

TRANSCRIPT

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INTERVIEWER: David Todd

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David Todd [00:00:02] Well. Good afternoon. I am David Tod and I have the great privilege of being here with doctor Mark Kirkpatrick.

David Todd [00:00:08] And with his permission, we plan on recording this interview for research and educational work on behalf of a non-profit group called the Conservation History Association of Texas, and for a book and a website for Texas A&M University Press, and finally, for preservation and access at an archive at the Briscoe Center for American History, which is at the University of Texas at Austin.

David Todd [00:00:31] And I wanted to stress that he has all rights to use the recording as he sees fit. It is his.

David Todd [00:00:37] And, before we went any further, I wanted to make sure that's okay with Doctor Kirkpatrick.

Mark Kirkpatrick [00:00:42] It is.

David Todd [00:00:43] Great. Okay, well, let's get started then.

David Todd [00:00:46] It is Thursday, March 14th, 2024. It is about 1:10 p.m. Central Time. My name, as I said, is David Todd. I'm representing the Conservation History Association of Texas, and I am in Austin, and we are conducting a remote interview with, Dr. Mark Kirkpatrick, who is currently in the Austin area as well.

David Todd [00:01:07] Dr. Kirkpatrick has a B.A. in biology from Harvard and a Ph.D. In zoology from the University of Washington, and he works as a professor in the Department of Integrative Biology at the University of Texas, where he has taught and done research since 1985. He has interests in evolution of sex determination, genome structure, species range, mate choice, and quantitative traits.

David Todd [00:01:32] As a volunteer, Dr. Kirkpatrick has been involved in efforts to protect Barton Springs, a natural pool in central Austin, since the late 1980s. He participated in the effort to list the Barton Springs salamander, which is found there and also helped direct the science foundations of conservation work that's been done by the Save Our Springs Alliance.

David Todd [00:01:56] Today we'll talk about Dr. Kirkpatrick's life and career, so far, and especially focus on what he can tell us about the Barton Springs salamander, its life, its listing, its protection, and so on.

David Todd [00:02:08] So, with that little introduction, again, I wanted to thank Dr. Kirkpatrick for doing this. And, I thought I might start with a question about, his childhood

and early years. And I was wondering if you can point to any people or events in your young life that might have influenced your interest in animals and biology and conservation?

Mark Kirkpatrick [00:02:30] I'm going to hijack the flow of the conversation just briefly here to say thank you to David for all his work on recording the history of conservation here in Texas. This is just a terrific project.

David Todd [00:02:43] Thank you.

Mark Kirkpatrick [00:02:44] Yeah. Well deserved.

Mark Kirkpatrick [00:02:48] My childhood and early years are really pretty boring, regarding most everything. I had a family that was quite outdoorsy and sporty, so we used to go hiking a bunch, and my grandma always had a pair of binoculars by the kitchen window and taught me, you know, birds at an early age. I think the thing, the single thing, if I had to think about that turned me on to biology, was that, I grew up in a fairly affluent home, and, we used to, on spring break, there was a period of about four years there where we went down to an island in the Caribbean for a week or so. And snorkeling over coral reefs just made my head explode. You know, I bought a book and tried to learn the name of every damn fish on the reef. And, I mean, that still is one of the great biological, experiences that anybody could have. But that was a very, very, impactful experience at an early age.

David Todd [00:03:51] And, it sounds like your grandmother was, sort of, a good leader in trying to encourage you to look and notice, with those binoculars by the door. Were there other people in your family, or maybe friends when you were a child that might have encouraged that same kind of interest?

Mark Kirkpatrick [00:04:12] I think I'd really point to my grandmother, my parents, as being the major influences there. Both my grandmother and my two parents were also very strong conservationists. My grandmother, who lived the last part of her life up on Cape Cod, was instrumental in preserving a big stretch of beach on the north shore of Cape Cod and an important salt marsh. And so, I was, I guess it wasn't until many years later that I acted on that influence. But I think that primed me for thinking about preservation of the natural world.

David Todd [00:04:47] That's wonderful. Gosh. It's fantastic when there's sort of a dynasty of conservation.

David Todd [00:04:55] Well, and then, I was hoping that you might be able to tell us if there were any people in this sort of long academic career you've had, maybe starting from grade school - any teachers, any classmates who might have been influential in this same regard about the natural world and conservation?

Mark Kirkpatrick [00:05:14] Well, I did have a terrific biology teacher in high school, but, in fact, I wasn't really, intrigued by biology as being a subject I wanted to pursue until I got into college. And my uncle, who also lived on Cape Cod, had a marine consulting firm that he and a few other people owned. And I got hired, along with a bunch of other college kids for the summer, and we did two activities. One is we spent most days looking through microscopes in the attic of a small, rickety building in Woods Hole, Massachusetts, breathing formaldehyde fumes to identify larval fishes and larval eggs, because they were trying to understand what the impact of a couple of power plants were. They're sucking in huge amounts of water. And are they going to kill off a whole bunch of fish eggs and larvae?

Mark Kirkpatrick [00:06:10] So, as as gruesome as that seems, unpleasant as that sounds, it was actually a lot of fun, in part because I had such great other kids that were doing that along with me.

Mark Kirkpatrick [00:06:23] The other bit of the job involved once a week going out on a fishing boat. So, they they had contracts with several fishermen, and you'd go out with these guys and trawl, with a plankton net, to catch the eggs and the larval fishes that we would then study under the microscope. And that was just a blast - out there with these old gaffers who were just delighted to be paid for not working very hard. And, you know, we'd go out for half a day or more, and on the way back to port, you know, inevitably, a couple of beers got opened and I just thought, "Oh, man, people get paid to do this?"

Mark Kirkpatrick [00:07:03] So, that was sort of the light bulb going on: a career path that turned out to be the right one for me. Yeah, a lot of fun.

David Todd [00:07:13] That is great.

David Todd [00:07:15] And and, so this was college. You spent a number of years in grad school, from what I can tell from your CV. Any influential teachers, supervising professors?

Mark Kirkpatrick [00:07:31] Yeah ... with regard to anything having to do with field work or conservation. When I went to grad school, I wasn't clear quite what I wanted to do. And so, I tried experiments, and I tried fieldwork. I actually spent two summers down in the Amazon because I thought I might become a fish ecologist. And I discovered pretty rapidly that I wasn't very good at that at all.

Mark Kirkpatrick [00:07:55] And so, to be successful in one's life, professionally, you know, the secret is to find out, make come together two things - what you are good at, more or less, and also what you enjoy or passionate about.

