. And so we'd, we'd go out looking for things to catch. And then later on, gosh, he had an anaconda. And we jointly took care of an American alligator that someone had captured on the Colorado River. This young American alligator had all these kind of interesting experiences on up into high school.

**Dean Keddy-Hector** [00:08:30] But you know, there were other kids in Boy Scouts who were interested in natural history. And they had a, there was a camp "Tom Wooten", which is right there, used to be where the Loop 360 bridge crosses Lake Austin. It was a wonderful Boy Scout camp with a nice waterfront and they had an excellent nature center there where they kept, gosh, they had a seven and a half foot bull snake there that was just awe-inspiring.

**Dean Keddy-Hector** [00:09:00] And I caught my first poisonous snake there, a copperhead there when I was 12 or 13 and it scared the hell out of the counselors that were, saw me walk out of the cedar break holding a copperhead, safely.

**Dean Keddy-Hector** [00:09:16] But, but, yeah, I don't remember anybody except Chris Knox who had a strong interest in natural history, at least in herps, at that point in my life.

**David Todd** [00:09:36] [You know, let me just intervene here just for a moment. I see you're holding your hand on your chest. And that, I think can block the little microphone.]

**Dean Keddy-Hector** [00:09:48] [Oh.]

**David Todd** [00:09:49] [So you might want to...there you go. That's, that'll give us a little better recording.]

**David Todd** [00:09:53] So you mentioned the wrangler at the, was it, the Metts ranch down in South Texas?

**Dean Keddy-Hector** [00:10:04] Metts Ranch.

**David Todd** [00:10:04] Metts Ranch. Excuse me. I'm sorry.

**Dean Keddy-Hector** [00:10:04] Dean Metts. Yeah, his name was Dean Metts. And I've forgotten his wife's name. They were just lovely people that would host us. My dad was a coach and my mom was a elementary school teacher. But so like the coaches often get feted by the local ranching community, and so they would have us out to their place a lot.

**Dean Keddy-Hector** [00:10:32] Well, I was curious if f this wrangler, or maybe your scout leader, or some of the counselors at the Nature Center, if any of them stand out as folks that sort of took you aside and saw that you were sort of a precocious kid that had interest in this, and was there anybody like that that that really pops up in your memory?

**Dean Keddy-Hector** [00:11:00] I don't know, I don't remember being singled out by a counselor. I mean our scout leaders who are all, you know, parents of my peers and the troop were pretty tolerant. They kind of knew that, you know, if there a snake, they should call me to come catch it. And, you know, which is better than just immediately killing every snake you see. You know, they knew they had a kid in the troop that was really interested in those organisms. And so, they made an effort to kind of give me the opportunity to come out there and make the capture and do whatever I wanted to with it. And but, yeah, I don't remember any.

**Dean Keddy-Hector** [00:11:46] I remember having an encounter with a guy who was a shoe salesman at like a J.C. Penney's there at the, uh, gosh, not Highland Mall, but the one, the one where the old Sears is in Austin, who was, actually his other job was at a serpentarium out on Lake Travis. And I remember going out there watching him handle rattlesnakes and then just work with the animals there. And that was really pretty inspiring for me just to see how he did it.

**Dean Keddy-Hector** [00:12:17] And, you know, somewhere along there, I remember reading Raymond Ditmars' biography. He was, gosh, which zoo was he a curator of reptiles at? Staten Island, I think. There was another book by or about Ross Allen, who ran a serpentarium in Florida, at Silver Springs, Florida. And so these were, these were people that I sort of wanted to grow up to be like, who basically spent their career going out catching things and photographing wild animals.

**Dean Keddy-Hector** [00:12:51] And, you know, yes, I don't remember being singled out that way, you know, until maybe high school. And, I guess there was a summer enrichment program after sixth grade - arts and sciences enrichment program - at the, what was then the university junior high school, close to the swim center at U.T. The building is still there, actually. And one of the teachers there ended up being one of my high school science teachers. And I think she really recognized that I had a strong interest in science in general. And Mrs. Gammon was her name.

**Dean Keddy-Hector** [00:13:38] And, other than that, I don't remember much, you know, special attention paid towards me because of my interest.

**David Todd** [00:13:55] Maybe there was a degree of benign neglect, just tolerance and allowing you to explore these interests.

**Dean Keddy-Hector** [00:14:03] Yes.

**David Todd** [00:14:04] You know, one of those is what are the interests that sort of drew my attention from what you were telling me is, is your interest in falconry from very early days. And I think you said you had caught a red-tailed hawk and had worked with it. Is that right?

**Dean Keddy-Hector** [00:14:24] Yeah. A fledgling, early fledgling. Actually, a big female red tailed hawk we named, "Babe". And, you know, this was an outgrowth of the book my godmother, Mrs. Hutley, gave me when I was ten, written by British falconer, J. Mavrogordato, called, "A Hawk for the Bush", about training European sparrow hawks. And somewhere, I guess, along in there my parents got me a book by Sprunt, kind of rewriting of May's "Birds of Prey of North America". It has all these really nice paintings by Major Allan Brooks in it, but, you know, getting at the natural history of the species rather than the falconry orientation.

**Dean Keddy-Hector** [00:15:13] And then, gosh, I guess about the same time, there was some guy who showed up at our elementary school who was doing a raptor demonstration. But I remember being it being up on the stage. This would have been Gullett Elementary School in north Austin, no longer north west Austin, but north Austin. And he was calling an eagle out to his fist. And so that was enough for me.

**Dean Keddy-Hector** [00:15:42] And, you know, my mom would take me to the, like one of the, well, the nearest Austin public library branch, and I would read everything I could, or also the main library, when it was in the old building where the Austin Historical Center is now. And I'd, oh, find everything I could about falconry or reptiles, and go through old National Geographics looking for ... there were a couple of old articles about falconry written in the first half of the 20th century.

**Dean Keddy-Hector** [00:16:19] And, but, you know, in those days it wasn't legal in Texas. I guess it was illegal by omission because there were no falconry provisions in the state. And those didn't come along until much later, I want to say about 19.., somewhere after 1970, is when they passed laws in Texas explicitly allowing for falconry. And so I was in that period, or getting started in that period where we were leaving behind the Dark Ages, where they had bounties on birds of prey in Texas, to provisions explicitly providing for falconry in the, you know, under the auspices of the Migratory Bird Treaty. So...

**David Todd** [00:17:14] Well it sounds like you... Pardon me. I'm sorry. Go ahead.

**David Todd** [00:17:20] Go ahead. Well, I'm curious if you could tell me more about Babe and your efforts to train this bird.

**Dean Keddy-Hector** [00:17:32] Well, as a beginner, I didn't do a very good job. I didn't have a, I mean, under the modern system, you have to get a sponsor. You have to have an experienced falconer to guide you. And that's part of the permitting requirement. They didn't have that back then. So I did this all from reading about it. And, you know, I didn't mistreat her. I mean, she was she was well-fed and well-housed and all that.

**Dean Keddy-Hector** [00:17:56] But it would have been much better if I'd had an expert to lean on during that period. But I, gosh, kept her for three or four years and passed her on to someone else. And I can't remember now who that was, but, I'd, you'd have to call her off to the fist. I would do that in the backyard on a safety line. They call it, "creance". And I never quite got to the point where I could manage her weight well enough so I could free-fly in the field, actually go hunting with her.

**Dean Keddy-Hector** [00:18:37] You know, that came later on when I had more experience. But, you know, I learned so much about her, about red-tailed hawks by handling this one individual. And, you know, just, kind of increased my sense of enthrallment for birds of prey, just to have one so close to you, and you know, one that's also fairly tame, not that freaked out by the presence of a human being.

**Dean Keddy-Hector** [00:19:08] Yeah. It really wasn't until college where I became proficient at it and then had red-tailed hawks and Harris hawks I could go out and catch rabbits with, and then later on, peregrines I could catch ducks with.