Mark Kirkpatrick [00:08:10] And while sitting in Manaus, Brazil, I discovered that deriving equations to discover, describe and study evolutionary processes was, for me, very, very fun and very rewarding and actually got interesting results.

Mark Kirkpatrick [00:08:28] So, I pivoted from doing ecological field work stuff to doing mathematical modeling. And that's what I did for many years.

Mark Kirkpatrick [00:08:39] I've moved on and now doing different stuff. But that was, oddly, how I sort of got into my career.

David Todd [00:08:47] Very interesting. Wow.

David Todd [00:08:48] Well, so another question that we often ask people is, if there were sort of items in the public media and in the books, TV shows, movies, anything that might have been something that just caught your eye, caught your imagination, made you want to be involved in things regarding nature, conservation, science in your case.

Mark Kirkpatrick [00:09:10] Well, when I was five years old, there was a show called Diver Dan. And then when I was about eight years old, there was Flipper, which is about this, you

know, a teenage kid in Florida who had this very cool lifestyle that involved friendship with a dolphin. And, I think that's really pretty much it; nothing else comes to mind, honestly.

David Todd [00:09:34] Any books that were influential to you?

Mark Kirkpatrick [00:09:38] Oh, I read, you know, all the mandatory corpus of environmental stuff like Silent Spring and so forth, but, you know. For my parents and me and our friends, that was just sort of part of the left, politically left-leaning world where we would just all shake our heads and think about, you know, how horrible things are.

Mark Kirkpatrick [00:10:02] This is also the era. So, I was in high school when the first Earth Day happened, and it was sort of a wake-up of a national environmental movement that hadn't really existed before then. And so I guess I was at an impressionable age when that came online.

David Todd [00:10:16] That's interesting, you know. I think we, too often, when we do these interviews, talk about books, TV shows, movies. But these events, these public events, you know, were certainly, I bet, important for a lot of people.

David Todd [00:10:30] So Earth Day, this is 1970, the spring of '70. Is that right?

Mark Kirkpatrick [00:10:36] That sounds ... your memory is better than mine. That sounds about right.

Mark Kirkpatrick [00:10:39] My most vivid memory of that is getting a little metal pin that said "Earth Day" on it. And one of my friends gave me a hard time because it was made out of metal, and no doubt, had polluted the planet in its manufacture.

David Todd [00:10:54] It's hard to be pure. Oh, my.

David Todd [00:11:01] Well, so, let's zoom in on the topic of the day, Barton Springs. Tell me about your first visit to Barton Springs. How did you first get acquainted with that place?

Mark Kirkpatrick [00:11:15] Oh my goodness. Yeah.

Mark Kirkpatrick [00:11:19] So I moved to Austin from California, and a friend of mine and I drove a U-Haul truck with all of my worldly possessions in it, across Needles, Arizona. I think it must've been the hottest day of the year. And if you've done that trip, it's four days of not much fun - and in August, I should mention.

Mark Kirkpatrick [00:11:48] And so, I had heard about this place called Barton Springs. So, we got to Austin, and I was staying at a friend's house, a friend who was out of town. And so, we checked into his house, and went down to the Springs, and I'd just never seen anything like it in my life.

Mark Kirkpatrick [00:12:07] So, my friend Ruth and I jumped in the water and it was love at first sight. So that was ... yeah, that's a life-changing experience right there.

David Todd [00:12:19] Well, so, was the impression, one of, you know, cool water or tall pecan trees, you know, fish, or was it all the people wandering around?

Mark Kirkpatrick [00:12:31] All of the above. ... But, it was the magic of everything. I'd never seen a place like this. The hippest, coolest place. One of the most beautiful places ever on the planet. And swimming when it's, you know, when, as we know, when it's August and you can hop into 68 degree water, that is pretty magical.

David Todd [00:13:12] Yes, I hear you.

Mark Kirkpatrick [00:13:15] Do you yourself go swimming down there?

David Todd [00:13:17] Excuse me?

Mark Kirkpatrick [00:13:18] Do you yourself go swimming?

David Todd [00:13:20] Oh I do. Less and less. But, my earliest memories of coming to Austin are sort of like yours. I'd never seen anything like it, and I love it that other people had that same impression that it's just, it's a, it is the oasis. I hear you.

David Todd [00:13:40] Well, so one of the creatures that shares this pool with the people who are swimming around is this Barton Springs salamander. And I was wondering if you could sort of take us back in time to the first published description of the Barton Springs salamander, which I understood happened back in '82. Is that right?

Mark Kirkpatrick [00:14:03] It actually happened ... Yes. I'm sorry. Yes. That's right, 1982.

Mark Kirkpatrick [00:14:09] Professor Sam Sweet - he's now professor at the University of California - Santa Barbara - I think it was part of his Ph.D. dissertation, actually. He published descriptions of a number of species of salamanders in central Texas. And, having talked with him, many years later, he had the opportunity to give it a formal species name. And he thought that by doing that, it would actually threaten the species, because there would be these herpetologists who would want to collect it.

Mark Kirkpatrick [00:14:43] So, he made it very clear that it's a distinct population with features, morphology and so forth, that are different than any other species on the planet, which is, basically, a code word for saying this is a species. But he just didn't give it a formal name.

Mark Kirkpatrick [00:15:02] So, that was in 1982. And, that well, we'll get into this a little bit more later, probably, but that description that he made was sufficient to qualify it as an endangered species, even in the absence of a formal scientific name.

David Todd [00:15:21] Well so, I think you mentioned something in passing that I think is really interesting. It sounds like he was worried that if he put a name to this creature, knowing it was probably quite rare, that some of his fellow herpetologists might go in there, and if I'm following you, collect it, damage it. Is that what his worry was?

Mark Kirkpatrick [00:15:44] Yes, exactly. And this is not, it's not an idle or an unreasonable worry. There are a number of populations of amphibians and reptiles that have been over-collected by scientists. Oh, and fishes, I should say. I had a dear colleague in this department many years ago who was notorious for collecting thousands of individuals of a single species, when really just a small number would do just fine.

Mark Kirkpatrick [00:16:16] Yeah. So, unfortunately, scientists can sometimes be part of the problem.

David Todd [00:16:22] That's interesting.

David Todd [00:16:24] So, it sounds like Doctor Sweet's effort to describe this salamander happens in '82, and then about ten years later, 1993, I think, David Hillis, enters the picture and does a more sort of formal scientific description. Is that right?

Mark Kirkpatrick [00:16:47] That's right. So, that led to naming it with the Latin name, "Eurycea sosorum". Sosorum means "of S.O.S", and Save Our Springs Alliances is the group that was responsible for actually initiating the listing process to have it recognized an endangered species a federally endangered species.

Mark Kirkpatrick [00:17:10] And that was helpful because he did that, published a paper giving it a formal name, after we had started trying to get the species listed. And it was just one less argument that the opposition could make that we didn't have, you know, all our ducks in a row by because it didn't have a formal scientific name. But in fact, that probably would not have made any difference to the outcome of the listing process.

David Todd [00:17:38] And can you help me understand what it was that Dr. Hillis did? I mean, what is this scientific description? I'm just not familiar with that.

Mark Kirkpatrick [00:17:50] So Hillis, unlike me, is actually, you know, a recognized world authority on amphibians, and the systematics, systematic biology, meaning the identification of species and studying their evolutionary relations.

Mark Kirkpatrick [00:18:08] So, there's a very detailed, well laid-out methodology for giving a species a scientific name. And it involves giving a very exact description of what the animal look or plant looks like, where it can be found and other information, and it needs to be published in an appropriate journal. And, well, there's an arcane set of rules about what qualifies as a name and if separate people independently describe the same species.

Mark Kirkpatrick [00:18:48] Anyways, there's a lot that goes into, can go into that. In this case it really quite straightforward though because Sam Sweet had relayed all the foundation needed. And so Hillis's work was great in terms of getting the Barton Springs salamander, and also the Austin blind salamander, which lives very close by in the same aquifer, getting them both, listed as, formally recognized species.

David Todd [00:19:17] Okay.

Mark Kirkpatrick [00:19:20] What I will say off the record, if I might, is that, Hillis, I invited Hillis to join us on the effort to list the species and to do other conservation measures, and he declined. And, yeah, he was really not on the scene when we were doing the listing. So, you know, he did have this contribution he made that was somewhat helpful, but, not what I would say, yeah, not a major figure in the story arc.

David Todd [00:19:52] Okay. All right, well maybe one stop along the road.

Mark Kirkpatrick [00:19:58] Mm hmm.

David Todd [00:19:58] So, for those of us who are not really attuned and understanding about biological things, or about salamanders in particular, I was hoping that you could give us just a beginner's outline of the basic life history and ecological niche of a Barton Springs salamander.

Mark Kirkpatrick [00:20:20] So the Barton Springs salamander is one of quite a few species of salamanders that lives its entire life in the water. Other salamanders, like many frogs, will metamorphose after a juvenile period in the water and then come out on land. The ancestor of the Barton Springs salamanders did that. But then, the climate here in central Texas got drier and drier and drier, and it was very dangerous for an animal that needs to be wet to get out of the water. So, with the Barton Springs salamander, its evolutionary response to that situation, was to evolve a lifestyle where it became sexually mature while it was still in water (also has gills). So, in many ways it's a juvenile. It resembles the juvenile phase of its ancestor, but it does become sexually mature while it's in the water.

Mark Kirkpatrick [00:21:15] So this species, the Barton Springs salamander, lives in, as the name says, in Barton Springs. It lives inside the aquifer, close to where the springs, the aquifer exits into Barton Springs Pool. And it also lives in the rubble in the bottom of Barton Springs pool and a couple of the other nearby springs, very nearby springs. So, we're quite sure that the entire range of the species is about, is less than one square kilometer.

Mark Kirkpatrick [00:21:49] So, it's obligately aquatic.

Mark Kirkpatrick [00:21:53] And it's a carnivore. It feeds on small crustaceans, amphipods, they're called. They're insect relatives.

Mark Kirkpatrick [00:22:04] And, salamanders, particularly those that are living in cool water, have a pretty slow lifestyle. So, it can probably live on, you know, I don't know what the actual numbers are, somebody might, but I think that one calorie per year might be an appropriate energy budget for that animal.

[00:22:23] And they're quite long-lived. It's really life in the slow lane.

David Todd [00:22:29] But they get to live in a nice place.

Mark Kirkpatrick [00:22:33] They do.

Mark Kirkpatrick [00:22:33] So, the Barton Springs salamander, because it's, sometimes out of the aquifer, but much of the time in the aquifer, doesn't make much use of its eyes. So, it's not blind, but its eyes are reduced, compared to an animal that's spending its life, you know, out in the daylight.

Mark Kirkpatrick [00:22:54] Its relative, the Austin blind salamander, is one of the several species of salamanders in central Texas that really is blind. It's totally bought into a lifestyle that's entirely underground.

David Todd [00:23:07] Well, you know, I'm glad you mentioned that because I think that, I've heard, that folks have been interested in these Barton Springs salamanders and some of their kin, for them, showing kind of as a model for evolution and adaptation to life underground - the eye structures, and their, I think, their lateral line systems.

Mark Kirkpatrick [00:23:31] Yes. That's right. So, they've got this whole sensory system that we don't have that's able to detect vibrations, even in darkness, which is obviously a useful thing if you're trying to find some food and there's no daylight.

Mark Kirkpatrick [00:23:42] Yeah. So, I-35 runs starting north of Austin around the town of Salado, going down through Austin, down to San Marcos and New Braunfels, and then into San Antonio. That's tracing out the edge of the Edwards Plateau, where there's a big fault line, where a limestone formation that has got a lot of caves and a lot of aquifers is disrupted by this earthquake, a series of earthquakes, that happened millions of years ago. And as a result of that, it basically broke the pipes of these aquifers. And we have, as a result, this series of springs from Salado down to San Antonio and then going out actually out towards Del Rio.

Mark Kirkpatrick [00:24:34] And yeah, there are, I don't actually know the number, but there are more than a half a dozen species of salamanders that live, and some isolated from each other, in these different springs.

Mark Kirkpatrick [00:24:48] So Barton Springs is the fourth largest spring in Texas. It's a large body, a lot of water coming out of there in a continuous flow. And that's what supports the salamander populations.

David Todd [00:25:02] I love hearing these stories about how geology affects biology. That's fascinating. Thanks for filling us in.

Mark Kirkpatrick [00:25:12] My wife, at the time of the listing, Barbara Mahler, was a hydrogeologist. So, an awful lot of what I understand about how geology works and aquifers work I learned from her.