**Dean Keddy-Hector** [00:19:24] But it's been, it's a lot more than a hobby. It's a, I guess, "avocation" might be the best term. It is very time-consuming, but very rewarding, but not

without some downturns, not without some disappointments. Occasionally birds fly off, and they don't come back.

**David Todd** [00:19:49] Well, can you give me an example of how, you know, as you got more experienced and familiar with falconry and with the birds, how you might train and hunt with, with one of these raptors?

**Dean Keddy-Hector** [00:20:06] Well, it depends on whether they're young birds taken from the wild or they're, while, in the old days, it would have been a young bird taken from a nest. It would become very tame because you got the bird as a young bird versus a bird taken after it was independent, but still in its first year of life. And with birds taken from the nest, or nowadays birds raised in captivity or produced in captivity, they're inclined to be pretty tame from the get-go. But with birds trapped in the wild, you have to spend a lot of time taming them down.

**Dean Keddy-Hector** [00:20:44] And you do that by associating your presence with food rewards. And then just lots of, oh, your continual presence so they habituate to your presence, and habituate to various kinds of disturbances - your dogs, if you have dogs - and cats, and kids, and strangers, and automobiles. And then as they become tamer, you start to get them to hop to your fists for a food reward. And, and you do the initial phase of that on a safety line, a creance.

**Dean Keddy-Hector** [00:21:28] And you introduce a whistle, some kind of a food call, and a kind of a high intensity return signal, which they call a lure, which is a, sometimes just a simple leather pouch that has food attached to it. Or sometimes it's a leather with birds' wings or animal fur attached to it that looks kind of like a facsimile of a potential prey animal.

**Dean Keddy-Hector** [00:21:59] But at any rate, you get them to return to your fist or to this lure. And then at some point when they come very quickly, you free-fly them. And along the way, you're playing with their weight because you can't make any progress with them if they don't have an appetite, if they're fat. And so you go through a really, really cautious rationing / dieting process. You're not starving them; you're trying to find a point where their tameness, coupled with their desire to eat, makes them less likely to just ignore you and fly off someplace.

**Dean Keddy-Hector** [00:22:39] And you know, that's one of the big stumbling blocks that beginners have is figuring out how to, you know, walk that tightrope. Like with the smaller birds of prey, you could easily hurt one if you didn't feed it enough. So you have to figure out, well, what's this ideal weight, this magical weight. That's going to change from day to day, especially in our climate with the temperatures so variable.

**Dean Keddy-Hector** [00:23:08] And once you figure that one out, especially with a bird that's become very tame, you've got a margin of error there. And nowadays we fly birds with radio telemetry, radios taped on them. So that gives us an even bigger margin of error.

**Dean Keddy-Hector** [00:23:24] And still, you know, when you go out in the field, it's a little bit tense. You know, every time you take them out, there's a little sense of excitement, that the bird may not come back to you. And I've lost, I've lost a few birds in my career. And, you know, it's always a little traumatic or a lot traumatic, but it happens.

**Dean Keddy-Hector** [00:23:51] So that's the gist of it.

**David Todd** [00:23:53] Can you give me an example of a successful time and then maybe a time when you lost a bird, when you were letting the bird hunt and fly free?

**Dean Keddy-Hector** [00:24:09] Yes. When I was at the CDRI in Alpine, I had a male Harris hawk, named "Paisano". And this was like, this was before my first aplomado falcon season in about 1976 or '77. Anyway, I'd go out north of Alpine, sometimes on the huge Kokernut Ranch that we had access to, and take other people with me, and kind of organize them into skirmish lines. They'd be kind of the beaters. We'd do this with visiting college groups. And we'd go out there looking for cottontails and scaled quail.

**Dean Keddy-Hector** [00:24:55] And Harris hawks are really neat because they're social hunters in the wild - something Bill Mader reported on long time ago. And so, they are inclined to hunt in groups and which means that, in a falconry context, they pick up really quickly on the advantages of following you around. And so, he'd occasionally go perch on some co-ed's head, use her as a convenient perch, or come back to my fist or go perch on a yucca. And then we'd flush a cottontail someplace along the line, and we'd have a flight.

**Dean Keddy-Hector** [00:25:33] And, you know, usually he would miss, but sooner or later, he would catch one. And he was tame enough to tolerate the strangers there. And then we'd do this every day we could. And then about once a week I'd have a big cottontail dinner. We'd fry up the rabbits and eat them. And to me, that was one of the nicest, one of the neatest falconry experiences to have - to be able to take people out on a beautiful, huge ranch in West Texas and be sort of a party to a kind of small-scale predation, but with a really interesting creature.

**Dean Keddy-Hector** [00:26:17] Not that the cottontails aren't interesting, too. I mean, some of their maneuvers to escape are just amazing. They go at high speed into burrows and do tight circles around the base of a yucca and head off in some direction. Quail the same way.

**Dean Keddy-Hector** [00:26:32] But at the other extreme. Gosh, I'm just thinking of, gosh, a prairie falcon I lost named, "Diva". Where I'd let her weight get up a little bit high. And I went out probably late winter, on a day we had one of these warm southeasterly breezes blowing which killed off some of her appetite. I'd let her weight get up a little bit. And, and then had a stranger show up out in the field and, and she wouldn't come in to me. And then she had a radio tag on, radio transmitter on. But somehow she got it off. And then I finally got her to come in to the lure. And then somehow she pulled the reward off the lure, and she left with that. And at that stage, I couldn't get her back.

**Dean Keddy-Hector** [00:27:30] I found her the next morning, roosting in a hackberry tree near there. And she acted like she'd never seen me before. And that's the last I saw of her. I put up ads in the area, hoping maybe somebody would reporter her. But she was the bird trapped by a friend of mine as a first-year bird of passage, falconers call them. And gosh, if they're left out overnight, even if they're very tame, they go back, they become wild again really rapidly.

**Dean Keddy-Hector** [00:28:01] And so it was really nice bird. But I looked for like off-and-on for a week or two. No luck. And I just had to throw in the towel.

**Dean Keddy-Hector** [00:28:15] And something similar happened with a peregrine I had, who drifted off and was found electrocuted on a power line, or beneath a power line, by a power line worker.

**Dean Keddy-Hector** [00:28:31] But it happens. You know, falconers have had birds die in the field, you know, collide with objects.

**Dean Keddy-Hector** [00:28:38] And I've never had that happen. I've had one injured in the field when it, oh, its transmitter antennae hung up on a barbed wire fence as it was flying over. And, but he recovered from that.

**Dean Keddy-Hector** [00:28:58] [I going to pause and go get some water. I can.]

**David Todd** [00:29:01] [Yeah. Please do. This is great though. Thank you so much.]

**Dean Keddy-Hector** [00:29:06] [Okay. Be right back.]

**David Todd** [00:29:11] [Welcome back.]

**Dean Keddy-Hector** [00:29:12] [I'm going to pop a cough drop. I could sort of feel my voice just kind of fading out there.]

**David Todd** [00:29:19] [Aw, are you feeling more comfortable, I hope?]

**Dean Keddy-Hector** [00:29:23] [Yes.]

**David Todd** [00:29:23] [Good, good. Okay.]

**David Todd** [00:29:26] Well, thank you so much for telling us about your childhood and these these early forays into working with snakes and birds and, you know, so much on your own - self-taught. I think it's just fascinating. But it makes me wonder what somebody who's sort of an autodidact in a lot of ways does in school. And I understand that you got your bachelor's degree from the University of Texas and then went on to grad school at Oklahoma State and UCLA. And I'd be curious to know if there were some teachers, or classmates, or experiences there that might have led you into, you know, conservation and wildlife research.