David Todd [00:25:29] Well, and I really want to hear more about her contributions, because I've understood from a lot of people that she was a big part of this story. And so, I hope that you'll convey some of that, you know, her participation.

David Todd [00:25:45] So, I guess these Barton Spring salamanders have been rare for many years. I've read that there's some low census numbers, have been fish kills, and there have been these concerns about the salamander. And I was hoping that we could sort of lay out some of the problems that a salamander might face in the middle of this burgeoning urban environment.

Mark Kirkpatrick [00:26:12] Right. Probably the biggest challenge is the quantity of water. So, happily, we seem to have turned the corner on our recent drought. But, we were, as recently as just 2 or 3 months ago, in the most extreme phase of a drought warning that the Edwards Aquifer Conservation District can give. So the wells levels were so low that there was really a great deal of concern.

Mark Kirkpatrick [00:26:44] Pumping of water, which is unrestricted, largely unrestricted, in Texas, and the drying climate are conspiring against the preservation of those flows. The climate in Austin has dried and warmed since I have been living here. I arrived here in 1985. About ten years ago, walking into my building here on the UT campus for the first time, I saw a raven, which is a bird of the deserts and the mountains. They used to be found only in West Texas. They're now flying by my window on a regular basis.

Mark Kirkpatrick [00:27:20] Likewise, well, there are other signs that the climate has changed. Everybody agrees that the summers are hotter here than they used to be.

Mark Kirkpatrick [00:27:28] None of those changes are beneficial for an amphibian. So that's that's a big, big warning sign.

Mark Kirkpatrick [00:27:37] The aquifer is an area of, I think, it's 254 square miles. I should know that. I've forgotten. And any major chemical spill, you know, an overturned tanker truck or somebody getting a little bit too free and loose with their pesticide: that stuff ends up coming out at Barton Springs. You can think of Barton Springs as the bottom of the funnel that's taking in all the water from this huge area, and it is concentrating it. The water is flowing at a very high speed through these large tunnels in the aquifer. It's not getting filtered. And so, there's very little opportunity for nasty compounds - hydrocarbons and other toxins - to be degraded. So that's another worry.

Mark Kirkpatrick [00:28:31] And then there have been incidents of huge sedimentation releases where well-drilling activities and breaches of dams in the watershed have unleashed big clouds of sediment that have ended up in the pool and that can clog up the aquifer. It can cause these salamanders to suffocate. It can have all sorts of other bad effects for the animals.

David Todd [00:29:01] This is helpful. Thank you.

David Todd [00:29:05] So, I think I'd also read, in addition to the pesticide issue and sediment problems, and groundwater concerns, that sometimes low dissolved oxygen can be an issue and that vegetation levels can get, you know, higher than what these salamanders are happy with. And ...

[00:29:23] Right.

David Todd [00:29:23] Can you explain how that figures in?

Mark Kirkpatrick [00:29:25] Thank you for reminding me. Yeah. So, a basic chemical principle is that liquids that are warmer have less dissolved gases. And so, what that means is that in the summer, when there is low flow and the atmosphere is warmer, that warms the rock, causing the aquifer to heat the water, meaning that there is less oxygen for the salamanders to breathe.

Mark Kirkpatrick [00:29:55] Also, fertilizers and other inputs that encourage algal growth, can cause algae and other kinds of plants to grow. And particularly when they die and decompose that sucks oxygen out of the water. So that is, yeah, thank you for reminding me: that's another major threat. This happens on a fairly regular basis, particularly in summer.

David Todd [00:30:21] Okay.

David Todd [00:30:27] So, now you've told us about your first encounter with Barton Springs, you know, after riding that U-Haul truck past Needles, Arizona, and you arrive and there's this lovely place. But I'm curious, when you became sort of more politically active, more engaged in sort of the controversy about Barton Springs and the Barton Springs salamander that lived there. I think you got involved in the late '80s, not too long after you arrived, right?

Mark Kirkpatrick [00:30:58] Yeah. That's right. So, Barbara Mahler and I were going for a swim. We were swimming down at Barton Springs several times a week, after work, and one day we're walking into the Springs and there was a card table out the front of the springs and, fellow named George Cofer, who's one of my heroes, was manning the card table. We start chatting with George. And Barbara and I thought, you know, we'd really like to get involved somehow in the community here in Austin - politically active, perhaps something having to do with conservation.

Mark Kirkpatrick [00:31:33] And we started chatting with George, and, George said, "Wait a minute. You guys are scientists, aren't you? Wait a minute. You work at UT? Huh. Okay, let me introduce you to Bill Bunch."

Mark Kirkpatrick [00:31:43] And so basically, they had the idea of using our expertise to write the petition. So, you know, Barbara and I wrote the petition and submitted the petition. So, we were the poster child, children, of the petition. But in fact, it wasn't us who came up with the idea of doing it at all. It was primarily the brainchild of Bill Bunch, and, he had a master strategy of protecting the springs. One of the efforts was getting the species, the Barton Springs Salamander listed as an endangered species.

Mark Kirkpatrick [00:32:22] He also worked to get Barton Creek listed as a Wild and Scenic River, which would have been a tremendous conservation tool. That effort failed, and he had a couple of other plots in play, but it was really luckily for us, it was the listing of the species that really turned out to have the biggest impact.

David Todd [00:32:45] That's amazing.

David Todd [00:32:47] So, I guess there was some politicking going on at tables at Barton Springs Pool. I believe though, that, one of the maybe more public events, was at City Council, June 7th, 1990, where there was this City Council hearing to consider the Barton Creek Public Utility District, and a lot of people turned out. And I was wondering if you were one of them or knew people who were there and can sort of tell the story.

Mark Kirkpatrick [00:33:26] Yeah. That was the most amazing political event I've ever seen in my life. So, that's a very famous event. The hearing went on till four in the morning. Or maybe it's even later than that. Hundreds of people showed up. We, only a small fraction of the people who wanted to, were trying to speak, including myself, many of us were not, we were too far down the list. So, after several other people had spoke, there were still several hundred more who wanted to speak, and didn't have time to get to us.

Mark Kirkpatrick [00:34:00] Yeah. We had appearances by a bunch of interesting people. Many, many in favor of protecting the springs. A couple on the other side, including Jim Bob Moffett, the head of a major mining consortium that had, has had horrible impacts in New Guinea, but also brought a huge development to the west of Austin, just immediately to the west of the city, right in the aquifer zone.

Mark Kirkpatrick [00:34:32] And he was very vocal at this Council meeting saying that he would bankrupt the City of Austin if they didn't grant him his building permits, despite what everybody else in the room wanted to have happen.

Mark Kirkpatrick [00:34:48] But, you know, I just wish I could replay for you some of the magic moments of that hearing, where people would come up to the microphone, say, "I had a dream last night and somebody was holding a gun to the salamander's head."

Mark Kirkpatrick [00:35:07] Oh, it was just, there were people outside blocking the street and with bullhorns. And it was it was just a, it was, it was a party. It was an expression of love and outrage, all at the same time. It was amazing.

David Todd [00:35:25] I like the way you put that. Just this whole spectrum of from love to outrage and quite a mixture of it.

Mark Kirkpatrick [00:35:35] Well, so, you'd mentioned Ms Mahler and this effort to get the listing for the Barton Springs salamander. And, as I understand it, the petition began, the original petition, in January of '92. And you were involved: Bill Bunch, David Frederick, Bridget Shea, and of course Barbara Mahler. And and I was wondering if you could sort of talk about the strategies and tactics of going about this.

Mark Kirkpatrick [00:36:13] That's a long and shaggy dog story, but I'll give you some of the high points and low points.

Mark Kirkpatrick [00:36:20] So, with the work of, let me actually highlight a couple of other people that you didn't mention. The real core group of attorneys who are, of course, the people that actually make things happen in the world. It was Bill Bunch, but then he also assembled this dream team that included Amy Johnson and Myron Hess. And so, they really made this thing go down the road.

Mark Kirkpatrick [00:36:46] So, we filed a petition, and that triggers, according to the Endangered Species Act, several hard deadlines, statutory deadlines, which Fish and Wildlife Service does not have the opportunity to negotiate. And one of them is that 90 days after they receive the petition, they have to formally announce in the Federal Register whether it looks like there is sufficient quality of information in the petition to investigate further.

Mark Kirkpatrick [00:37:16] Well, that was the first of about a half a dozen deadlines that they missed. They were supposed to make that determination in April. They finally made the determination in December of that year. And, between when we submitted the petition for listing and the so-called 90-day finding, there was a big fish kill in the pool. So, there was very, very clear evidence that we had a problem. We didn't have to exaggerate anything at all. Everybody could see it with their own eyes.

Mark Kirkpatrick [00:37:51] The next year, there was a deadline, December of 1993, where the so-called one-year finding was supposed to be made, where the Fish and Wildlife Service says, "Yeah, this really is a very strong case for listing the species or, no, it's not." That also went by the wayside.

Mark Kirkpatrick [00:38:15] So, they didn't publish their so-called one-year finding until the following year, 1994.

Mark Kirkpatrick [00:38:23] They had, in September of '94, the obligation to make a final decision. And that didn't happen.

Mark Kirkpatrick [00:38:32] So, I think you can see the pattern here.

Mark Kirkpatrick [00:38:35] In 1995, the state government started to get involved. Governor Bush, before he was president of the U.S., he was governor of Texas, of course, requested a six-month delay to allow the state to develop its own plan of action. And that's not an option for the Fish and Wildlife Service, according to law.

Mark Kirkpatrick [00:38:59] But Interior Secretary Babbitt, who is a Bill Clinton appointee (this is a Democratic administration that is, in principle, favorable towards conservation) - he grants a six-month postponement, to allow people to do further studies - Fish and Wildlife and the state and so forth, bowing to political pressure.

Mark Kirkpatrick [00:39:27] The Texas Natural Resource Conservation Commission came out with a statement that says that there's no data showing that there's any conservation problem here whatever.

Mark Kirkpatrick [00:39:41] In June of that year, U.S. Senator from the State of Texas, Kay Bailey Hutchison, was able to pass through Congress (I think it was attached to a defense spending bill, I forget the details), but passed through Congress a moratorium on the listing of any endangered species in the entire United States. So, I mean, you have to appreciate how threatened some political interests in the Austin area felt, that they were able to escalate this to the federal level and absolutely shut down all endangered species listings in the country, just to stop the listing of the Barton Springs salamander. I mean, that's that's impressive. You have to give them credit for having some clout there, right?

Mark Kirkpatrick [00:40:33] So, anyways, there are meetings, a constant stream of meetings between the state and the city and the biologists, including us. Really nothing happens. They're basically not letting us testify. They're letting their developer lawyers testify, but not the biologists.

Mark Kirkpatrick [00:40:53] And another parallel story that's developing is that the president of U.T. in 1990, I think it was through 1992, Bill Cunningham, he then became chancellor of the UT system. He developed close ties, close personal ties, with Jim Bob Moffet, the evil developer. And in fact, Moffett appointed Cunningham to the board of his mining company and took him on helicopter tours of New Guinea and all sorts of other perks.

Mark Kirkpatrick [00:41:31] Moffet gave (I forget what the numbers are), but gave something like a few million dollars, which represented about 10% of the cost of building a new molecular biology building on campus. And Cunningham put Moffet's name onto this building. As we are talking, I'm looking out my window at this building. This is ironic in several different ways. Typically, universities around the country have a threshold of you have to give at least 50% of the cost of the building. But apparently for Moffet and for Cunningham, 10% was just fine.

Mark Kirkpatrick [00:42:09] And basically the faculty at UT went ballistic. And, were holding all sorts of protests in front of the Faculty Senate. And, yeah, there's a lot of activity on campus, headed up by a couple of really great professors in computer sciences. This is not just a bunch of biologists that are involved. So, that was that was very fun. That was very, very interesting.

Mark Kirkpatrick [00:42:40] Let's see. So, goodness. How much time do we have?

Mark Kirkpatrick [00:42:46] In November. Save our Springs and Barbara Mahler and I filed our first lawsuit against Babbitt in federal court saying, "Really, these guys have to make a decision." And, the Judge Bunton of Midland, who is famous for having a rocket docket, which is why we filed a case there (he makes decisions quickly), he ruled in favor of the salamander. He ordered Babbitt to make a final decision within 14 days.

Mark Kirkpatrick [00:43:21] Babbitt appealed the decision to the very conservative fifth circuit of Fifth Circuit Court in New Orleans. And, which. Put on hold or so-called stayed the buttons ruling that 14 day action had to happen. So, let's see, it wasn't until the following year were into now, 1996, that the Fish and Wildlife Service drafts a rule suggesting that the in the salamander is, in fact, endangered.

Mark Kirkpatrick [00:43:55] And in response to intense lobbying from the State of Texas and developers and others, they then withdrew their proposed listing a month later. So, they got totally backed down by, you know, corrupt political interests.