**Dean Keddy-Hector** [00:30:21] Well, let's see. At UT, one of my undergraduate advisors was Frank Blair, and I'd hang out in his lab with his grad students, Tom Scanlon in particular, who studied greater earless lizards there at Pedernales Falls State Park, among other places.

**Dean Keddy-Hector** [00:30:41] And I had read Blair's book, "The Rusty Lizard", when I was in middle school doing a, I got a part-time job working for one of my mom's teacher friends who was doing a summer teaching workshop at U.T., and I was the audio visual guy as a 14 year old. So, I'd hang out in the undergraduate library, and I read his whole book. And so, he was like a celebrity to me.

**Dean Keddy-Hector** [00:31:16] And then when I was an undergraduate and actually got to take some courses from him and go out on collecting trips with his students. And, you know, that was, I was starting to see actually how science works for a field biologist. And, so, you know, and then right after I graduated from UT, I worked at the Texas Memorial Museum as a curatorial assistant under Robert F. Martin, Bob Martin. And he had me collecting data as part of his [excuse me] cave and barn swallow and cliff swallow study along US 90 where cave swallows had started nesting in the highway culverts and hybridizing with the other two



species. And so he'd have me walk through the culverts and with a, with a Rapidograph pen put numbers on every single egg so I could keep track of hatching orders and fledglings.

**Dean Keddy-Hector** [00:32:20] And occasionally you'd have a solitary bat there, you'd kind of shift the bat over from the fledglings and count them. And then at the same time, he was having me collect reptiles and amphibians in the area for the collection so they'd be, you know, be preserved and put in the collection. But another good exposure to kind of how a field study is organized.

**Dean Keddy-Hector** [00:32:48] And, gosh, at Oklahoma State, my good friend Jim Lish, who's a wonderful, wonderful artist who studied eagles for years, taught large animal gross anatomy at the Vet College there. He has been really influential over the years and very helpful to me.

**Dean Keddy-Hector** [00:33:17] And at UCLA, gosh, Lloyd Kiff, who's head of the Western Foundation of Vertebrate Zoology, and his wife put me up for most of the first semester I was there, and made me kind of a, and got me involved in the Western Foundation activities, which would be like drives out east of L.A., looking for hawks and looking for songbirds, and then have these big parties in the evening. We'd be camped there, drinking tequila and talking about mostly about biology. But a lot of the people are musicians. And, you know, it was kind of neat to see the interaction between, I guess I can call it, "recreational biology" and these other aspects.

**Dean Keddy-Hector** [00:34:06] They do an annual condor watch and tequila bust up there in the national forest above Los Angeles. And, you know, you got, I got to meet so many people when I was out - just overwhelmed.

**Dean Keddy-Hector** [00:34:24] My major advisor was Tom Howell who's another very good biologist and he was in the same lab complex with George Bartholomew, the National Academy member who enthralled me just because he's the all-around zoologist. They both had done this really intricate field studies of all kinds of animals, so they learned more about how the animals interact with their environments in the field. And there were lots of just really high-powered people at UCLA who were, you know, normal, normal people, at the same time, very productive and, you know, unbelievably productive. And at least in your presence, you know, seemed like just the average person. And it's amazing to me that they could be so productive and not just be crazy.

**Dean Keddy-Hector** [00:35:21] But in Oklahoma State, Fritz Knopf, who Jim Lish introduced me to, help design my aplomado falcon work, and actually, by that I mean, he really encouraged me to get as much training in applied statistics as possible, which is really helpful. And then Stanley Fox kind of inherited his role as my major advisor when Fritz left Oklahoma State. And it's funny - Stan is a lot like, was a lot like Frank Blair - he's a lizard population biologist. And but, gosh, just did just an unbelievable job editing my thesis research and, you know, which taught me a lot about writing, scientific writing.

**Dean Keddy-Hector** [00:36:15] And we had a good group at Oklahoma State - some very progressive wildlife biologists and evolutionary biologists like Stanley.

**Dean Keddy-Hector** [00:36:25] But, you know, nothing compares with being at a big state research powerhouse like UCLA, though. You know, we have National Academy members and lots of really high-powered graduate students, too. It's kind of overwhelming sometimes.

**David Todd** [00:36:45] You know, it sounds exciting just to hear you talk about it, that it's not only that you're getting the sort of tutelage from these powerhouse biologists, but you're also getting this sense of community, these camp-outs and look-outs for birds with tequila and music making the rounds.

**Dean Keddy-Hector** [00:37:06] Yes.

**David Todd** [00:37:06] It seems like an idyllic way to learn about and really appreciate the natural world.

**Dean Keddy-Hector** [00:37:13] It definitely makes it makes it fun. You know something else I should mention. UCLA had a 40,000 bird skin collection right there in our department. And one, I guess it was spring time, I teamed up with Hartmut Walter, who's a professor in the geography department, who had studied Eleonora's falcon in Sicily. And he and I team-taught a raptor ecology class, and it was so neat to bring the students into the lab there in my building and pull out study skins, so they actually see the difference in plumages up close. Like you lay out all three of our North American accipiter species - sharp-shinned, Cooper's hawk and goshawk, the male / female, male / female, male / female. So, they could see this progression in size from the small male sharp-shinned hawk to the large female goshawk and show them what a gyrfalcon or a white-phase gyrfalcon looks like.

**Dean Keddy-Hector** [00:38:17] And it was really neat to do the class because a number of the students were engineering majors. And so, we'd talk about aerodynamics of birds. They'd light up. And then we could go on field trips with them out to the West Coast and just actually, we were taking them out to the, was it the Star Ranch, I guess, which is where they filmed the MASH television series, which is a really neat state park, but a good place to see hawks. And so, we go out there to this site that kind of is historic because that's where they filmed MASH. And at the same time, be able to do lots of wildlife observations. And yeah, that was one of the neatest teaching experiences I've ever had.

**David Todd** [00:39:05] You know, it's intriguing that you had the sort of informal education, whether it was as a kid in Boy Scouts or as a grownup on campouts with like-minded biologists, but also in, you know, courses and labs. But I'm curious if, it sounds like you were a kid who liked to go to the library as a young person. Were there any sort of general readership books or are maybe just, you know, commonly-seen films or TV shows that would have gotten you interested and supported your curiosity about the natural world?

**Dean Keddy-Hector** [00:39:50] Well, of course, people like me always, always like Wild Kingdom with Marlin Perkins, right, with Jim and Stan? And did you did you watch that growing up?

**David Todd** [00:40:04] I did. I did. Marlin Perkins and.

**Dean Keddy-Hector** [00:40:08] Yeah. Mutual of Omaha.

**David Todd** [00:40:10] And poor Jim would always have to be seen in. You know, Marlin would say, "Jim, go, go tackle the alligator."

**Dean Keddy-Hector** [00:40:16] Yeah, Jim and Stan would be untying the jaguar while Marlin, you know, would be backed off from the shore in the boat.

**Dean Keddy-Hector** [00:40:24] Although later on, I remember reading an account by Marlin Perkins of what it was like to be bitten by a gaboon viper. And he's, he's literally dying and he's writing down a detailed account of what it feels like to be dying of the bite of a gaboon viper. And, you know, they saved his life. But this guy is a, he was a special personality. Most of us would have, we would have been in the hospital not capable of writing down anything.

**David Todd** [00:41:01] Well, that's interesting. So, a little bit of general culture there.

**David Todd** [00:41:07] Well, let's return to your own career. And as I understand it, one of your first jobs was out at the Chihuahuan Desert Research Institute. And I'm curious how you got your first break to get that position and what sort of work you did out there.