Mark Kirkpatrick [00:44:14] In October of '96, we filed the second lawsuit challenging the withdrawal of the listing.

Mark Kirkpatrick [00:44:21] Oh, let me just back up here. I mentioned that - actually, I have one very awesome story. I mentioned that Kay Bailey Hutchison was able to get all endangered species listings halted for a period of months. There was a finite period, and Bill Bunch and Barbara Mahler and I were having a fun evening at a dive bar called the Austin Outhouse that was just off campus. And it's about 11 or 12:00 at night, and we're dancing and drinking probably a couple of too many margaritas. And all of a sudden, we went, "Oh, my God, Hutchinson's moratorium expired today!"

Mark Kirkpatrick [00:45:05] And we got back in the office the next morning and wrote the next lawsuit to get the species moved onto the endangered list.

Mark Kirkpatrick [00:45:17] So, anyways, we got one of several legal legal challenges filed.

Mark Kirkpatrick [00:45:25] In 1997, so if you are keeping track of the years here, we started in '92. We're now five years, not one year, which is what the law says, five years into this whole process. And, the court, in response to our second lawsuit said, "Yeah, Fish and Wildlife Service has exceeded all these deadlines. You now have 30 days to make a final decision. No screwing around this time."

Mark Kirkpatrick [00:45:50] And in April of 1997, that finally happened.

Mark Kirkpatrick [00:45:56] That's the short version of the story.

David Todd [00:46:02] This is remarkable. You really got their attention, and, serious delays. And this is sort of off the little path, but it is really intriguing to me, this point that you made earlier that that somehow even in what was kind of a local concern, I mean, this this animal is just within, you know, the watershed here. And, they managed to elevate this even within a Democratic administration to the very highest levels of federal policy. What do you think the fear and concern was on the opposite side?

Mark Kirkpatrick [00:46:45] So, the the head of the Austin Office of Fish and Wildlife Service at the time was a guy named Sam Houston. You got to love the name. And a representative

from Washington, D.C., of Fish and Wildlife, came down to Austin, and with Sam Houston, and I'm sorry, I'm forgetting this guy's name as we were standing at Barton Springs, they look us in the eye and they say, "You probably don't want to move forward with this, because if this species gets listed, it will threaten, there'll be such a backlash, it will threaten the Endangered Species Act itself."

Mark Kirkpatrick [00:47:22] And so there was just a huge amount of doom and gloom associated with this petition.

Mark Kirkpatrick [00:47:28] There was an economist at Baylor who did an economic analysis, and assured the city that if this listing went through, the restrictions on development would cause the City of Austin to go bankrupt.

Mark Kirkpatrick [00:47:41] Now, I think we've seen how that played out. I'm looking downtown and the number of construction cranes is uncountable. I don't think that Austin took an economic hit. As a matter of fact, one could make the very strong argument that the conservation efforts that Save our Springs initiated have led to the recognition of Austin as having very high quality of life. And it's been really instrumental in getting this tidal wave of people moving to Austin that we now have.

Mark Kirkpatrick [00:48:11] So, I'm sorry, I'm digressing. Point just being that, yeah. It wasn't just about the local developers and economists, but also the Democratic representatives of the Fish and Wildlife Service were promising us that the listing of the species was going to be really, really bad news for the environmental movement. Yeah, I think that we can see that history didn't work out quite that way.

David Todd [00:48:43] Well. So there's this sort of general political controversy going on with lots of pressure at the governor's office, the TRCC, the Fish and Wildlife Service, even all the way up into the U.S. Senate. I'm curious what the implications were for you personally at the university. You know, you were young and early in your career, and I guess, you know, hadn't yet received your professorial standards and protections.

Mark Kirkpatrick [00:49:18] Right.

David Todd [00:49:18] What did you think about your situation?

Mark Kirkpatrick [00:49:23] My colleagues were just terrific. My chairman, you know, everybody around here was just very, very supportive. So, I never felt that there was any sort of professional threat, whatever. I think that the greatest, the greatest pushback I got was a very senior member of the faculty invited me into his office. He said, "Now, I've read your petition. And is it really true that this many pounds of lead are washing off of the Barton Creek Mall parking lot every year?" So, I think he might have been right. I think I might have gotten that number wrong.

Mark Kirkpatrick [00:49:58] But, I mean, you know, the worst that happened was people were asking whether I got all of my data actually correct, which is a great thing for scientists to be doing. But never did I get any pushback for the actual impetus of listing the salamander.

David Todd [00:50:16] Well, interesting. And I guess sort of as a follow up, you're, you know, very respected and renowned for being a population geneticist and, you know, evolutionary biologist and so on. But you're you're not a herpetologist, per se.

Mark Kirkpatrick [00:50:32] That's exactly right.

David Todd [00:50:33] And I'm wondering if, you know, a lot of academics are understandably reluctant to get out of their lane and, and stray into areas that have got all sorts of unknown issues. How did you sort of navigate that?

Mark Kirkpatrick [00:50:52] Well, really. I mean, this is one of the genius strokes of Bill Bunch. He realized that I had the credentials to make people who were not better informed think that I knew something about the subject of salamanders. Barbara Mahler actually did know a whole lot about how caves and aquifers worked.

Mark Kirkpatrick [00:51:10] Oh, I might back up. You were asking about political pushback. So, she was a Ph.D. student at the time, and she never had her career threatened or anything like that. But that also is interesting because at that time, the developer, Jim Bob Moffett, whom we were discussing a minute ago, was giving a huge amount of money to the geology department. And so, yeah, he had a huge impact on this university, not the biology part of it, but the geology and the upper administration were very, very strongly influenced by his money.

Mark Kirkpatrick [00:51:45] Yeah. I'm sorry. Does that...? Y.

David Todd [00:51:48] That helps. I'm glad you had the courage to to take this on. You know, lots of pushback on many levels.

David Todd [00:51:58] So, you know, we've talked about science and politics. I understand that you're also interested in art, and are quite a serious nature photographer. And I was wondering if you could talk a little bit about how that figures into your appreciation of the natural world and maybe conservation as well.

Mark Kirkpatrick [00:52:22] Yeah, so, photography is a passion for me just as recreation. And I do some wildlife photography, I also, do.

Mark Kirkpatrick [00:52:32] Oh. Don't go away.

[00:52:39] Yeah. Unfortunately, like many photographers, I'm a little bit too obsessed by my gear, so I bought a new camera. And have you ever seen a digital camera that can only take black and white pictures?