**Dean Keddy-Hector** [00:41:30] Well, this would have been right after I worked at the Texas Memorial Museum as Bob Martin's curatorial assistant. And I think I was looking around for a graduate program, and somewhere during that period, I had done about two years, two fall volunteer peregrine surveys on the, well, one on Matagorda Island and one on Padre Island with some of the guys from the old Parks and Wildlife Non-game group - Carl Frentress, Daniel Boone, Danny Sweptson. I think John Smith was there originally when I first, I used to go bug them a lot, just about what they were doing. But, somewhere in the aftermath of that, I made a point to introduce myself to Grainger Hunt, and talk to him about my interest in doing some sort of graduate research on birds of prey. And I think he might be the one who suggested aplomado falcons as a possible topic.

**Dean Keddy-Hector** [00:42:45] I had been interested in them, I think, since seeing a painting of them in that book, my parents gave me, "Birds of Prey of North America" by Alexander Sprunt, and just this beautiful falcon. And somewhere in that period, I went out with a couple of buddies to go hike around the Chisos Basin in Big Bend and we stayed, but on coming back, we stayed at the CDRI, Chihuahuan Desert Research Institute - the old schoolhouse where they were. They used to be on the south side of Alpine. And talked more about possibly doing that project there.

**Dean Keddy-Hector** [00:43:31] And I actually enrolled first in a graduate program at BYU, Brigham Young University, where I started that project. And so, I was there for a fall and then was aiming to start my first field season in eastern Mexico that spring which I think would be 1977. And so somewhere along it there, I became a, quote, research associate at the CDRI, unpaid. But, you know, you had a formal title like that to kind of make you a more legitimate part of the operation.

**Dean Keddy-Hector** [00:44:19] And I was incorporated into a bird, hawk and pesticides in Mexico project. They had a group from Evergreen State. I noticed in the Hal Flanders interview, he talks about the group from Evergreen State who had come down to help out with that project. And they were going to go collect pesticide samples from river sediment and area bird species in eastern Mexico. And also study bat falcons and white-collared swifts. And a couple of guys were going to study, or did do surveys, for thick-billed and maroon-fronted parrots. And another group surveying for peregrines in central Mexico, the Sierra Madre Oriental, Occidental.

**Dean Keddy-Hector** [00:45:18] And but anyway, that was a kind of segue right in there to working at the CDRI during that period. And it turned out we didn't end up with funding for the project. And so, Grainger took out some loans. I think we, I, went down there with two assistants, John Langford, another wonderful bird artist, and Ann Farrell and. And then the

what I call the bat falcon crew, the Evergreen College crew, of David Whittaker and Deborah Ukraine and Gary Falxa, drove down there separately.

**Dean Keddy-Hector** [00:46:04] And we just roamed around in eastern Mexico looking for nest sites and collecting pesticide samples and you know, mostly having a lot of fun, but mostly doing it on a shoestring because we weren't well-funded. So, we camped out most of the time while we were down there in people's pastures and sometimes the back roads. And which meant we'd have, you know, interesting encounters with people, who were usually really tolerant of, you know, encountering a bunch of Americans out there camped up who had inadvertently put their tent in front of their gate in the middle of the night, not realizing that it was a dairy, so they were going to get up at 3 a.m. to bring the milk canisters out to the highway.

**Dean Keddy-Hector** [00:46:48] And, but we did that first field season, which was the most extensive one I did, and then came back and did the second field season while I was still part of the CDRI. After that, I think from 1979 on, I wasn't affiliated directly with them even though the publications that came out of the project all emanating from the support they gave me during that period of time.

**Dean Keddy-Hector** [00:47:21] But it's a neat organization. I mean, it's neat to see that they've, they got land back there in 1978. They've developed the land now with a beautiful visitor center. And I'm not sure what their research output is at this stage. I mean, in those days, like I mentioned, the focal animals in Mexico, were doing peregrine surveys in New Mexico and had like some USDA people come down and study like insect pests, and creosote, and someone doing a grasshopper study, and then on the science board like Michael Powell, who's interested in cactus evolution, and Jim Scudday, who's another zoologist who's based there, a herpetologist there at Sul Ross who had graduate students. And so it was a very diverse program, just not very well-funded. You know, everything done on a shoestring and which creates a lot of a lot of tension, a lot of pressure to raise money to support people.

**Dean Keddy-Hector** [00:48:30] And at the time, I had a slight advantage that I'd got a fellowship from National Wildlife Federation, and that helped me out. Helped me live down there a little bit longer. But, you know, people would leave and go take part-time jobs and come back for their field season - not the ideal way to do things. Kind of weird to see people work with aplomado falcons nowadays who are so well-funded, and even though I think by being well-funded, you miss out a lot of the experiences I've had, down there camping out. You do get used to not showering except once every week or two and, you know. Kind of a throwback to the way the collectors must have been, like in the 19th century.

**David Todd** [00:49:21] Vernon Bailey or somebody like that out in the backwoods.

**Dean Keddy-Hector** [00:49:26] Yes. Well, Vernon and his wife, Florence Merriam Bailey, would ride around on horseback.

**David Todd** [00:49:33] Well, it sounds like it was a huge adventure. I'm curious if, since my understanding is a lot of your research was about the aplomado falcon, for those who aren't really familiar with the bird, including me, could you kindly give us an introduction to the bird's basic life history and sort of the ecological niche that it fill?

**Dean Keddy-Hector** [00:49:59] Well, it's, it's your classic bird hawk, even though they eat tons of insects, too. They, gosh, they have an extensive geographic distribution. They range

from the southwestern United States all the way to Tierra del Fuego. And about the only part of Latin America where they don't really occur would be the forested regions. They're pretty adaptable, though, in terms of habitat preferences. I mean, they range from sea level literally to above 14,000 feet, probably much higher than that in the Andes and the Altiplano. And I've actually seen them up there, where the air is so thin, you know, from my perspective, being from this part of Texas, it's like it might as well be on Mount Everest.

**Dean Keddy-Hector** [00:50:55] But they're about the size of a Cooper's hawk or crow, I guess, to put that in perspective. They're not as big as a peregrine, but they're larger than a merlin, or a kestrel, and have a very long tail that assists them in their maneuverability. And they'll go into brush after, pursuing things. And one of my big interests was their cooperative hunting tendencies, with the males and females who work together to capture birds that are chasing them. It was one of the, at least for me, as a raptor guy, one of the joys of studying this species was being able to sit on a stool with a spotting scope out in nesting territory and watch them chasing morning doves and whitewing doves and grackles and anis? And, gosh, I saw a pair catch a squirrel cuckoo one time and parakeets and kiskadee flycatchers. I mean, just a whole array. Basically, anything that moves out there that's smaller than a mallard, they're going to chase it, if they can, especially when they're pretty young.

**Dean Keddy-Hector** [00:52:06] And, you know, then they take it to their young, or if they had an access to food, they go cache it someplace and so I could walk over to the cache site and collect a chunk of that for a pesticide sample.

**Dean Keddy-Hector** [00:52:23] And, but yeah, they're sort of like a somewhat open country Cooper's hawk, if you want to think of it that way, definitely bird-oriented. But, you know, if there's a lot of flying beetles and things around, or dragonflies, they'll catch those and eat those and catch grasshoppers. And, I think one of the neat things that they do, and also white-tailed hawks, is that if you have a grass fire going, and also caracaras, they'll come in to the grass fire and they'll capture things that have been injured by the fire, or feed on carcasses of things in the aftermath of the fire. And so you can sometimes see small groups, like a couple of pairs, show up at a grass fire.

**Dean Keddy-Hector** [00:53:10] And in terms of like habitat preferences up in the states or up in Mexico and the United States. They, those coastal prairies and then the desert grassland sites of the Central Plateau or Altiplano of Mexico and southeastern Arizona and some of Mexico and west Texas. But then in the east, on the Gulf Coast, it kind of grades into lowland tropical savanna or over rainforest. And, you know, structurally, it's similar. It's relatively open terrain with scattered trees and shrubs.