David Todd [00:52:53] Wow. No, no, this is great.

Mark Kirkpatrick [00:52:56] You pay extra for the model that only takes black and white. So, I'm having a blast with that trying to learn how to take pictures of people with it, actually.

Mark Kirkpatrick [00:53:08] But, yeah, so I go, I've got this core group of half a dozen friends, and we go on these remarkable trips about once or twice a year, most recently, last fall to Madagascar, this coming fall to South Africa. We've been to New Guinea. I'm sorry. I can bore you with all the amazing places we've been to: Brazil, Panama, yeah. Did I mention New Guinea? Anyways, yeah, so, you know, the wonder of nature, which is what first got me interested in biology back when my grandmother was showing me birds and I was snorkeling on coral reefs. I still get a high from that.

Mark Kirkpatrick [00:53:51] And, yeah, just, you know, sort of the most magical thing I can do is see some spectacular thing in nature. That's just my favorite thing.

Mark Kirkpatrick [00:54:00] And, yeah, and so, I think it might be a function partly of having a really bad memory. I like to document things so I can remember them. So, yeah, that's part of my, I think that's part of my psychological motivation for photography. But I just get a great esthetic kick out of seeing beautiful things and trying to reflect what they look like in pictures.

David Todd [00:54:22] That's great. That's great.

David Todd [00:54:25] So, I think that it'd be interesting to talk a little bit about your, relationship with, the Save our Springs Alliance, and your role there. I mean, I understand that that you were a board member and also the science officer in a sense, I mean that you really looked at some of the technical issues they were taking on. And I was curious if you could talk about your role there.

Mark Kirkpatrick [00:54:53] Yeah. So, after the successful effort with the petition, Bill Bunch roped me into helping out on a more long-term basis, and he made up the office of "science officer" for me. I'm not sure that there's been one since I left the board. Yeah, the other name for the science officer was the "official pointy head". And, yeah, so, I chucked in my two-bits opinions about political issues, but I think also, my value was being able to be quantitative about things.

Mark Kirkpatrick [00:55:37] When Texas Department of Transportation is proposing a huge new highway going through Oak Hill, for example, I'm able to read the technical reports and make some sense, identify where the flaws in their logic might be. So, I did a lot of that.

Mark Kirkpatrick [00:55:56] And yeah, it was also, yeah, for me, it was also a big social thing. Those were my peeps. You know, to this day, the majority, I think, well, a big slice of people who are not my U.T. buddies but are outside the university are environmental lawyers. So, I had dinner with Amy Johnson last night, and I'm going to the Saxon Pub with Bill Bunch on Monday night. So, anyways, it's such a great community of people. And, yeah, working with Save Our Springs is just one way to continue to interact with them.

David Todd [00:56:36] That's interesting. It seems like it satisfies a lot of things - your scientific curiosity and, you know, search for a community of friends, and also, of course, political leanings.

Mark Kirkpatrick [00:56:49] Yeah.

David Todd [00:56:50] I get it.

Mark Kirkpatrick [00:56:52] It's the great thing about Austin: you can have the best of having a hopefully positive impact on the community, but also have a whole lot of fun with really great people doing it. This place is very special that way.

David Todd [00:57:07] Well, and speaking of of fun, and about community, you know, Barton Springs, itself, aside from S.O.S and you know, the non-profit, it seems like the springs, from your very first visit, has always had this wonderful community of people, kind of its own

ecosystem of people who love the place and swim there and dive there. And, I was wondering what that group of people means to you when you go and visit.

Mark Kirkpatrick [00:57:40] Yeah. I am so lucky. I have a house that I couldn't possibly afford to buy if I was moving to Austin now. I live about a five, ten-minute walk away from the hike and bike trail around the lake and a 15-minute bike ride from Barton Springs. So, I'm able to cycle down there before work on hot summer mornings, get in a dip, have my core temperature dropped by 5 or 10 degrees, air-conditioned internally for the rest of the day. And so...

Mark Kirkpatrick [00:58:16] Oh, there goes a raven!

Mark Kirkpatrick [00:58:17] Yeah, there are all sorts of special people. One of my very good friends is Ben Livingston, who's a neon artist and musician and tremendously creative soul. And he's down there every morning of the year. So, that's the kind of person that I don't know that I've ever met anywhere else. Just wonderful, wonderful guy.

Mark Kirkpatrick [00:58:47] Well, I'm just free associating here.

Mark Kirkpatrick [00:58:50] Have you ever done the howl at the moon? Have you ever done a full moon swim at Barton Springs?

David Todd [00:58:54] No. I want to hear your howl.

Mark Kirkpatrick [00:58:57] Goodness. So, in the summer, particularly late summer when it's really hot, the pool stays open at night. And on full moons, there's sort of a party atmosphere, and people go down there with bongo drums and all sorts of stuff. And it is just so fun because everybody is everybody's best friend. I mean, there are hundreds and hundreds of people there who are all just really having a big party with strangers.

Mark Kirkpatrick [00:59:29] And, when the moon finally comes up over the hill, there's a pretty good set of howls that happen. And that's just, yeah, that's part of the zany fun, zany funness that we have at Barton Springs.

David Todd [00:59:47] That's great. It's nice to have fun.

Mark Kirkpatrick [00:59:50] I got to drag you down or some time, David.

David Todd [00:59:53] That would be fun. That would be fun.

David Todd [00:59:56] So, you know, we talked mostly about this endangered species, this endangered amphibian, Barton Springs salamander. But I was wondering if its situation, its circumstances here in central Texas bring to mind the controversies over the golden-cheeked warbler and the black-capped vireo and some other cave critters and so on that that have faced problems.

Mark Kirkpatrick [01:00:21] Yes, indeed. Interesting that you mentioned the warbler. So, the golden-cheeked warbler was listed by Bill Bunch, by, through Bill Bunch's efforts. And that had a huge impact on development to the west of Austin in the Hill Country. Conserved a huge amount of land. We have a system of preserves and easements of large ranches to the west of Austin that would not be there if it were not the golden-cheeked warbler listing.

Mark Kirkpatrick [01:00:53] By the way, the golden-cheeked warbler ought to be showing back up here in Austin maybe as early as next week. They're the earliest breeding bird in Central Texas.

Mark Kirkpatrick [01:01:03] Anyways, sorry. Back to the point.