**Dean Keddy-Hector** [00:53:51] But in terms of climate regime it's way different. And you know, I've suggested that might have some influence on the lack of success that the reintroduction efforts have had in the drier, higher elevation regions.

**David Todd** [00:54:17] And I understand that they became quite rare. Can you help us understand why there might have been a decline in their numbers?

**Dean Keddy-Hector** [00:54:28] Well. It's, this is interesting and tricky, in that, and you had the same thing with golden-cheeks, but I think the history behind the situation is a little more interesting. There was...

**Dean Keddy-Hector** [00:54:45] [Let me go get another drink. I'll be right back.].

**David Todd** [00:54:48] [Yes. Yes, please. Thank you.]

**David Todd** [00:54:51] Okay. Yeah. So, you were telling me, just beginning to at least, about the reasons for the decline in the aplomado falcon. And there was a tricky story.

**Dean Keddy-Hector** [00:55:05] Yeah, we don't have a good baseline because the guy who collected most of the aplomado specimens north of Mexico may have collected them in Mexico and passed them off as from the United States.

**Dean Keddy-Hector** [00:55:22] I'm sure some of them came from the United States, but I don't know how many.

**Dean Keddy-Hector** [00:55:26] His peers accused him of doing that. And one thing I pointed out way back is that the egg sets he collected are essentially all four-egg clutches, and four-egg clutches are relatively rare in the wild. The typical clutch size is three. And if you look at the eggs collected by other collectors, you know, they're singles and doubles and, you know, three eggs. And field studies that have been done in the last 20 years have documented a few four-egg collections.

**Dean Keddy-Hector** [00:56:04] But it's pretty apparent that he would have clients order some aplomado falcon eggs, and he'd just bundle up four eggs, send them off to the person and take their money.

**Dean Keddy-Hector** [00:56:16] And that's perhaps indicative that he was doing a little data fakery.

**Dean Keddy-Hector** [00:56:24] And there might be some ways to figure out what percentage of those came from the United States. But it kind of clouds the issue of how common they were.

**Dean Keddy-Hector** [00:56:33] Now it's pretty apparent that at specific sites like the Palo Alto Prairie between Port Isabel and Brownsville, they nested regularly there. That's an area where, who is it, J.C. Merrill, reported. He was a physician there at Brownsville, who was also a collector.

**Dean Keddy-Hector** [00:56:56] And some of the sites in New Mexico, it's pretty clear they're no longer present at those sites. But there were a sprinkling of sightings that persisted after, I guess, the last Texas nest site in the 1940s, down near Edinburg. And then in New Mexico, after the last historic sighting in 1952, there's been a wild nesting pair there since 1952 in New Mexico.

**Dean Keddy-Hector** [00:57:33] But, it is, so my feeling now is that, well, they declined, but I don't really know how common they were before that.

[00:57:42] They're a peripheral species right on the northern limit of their distribution. You'd expect it to be somewhat ephemeral because of that. They may be here in some years and not in other years.

**Dean Keddy-Hector** [00:57:58] And so it, it makes it, it makes it tricky saying they were, "common", you know.

**Dean Keddy-Hector** [00:58:10] It's not tricky to say they were here.

**Dean Keddy-Hector** [00:58:11] It's just a little tricky to say they were common, because you have to qualify that so well.

**Dean Keddy-Hector** [00:58:17] And the one thing that needs to happen, I guess, is to determine where those eggs and study skins actually came from, if that's possible at this stage. I mean, I can see maybe using some techniques like stable isotope analysis that might be useful and narrowing it down a little bit.

**Dean Keddy-Hector** [00:58:40] But then in a way, it's neither here nor there at this stage. I mean, they've got a population established in South Texas, that's probably self-sustaining at this stage, if only because of them getting the birds to use artificial nest sites that are predator-proof. Without those nest sites, I don't think it would be sustainable, which maybe bears on the issue of how common the species was before.

**Dean Keddy-Hector** [00:59:09] But of course, everything's changed so much since the 19th and early, early 20th century. I mean, so much of the coastal prairie was, has been lost to farming. You know, a lot of it's been lost to brush encroachment. And you know, the same is true in the western part of its range in the United States.

**Dean Keddy-Hector** [00:59:43] Don't know what effect pesticide contamination had. But it surely wasn't good. Val Lehmann, who studied the Attwater's prairie chicken, so there's a monograph about Attwater's prairie chickens. I corresponded with him while he was still alive and he mentioned seeing aplomados on the King Ranch in the 1950s. And then his feeling was they declined because of oil exploration, and certainly because of pesticides.

**Dean Keddy-Hector** [01:00:11] But the other issue on the King Ranch is all those pastures are heavily hunted for quail. And, you know, I kind of wonder sometimes if either direct mortality you know, caused by quail hunters, or indirect cause mortality caused by secondary lead contamination, might have been influential in some of those areas.

**Dean Keddy-Hector** [01:00:39] But there, again, we don't really know how common they were on the King Ranch or anyplace else in Texas. You know, so anyway, like I said, it's, it's complicated and it forces a scientist to be kind of wishy-washy and hedging a lot. You know, if you oversimplify things then it sounds like hyperbole.

**David Todd** [01:01:06] Well, I think that, from what little I know, the natural world is a complicated, complex place, and it seems like you're just telling it the way you see it. So given that, I guess there were a few, whether they declined a lot or not, I understand that there was a pretty involved captive breeding and then release effort. And I was wondering if you were familiar with much of that. I think you mentioned this very interesting artificial nest platform that was devised to protect the falcons from predation. Maybe you could talk about that if you could.

**Dean Keddy-Hector** [01:01:53] Well, the Peregrine Fund figured out that you could condition birds to nest in these platforms, which are basically a, it's like a square platform with a similarly square roof about a post, or more than one post.

**Dean Keddy-Hector** [01:02:13] And there were bars, vertical bars, around the perimeter. I think three sides, but too narrow for birds, larger birds like caracaras or great horned owls or red-tailed hawks or white-tailed hawks to enter, but big enough so that aplomado falcons could enter.

**Dean Keddy-Hector** [01:02:34] So, a real simple solution.

**Dean Keddy-Hector** [01:02:38] You know, it's, it's interesting that contrasts the situation in south Texas with what you have in eastern Mexico, in tropical Mexico, where most of the nests they use (falcons don't build their own nests: they are dependent upon other birds that build stick nests). Or in eastern Mexico they can nest in bromeliads, these big arboreals. You know, they've got really lush bromeliads. I think rarely they nest on cliffs, if they can find a stick platform there.

**Dean Keddy-Hector** [01:03:12] But they're very dependent upon these nest sites that they don't make.

**Dean Keddy-Hector** [01:03:19] And in the tropics, you know, they can find suitable nest sites pretty high off the ground. They can drop into live oaks and other tree species. We had some nesting in big silk cottons that were probably old rainforest trees that were left standing by themselves out in the pasture. You'd have a nest, you know, 40 feet off the ground. Or, gosh, there was one that I climbed up to, in, gosh, right on the banks of the Rio Usumacinta, where Campeche and Tabasco come together. It was on the top of like a 40-foot tall fan palm. And, you know, no ground predator's going to be able to do much with a nest like that.

**Dean Keddy-Hector** [01:04:02] But in Texas, you've got, especially at one point they're finding nests literally in shrubs, a foot or two off the ground, on Matagorda Island and, or, low in mesquites, in a stick nests built by another species like a white-tail kite or Harris hawk or something, or in a yucca. And it turned out the nests in yuccas have real low predation rates; the other nests had high predation rates.

**Dean Keddy-Hector** [01:04:31] And so you kind of get an indication of what might be a limiting factor there at the northern limit of the distribution. And then you surmount that problem with an artificial nest sites that eliminates at least, well, eliminates essentially all forms of predation of nestlings and young fledglings, I'm sorry, nestlings, not fledglings. Meaning that when the birds fledge, they're vulnerable to predation by great-horned owls, and larger birds of prey. And, gosh, out in west Texas, they're even eaten by peregrines.

**Dean Keddy-Hector** [01:05:10] And, but the, you know, back to the beginning of this, I, I haven't been involved in the reintroduction project in years, but was involved early on, like John Langford and I brought out the first young birds from Mexico at the end of my first field season. And which was an experience because I stayed by myself down there to bring back a fourth young bird. We tried to get two males and two females. And I worried when I crossed the border that they were going to get a like a positive, exotic Newcastle's disease test with the bird I was bringing back and have to destroy this beautiful young aplomado falcon.

**Dean Keddy-Hector** [01:06:07] And then we created, not me, but John Langford, and Hal Flanders was involved with this. Steve Gerardo, who's an architect from New Jersey that came down to do peregrine work with the CDRI, built breeding chambers inside the old school building that was our base. And then John set up a quail colony to feed the birds with, a scaled



quail colony, and managed to produce one young bird. And so that's the first aplomado produced in captivity, I believe.

**Dean Keddy-Hector** [01:06:44] And then shortly after that, there again, because of funding problems at CDRI I was having, all the birds were moved to UC Santa Cruz at their predatory bird research center that Brian Walton was running and set them up there. They got a second set of four birds, two males, two females, the next season, which I think would have been 1978 and moved those there. So, they had four pairs of breeding pairs.

**Dean Keddy-Hector** [01:07:14] But then not much success until the Peregrine Fund moved all those to their Boise facility and then got additional birds from Mexico and then started to really crank out birds, and crank out over a thousand young aplomado falcons, which was kind of incredible.

**Dean Keddy-Hector** [01:07:34] And somewhere, I think it was '84, '85, we did an initial release with the few birds that had been produced at Santa Cruz.

**Dean Keddy-Hector** [01:07:50] Pete Jenny flew down. He was working for the Peregrine Fund. Ended up being the head of the Peregrine Fund for a while, and he and I, and there was a student, Chris Peese, is now real high up in the National Wildlife Refuge system, put up a hack site there on the Norias pasture of the King Ranch, that's just east of Rivera, Texas, there south of Corpus Christi. And they did the initial release there. But the birds were a little bit too old when they released them. So, they dispersed too quickly. And, gosh, one dispersed like way north of Corpus.

**Dean Keddy-Hector** [01:08:37] And I think one was killed by a great-horned owl and they were being harassed by go scissortail flycatchers and they had to get a depredation permit for the flycatchers, which is definitely not good PR for endangered species work. And so, it was kind of a disaster.

**Dean Keddy-Hector** [01:08:55] And then they decided to move the release down to Laguna Atascosa.

**Dean Keddy-Hector** [01:09:01] But it was interesting, like the year after that release, an adult aplomado falcon came into the release site. I was there at the site. I had driven down for a meeting and actually got to see it and suggested there might still be a few birds around or at least vagrants coming up from Mexico.

**Dean Keddy-Hector** [01:09:25] Anyway, they progressed from there, to they got access to ranches there along the Texas coast and then began releasing birds by the droves on Matagorda Island.

**Dean Keddy-Hector** [01:09:38] And, you know, in release work like that, it's somewhat like a game bird release, except you've got a higher chance of success. Like when you release quail and pheasants, most of those birds are going to die within a year because they're naive. Raptor releases tend to be a little or a lot more successful. I mean, the birds can defend themselves to some degree. And even without the presence of adults, they pick up their hunting skills, at least some do, especially if their food is being augmented by hack site attendants early on.

**Dean Keddy-Hector** [01:10:16] Even so, you lose a lot to predators. In this case, great-horned owls especially. But, but anything out there that likes to eat birds - coyotes, bobcats, raccoons, great-horned owls, red-tailed hawks, caracaras, Harris hawks. You know, they're going to take some young birds.

**Dean Keddy-Hector** [01:10:41] And it's kind of curious to see how the hack site attendants, many of whom are college undergraduates, are going to handle that. The reality is, you know, life, life in the untamed world, you know, with your babies that you've been taking care of for a couple of weeks and see them getting picked off one by one. But some survived, obviously.

**Dean Keddy-Hector** [01:11:07] And, at this stage, I recommended that they shift emphasis from the birds in Texas to their Chihuahuan population that Alberto Macias Duarte has been working with for years, and that Angel Montoya initially worked with out of New Mexico State, and because that, that's the only group we know of that inhabits the Central Plateau or Altiplano of Mexico. And they've been declining as their habitat has been converted to center-pivot agriculture by the Mennonites that live there.

**Dean Keddy-Hector** [01:11:48] And that's another one of these ironic things, or interesting little historical quirks. We never documented any declines in eastern Mexico when I was working with the species, even though they were heavily contaminated with pesticides. And so hard to explain that. But, there needed to be some follow-up work looking at population productivity in relation to pesticide loads in eastern Mexico. That work was never done.

**Dean Keddy-Hector** [01:12:23] And so, sometimes you'll read that there were declines documented, which is just an assumption based on the levels of pesticide contamination that we detected. But they never were. And so, you can assume there were declines, or not. There again, it's a moot point. So much effort has already been put into releases in Texas, I think, in general, that's been very beneficial in terms of public relations and also creates a so-called source population of aplomados that if there are declines in Mexico, then the dispersal range of birds coming from that artificially established population probably will sustain those other populations.

**Dean Keddy-Hector** [01:13:13] But the original justification was to release them there to kind of create a refugium. We naively thought the pesticide loads would be lower in the States than in Mexico, and really it was reversed. The pesticide levels in South Texas were at least as high or higher than those that were detected in Mexico, at least among grackles, which are common prey species for aplomados.

**Dean Keddy-Hector** [01:13:41] And that, I mean, the pesticide load we detected during my first study season, was the primary reason for listing the species as endangered. You know, it was the secondary reason were the historical declines in the United States. The primary was the risk of pesticide-induced population crashes.

**David Todd** [01:14:10] Well, so this is something I know next to nothing about, but I remember that that some of the pesticides like DDT were, if I remember right, linked to the thinness in the eggshells.

**Dean Keddy-Hector** [01:14:23] Yes.

**David Todd** [01:14:23] And then raptors would sit on their eggs and crush them. Was that the concern or was there some question about the mutagenic threat, teratogenic effects on the birds? What was the worry?

**Dean Keddy-Hector** [01:14:40] The big concern was that DDT, or its metabolite DDE, messes with calcium metabolism. And, you know, by doing that, the birds lay thin-shelled eggs are at an extreme, shell-less eggs.

**Dean Keddy-Hector** [01:14:58] And so, their productivity drops. And, you know, if that process continues enough, then a population that's experiencing that level of pesticide contamination will no longer be sustainable and will finally decline to extinction.

**Dean Keddy-Hector** [01:15:14] And, the initial work that I was involved in, collected egg shells of bat falcons and aplomados, mostly those collected by oologists, the people that used to collect eggs as a hobby in the 1950s and 1960s.

**Dean Keddy-Hector** [01:15:35] And then the bat falcons' levels were just unbelievable. Their egg shells were incredibly thin. Aplomados, a little bit less so.

**Dean Keddy-Hector** [01:15:46] But then I contributed eggshell fragments in some addled eggs that we collected in my first field season to make it a little bit more current.

**Dean Keddy-Hector** [01:15:55] And, but yeah, there are other concerns about the influence of organic chlorine pesticides on behavior, on reproductive behavior. Like when the peregrines were declining in the Northeast due to pesticide contamination, they observed the female peregrines eating their eggs, doing kind of aberrant things like that, and, or embryo mortality, you know.

**Dean Keddy-Hector** [01:16:29] But the big concern is the shell-thinning effect. And, not much concern in those days about organochlorines as an estrogen mimic. You know, that came along later.

**Dean Keddy-Hector** [01:16:45] And, you know, since that time, there have been other concerns that have popped up. There are fire retardants that persistent and biomagnify through ecosystems.

**Dean Keddy-Hector** [01:17:02] Oh, gosh, all the array of these awful second-level rodenticides that are all anti-coagulants, that are persistent, that have been killing so many birds of prey in urban areas and rural areas, and then secondary contamination.

**Dean Keddy-Hector** [01:17:19] All these, all these things that are persistent in the environment, but also very toxic. And any upper trophic level predator's going to be influenced by those sooner or later.

**Dean Keddy-Hector** [01:17:33] Yeah, my big concern right now are the rodenticides that are so available at Home Depots and feed stores, and have been implicated already. Gosh, I think New York is one area where they've done some amazing, but really discouraging, studies on raptor and owl, or hawk and owl, mortality created by biomagnification of these poisons.

**Dean Keddy-Hector** [01:18:04] But yeah, it's kind of like the historical baseline stuff. It gets messy if you actually look at it. I mean, we did road surveys, you know, partly to stay awake,

while we were driving up and down the east coast of Mexico. But the aplomados that we looked at down there were like the fifth most abundant raptor species we encountered. You know, they're getting no baseline to compare that with, but no indication based on that that there was, there had been prior declines in their abundance.

**Dean Keddy-Hector** [01:18:38] Still, you know, just a preliminary look at the situation, something that necessitated like follow-up work, where you'd actually go out and look at productivity, a population measure, shell thickness and pesticide levels and make a determination based on a ton of data collected over a decade or so.

**David Todd** [01:19:06] This is, this is so interesting. I wanted to just ask a couple more questions, and then I think it may be a good time to let your throat take a rest and maybe we can.

**Dean Keddy-Hector** [01:19:19] Yeah.

**David Todd** [01:19:20] Resume tomorrow or some later point and talk about the warbler since that's, that may be an easy break, you know, finish talking about the falcon and then maybe return to talk about the golden-cheeked warbler at some later point?

**Dean Keddy-Hector** [01:19:39] Yep. That that sounds like a good plan.

**David Todd** [01:19:41] Okay.

**Dean Keddy-Hector** [01:19:41] I'm sorry. I'm sorry. I'm, I'm handicapped.

**David Todd** [01:19:45] No, no. You've told me so much, and you've carried on despite, you know, the COVID, lingering COVID.

**David Todd** [01:19:53] So well, so I had one other question about the aplomados. I think you touched on it briefly and maybe you can just return to it and give us a little more detail on that. It seems like the release in south Texas along the coastal prairie has gone pretty well. But I think you mentioned that the releases, the reintroductions, in the Chihuahuan Desert out in West Texas have struggled. And I'm curious why you think that is.

**Dean Keddy-Hector** [01:20:24] Well, I don't know for sure. My big concern is kind of the obvious concern because you're taking birds whose ancestry is low elevation, tropic, you know, Mexican tropics, and releasing them at about 5000 feet in a super dry desert grassland environment.

**Dean Keddy-Hector** [01:20:54] But, but, you know, that may be immaterial. I mean, the species appears to be so adaptable. But I had concerns way back that they would have difficulty with their incubation, might be affected by low humidity. And that there's, there's evidence that the shell porosity should be - the density and the size of the pores that the shell have to be just right so that eggs that lose, gosh, I want to say ten or 20%. I forgot what the percentages of water as they develop. And the parents have some ability to adjust that. I don't know how they do that. But it always concerned me that there'd be difficulty with, you know, if you've got birds mature and they come back to nest, that they'd have problems incubating eggs. I'm not sure if that's the case now.

**Dean Keddy-Hector** [01:21:53] But, but more immediate was the difficulty of young finding enough food to eat. So, they do supplemental feeding and some manage to survive and come back and nest. So, there are a couple of failed nesting attempts in West Texas, or a couple of nesting attempts in West Texas and New Mexico by birds that have been released. They didn't go very well. They had to do supplemental feeding of those to keep them going.

**Dean Keddy-Hector** [01:22:23] And this might tie in with the nice work that Alberto Macias-Duarte did where he showed that the birds in Chihuahua do better, their productivity goes up in the rainy years than in dry years. And, you know, prey availability is probably much greater in rainy years. I think that that was the gist of his findings. And compared to a tropical setting, there might be one tenth the availability of suitably sized prey species, bird prey species, in a desert grassland setting, with the exception being, you know, desert wetlands, you know, riparian communities. But in general, much lower availability there. So you'd expect the birds to be very sensitive to any factor that reduces that availability. And so they were, they were literally starving to death.

**Dean Keddy-Hector** [01:23:23] And so, they abandoned release efforts there, although I'm worried that the Fish and Wildlife Service might persist. But you've got aplomados nesting just a couple hundred miles south of there in Chihuahua. And they've had a pair of aplomados attempting to nest off and on, right along the New Mexico / Chihuahua border, on the New Mexico side, for roughly a decade, that, what's his name, Ray Meyer, discovered. And it coincides with where Arnold Bain found aplomados nesting in 1952. He found two nest sites in that year, one just north of Chihuahua, and then a little west of there, one just south of New Mexico, in Chihuahua. And so, I interpret that as meaning that, well, that's sort of part of that Chihuahuan area where we still have aplomados persisting. And that may account for, you know, over the years, over the decades, you know, the sightings of vagrant birds in the New Mexico area, and probably also in West Texas, and occasionally may account for attempted nesting or nesting attempts that occur there.

**Dean Keddy-Hector** [01:24:43] So you've got aplomados nesting so close, that, you know, first of all, you wonder why bother releasing them, you know, just across the border, when you've already got them there in the same biome, same region.

**Dean Keddy-Hector** [01:25:03] And then that raises the question, to me, whether you've got pairs of aplomados nesting there in Tamaulipas, just south of Texas. You know, I know they're in southern Tamaulipas, but I don't know about northern Tamaulipas, and I don't know how well that was surveyed. But anyway, you know, you got the basic problem of difficulties of releasing a species at the periphery of its range, or maybe just north of the periphery of its range. And you don't know what the limiting factors are. But, you know, there's some limiting factor that's kept that species from expanding its range northward.

**Dean Keddy-Hector** [01:25:46] And I suggested that in addition to prey availability, one of those might be the distribution of the big tree yuccas like *Yucca elatas*, some tree yucca that provides pretty secure sites from ground predators. And, you know, I don't know. I'm just speculating. But its distribution pretty closely coincides with the historic, the distribution of historic specimens of aplomados collected in New Mexico. It kind of does the same thing in south Texas with a different *Yucca* species there. It's a, what is it, *Yucca torreyi*, or *Yucca aloefolia*, or those really big Spanish daggers that gets, you know, 30 feet tall sometimes, and no bobcat's going to climb that thing. But, it's interesting to speculate about stuff like this.

**David Todd** [01:26:40] Well, let me ask you maybe sort of a pair of questions that touch on these same kind of range issues that you've brought up.

**David Todd** [01:26:54] And I'll just bundle them together and you can unpack them as you see fit. One is, you know, given that this is sort of the periphery of the bird's range, what do you think climate change will mean for the future of the bird as maybe that area gets hotter or more arid or, you know, in some way, the weather conditions fluctuate out there in the Chihuahuan desert. And then secondly, I guess it's more of a philosophical question, if you have a bird that extends its range all the way down to Tierra del Fuego and it has a little bit of presence in the States that's, you know, limited in various ways. How do you compare the importance of preserving that bird when you've got other creatures that are only found in the United States? And, you know, we'll talk about this at some future date - like the golden-cheeked warbler, you know, something that really is endemic to an area.

**Dean Keddy-Hector** [01:28:01] Yeah. It's not a local endemic. It's not a California condor. You know, although not everybody would suggest you should pull out all the stops for a California condor. There was a whole group back when I was at UCLA that suggested we should just let them go, that the expenditure of funds on that species would deprive other species of valuable financial support. And you could certainly make the same case with these peripheral species. And actually, you know, when I was at UCLA, I was hired to write the, oh, gosh, the status report, the listing package, and then finally the recovery plan for the aplomado falcon. But the initial deal was to justify it as a threatened species, for threatened status. And I don't know, maybe I did too good a job with the with the status report.

**Dean Keddy-Hector** [01:29:05] But I think the Albuquerque Fish and Wildlife Service office decided, "Well, we might as well propose it for endangered status." And, you know, the willingness to list species varies, obviously, you know, from decade to decade, from year to year, from Presidential Administration to Presidential Administration. And when you've got a researcher who writes up these materials, they're just kind of a cog in the wheel. They pass the report on to the Fish and Wildlife Service office. They accept public comments about it and they make a judgment based on the comments they get.

**Dean Keddy-Hector** [01:29:50] And, you know, it may not, the outcome may not be tightly linked to the science. But like I mentioned, the science is, if you were to call it science, is, the historical details are complicated. And you may not have a nice, neat black and white picture to deal with. And yeah, I just try to think like, the big, the big concerns in the tropics, say, with this species. Well, let's say you're in the tropics, period, is rainforest destruction and wetland loss. In South America, destruction of some of these extensive moist savanna regions like in Argentina, but not open, not open grassland, but especially kind of a rainforest kind of grassland, which is really an artificial grassland.

**Dean Keddy-Hector** [01:30:57] So you think, based on that, the aplomado falcon would be a lower priority throughout its distribution. And it's listed as a species at least concern on the IUCN on the various global lists. But, you know, there are problems down there. Like in Mexico, the, oh, what is it, palm nut oil. I looked at some Google Earth images of places where I used to work at aplomado falcons in eastern Mexico. And there these extensive palm nut plantations all over the place. They gobble up rainforest, cattle pasture, you know, everything except wetland.

**Dean Keddy-Hector** [01:31:42] And then you've got the biofuel production or demand for biofuel that's increased corn and sugarcane farming in some areas. And so, you have some of

the same forces. Oh, yeah, development of wind power. I have a feeling that that probably is going to make areas not suitable for aplomado falcons because of the way they hunt. And, you have all these human influences that are kind of chipping away and we don't really know which way they're going to affect the status of that species.

**Dean Keddy-Hector** [01:32:20] But it's safe to say, you know, in the tropics, the big concern isn't an open country raptor, that's, you know, the fifth most commonly encountered raptor, you know, in a road survey study. It's going to be, you know, harpy eagles. So, you know, things like that that occur in rainforest and need extensive chunks of land.

**Dean Keddy-Hector** [01:32:44] In the states, yeah, the golden-cheeked warblers as a as an endemic. Even if some of the population estimates are true, yeah, that should deserve higher priority.

**Dean Keddy-Hector** [01:32:57] You know, ocelots. Well, I guess you could make the same case for ocelot management as for the aplomados. But I guess, you know, it's hard to weigh in the PR benefits. Working with these charismatic, so-called charismatic megafauna like aplomados and ocelots that people can identify with a little bit better in a way. I don't know. I don't know the answer to that. Like I say, I wasn't- I wasn't 100% supportive of listing the species as endangered. So, I'll admit that. And I think with good reason. But I'm also realistic about kind of the forces in play.

**Dean Keddy-Hector** [01:33:44] And, you know, whereas I was 100% in favor of listing of our local endemic salamanders. So that was a no-brainer.

**David Todd** [01:33:57] Okay. Well, I love that you explained this so clearly, but also showed that it's very complicated. And so nice balance!

**David Todd** [01:34:10] And I guess the last question I had was just this wild card of climate change and what that might mean for a bird that's already in sort of a tenuous spot in terms of, you know, its range, and, you know, if the weather conditions are changing, how that might affect the aplomado. Any speculation there?

**Dean Keddy-Hector** [01:34:38] You know, based on Alberto's work on the rainfall effects, you'd think that climate change makes the, you know, the rainy monsoon periods in the Chihuahuan desert and Sonoran desert less frequent, and the intervening dry spells more intense, that you'd see those birds decline, continue to decline, whether they're losing habitat or not.

**Dean Keddy-Hector** [01:35:12] And, you know, complicating factor there has been the loss of moist desert playas and riparian communities that may have ameliorated some of those climate effects.

**Dean Keddy-Hector** [01:35:23] On the Gulf Coast, I don't know what to expect. I mean, do you think as our climate becomes more tropical, you'd have some species moved northward. I mean, there's that, the renowned bat falcon sighting at the Santa Ana National Wildlife Refuge, even though bat falcons nest within a couple hundred miles of Texas there, there in the city of Monterrey.

**Dean Keddy-Hector** [01:35:49] And, but, I mean, human influences are going to constrain the abilities of plant associations to shift north or south with climate change, north or south, or up or down, you know, higher or lower elevation. And, and so it's going to be messy.

**Dean Keddy-Hector** [01:36:13] I mean, I'm thinking, if the aplomado falcon were an obligate tropical species, then sure you'd expect it to, the conditions to be more favorable for it in Texas, say than they were, say, a hundred years ago. Although 100 years ago there was a specimen collected at Beeville, which is pretty far north. But I don't know of any nest records that far north.

**Dean Keddy-Hector** [01:36:47] But yeah, it'll be interesting to see over the next few decades. I mean, I've kind of jokingly well, it wasn't a joke, I said that the releases in south Texas had pre-empted or anticipated any northward movement generated by climate change. And, you know, whether it was going to happen or not, we made it happen.

**David Todd** [01:37:17] Yeah.

**Dean Keddy-Hector** [01:37:17] We'll see where it goes from there. Well. So thank you for fielding all these off-the-wall, left field questions. I would just close, I guess, today by asking you if there's anything you'd want to add about our aplomado falcon that we haven't gone over to your satisfaction, if maybe we gave something short shrift that you might want to mention?

**Dean Keddy-Hector** [01:37:48] No, not really. I mean, I think I made the point early on that I would like to see the recovery efforts shift to Mexico. And, its projects might really overemphasize the reintroduction effort and you know it may be too late to save the population in Chihuahua. I don't know. Hopefully not. But that's, that's highest priority to me at this stage. And yeah, it's good to re-emphasize that point.

**David Todd** [01:38:29] Okay. Well, that was great. You've been really generous, and I think maybe we'll call it a wrap for today, as they say in the movie business.

**David Todd** [01:38:42] But I do hope you'll indulge us again to take can return to talking with you because there's lots more to visit about.

**Dean Keddy-Hector** [01:38:51] Yes, the golden-cheeked warbler stuff is a whole 'nother bag of worms.

**David Todd** [01:38:56] Okay. Well, hum. Well, let's discuss that offline. And you know, you can suss out what time would be convenient for you if you're willing to go there. I know I would love to hear what you have to say.

**Dean Keddy-Hector** [01:39:16] Great. Yeah. I appreciate you letting me off the hook at this stage. We can kind of struggle through the rest of this. It would be better to give me another day or so to clear up this congestion.

**David Todd** [01:39:30] Okay. Well, I hope you feel better, but you did a great job today. And again, thank you so much.

**Dean Keddy-Hector** [01:39:37] Okay. I'll, I guess, communicate via email about scheduling the second half of this.



**David Todd** [01:39:44] Yeah, please. I would really appreciate that.

**Dean Keddy-Hector** [01:39:47] Okay.

**David Todd** [01:39:48] All right. Take care.

**Dean Keddy-Hector** [01:39:49] Take care, David.

**David Todd** [01:39:51] Bye now.