Mark Kirkpatrick [01:01:07] There is an effort to delist that species that is being spearheaded by an employee of the Fish and Wildlife Service. This, I think, is a ... I do not know this individual personally, but, it looks to me like a stealth employee got into the Fish and Wildlife Service and is using his position there to do some dirty business.

Mark Kirkpatrick [01:01:34] They have come up with revisions of the population sizes that make absolutely no sense. And the data, or not their data: their extrapolations and their hallucinations of the population sizes have been reviewed by some really, really good biologists with the City of Austin. And it is very clear that they are really warping the data in order to make this argument.

Mark Kirkpatrick [01:02:00] So, yeah, so, this same set of, the same dynamics of very large economic forces coming up against some very strongly-willed conservationists, this has played out multiple times in Austin, and it's continuing to do that.

Mark Kirkpatrick [01:02:22] And you are reminding me I need to check up. So, that's one of the ways in which I am staying in touch with Save Our Springs. I sort of stay on as a consultant with them basically, and get called in when they need somebody to, you know, read the biological dirty details and try to do some numbers. And so, I'm doing a bit of work with them on the golden-cheeked warbler now.

David Todd [01:02:47] Good.

David Todd [01:02:48] So, let's talk a little bit about the Barton Springs salamander itself. I'm curious, you know, it has this wonderful life history and evolutionary background, and it has this, you know, political side where it was sort of hijacked for people's purposes. But I'm wondering when you think about this little creature, this, you know, this three-inch salamander, what sort of value do you see in it, just in and of itself?

Mark Kirkpatrick [01:03:24] In and of itself? Oh, yeah. Great question. There are many reasons why people are conservationists and there are many reasons to conserve nature. Mine really comes down to esthetics. I would just like to see a bigger slice of the organisms alive on the planet, be here in the near future. We are in the middle of the biggest extinction event in the history of the planet, even bigger than the one generated by the asteroid that hit Mexico 65 million years ago. And that just, yeah, that makes me sad.

Mark Kirkpatrick [01:04:11] So, the extinction event right now, of course, is being caused by people. So we have, in principle, control over that. We don't seem to be exercising much control.

Mark Kirkpatrick [01:04:22] But I guess my attitude, you know ...

Mark Kirkpatrick [01:04:24] So you said, "in and of itself".

Mark Kirkpatrick [01:04:25] I'll finish just the thought about its bigger role. I figure that if we fight like hell to save all the species, we might save a very small fraction of them. And so, there's certainly no hope of saving all of them. But, that's my, I guess, my motivation.

Mark Kirkpatrick [01:04:44] The salamander, as and for itself? I guess I would just say that every organism on the planet has a special place in my heart, and I'm really that nostalgic and fluffy in my emotional connection to nature.

Mark Kirkpatrick [01:04:59] And so, yeah, I would like to see, you know, the flame bowerbird of New Guinea, I'd like to see that it's going to still be here 100 years from now.

Mark Kirkpatrick [01:05:10] I'd also like to the Barton Springs salamander here a hundred years from now. They both have got some pretty serious challenges. We'll see.

David Todd [01:05:18] Yeah.

Mark Kirkpatrick [01:05:21] What's your motivation for being a conservationist?

David Todd [01:05:24] Oh. That's a conversation for another time. But, I, I had, some, some, ancestors who cared a lot about this stuff and worked on it, and I give them a lot of credit for what they did.

Mark Kirkpatrick [01:05:47] Cool.

David Todd [01:05:48] And they made me care as well.

Mark Kirkpatrick [01:05:50] That's great.

David Todd [01:05:52] So, a little chat about your professional career: you know, you're both a scientist and a professor. What is your view of that life, and you know, the value you have found in it, the joy, the significance?

Mark Kirkpatrick [01:06:17] Well, it's a job that is probably only right for about 1 in 1000 people. You can certainly get rich a whole lot faster selling real estate, and you can certainly get more sleep selling real estate. But, you know, for me, there's no other job on the planet that would make me this happy. So, I feel very, very lucky I'm able to do what I would really love to do and get paid to do it.

Mark Kirkpatrick [01:06:46] My main love is doing research, which I am continually excited about. That thrill has not worn off at all. But I also enjoy my teaching, and some bits of it more than others. I just finished my intensive part of the year teaching 200 undergraduates. And it's an introduction to evolution, which is a required course for all the bio majors at the University of Texas. So, about 600 or 700 students go through the class every year, not all of them taught by me. But anyways, it's a big deal.

Mark Kirkpatrick [01:07:24] And I have to say that I really, really, really enjoy teaching that class. It's exhausting because there's a performative aspect to it. And, you'll appreciate this because you were asking about photos. I put in every lecture one or sometimes two sets of photos from my travels to illustrate a certain point.

Mark Kirkpatrick [01:07:48] And the first time I did it, I thought, "Oh God, the students are going to be so bored. They're going to, you know, they don't want to hear my vacation pictures."

Mark Kirkpatrick [01:07:54] And all I get on my student evaluations panel is, "More vacation stories, please!"

Mark Kirkpatrick [01:08:01] You know, I tell them how I was threatened by, in Australia, several years ago, I was threatened by the only bird that's able to kill a human.

Mark Kirkpatrick [01:08:13] And, you know, pictures of volcanoes to illustrate continental drift and, you know, the pictures of the flame bowerbird to illustrate sexual selection, blah, blah, blah, blah. On and on and on.

Mark Kirkpatrick [01:08:26] I have a lot of fun telling them my stories and showing them my pictures. And my argument about why this is a good thing to do is that I'm pretty convinced that they will remember the point I'm trying to make, if I've got some silly story and a couple of fun pictures, than if I just tell them some dry facts and show them somebody else's data.

Mark Kirkpatrick [01:08:49] So, I'm claiming, I'm justifying to myself, by claiming that I'm doing them a service by showing them my vacation pictures.

David Todd [01:08:57] Well, I can see how it conveys. This is something that's personally important to you, and you're giving them that gift of a sort of shared experience. Totally makes sense.

Mark Kirkpatrick [01:09:09] Especially the story that is pretty unflattering that goes with these ideas.

David Todd [01:09:16] Well, I'm glad you survived the set-to with this dangerous bird.

Mark Kirkpatrick [01:09:21] I have just one more question. You know, is there anything you'd like to add? Sometimes we, without meaning to, we miss something important and skip over it. And this gives a little chance to go back and and maybe clean things up, pick up the missing pieces.

Mark Kirkpatrick [01:09:39] David, thank you for asking. I think I will remember what I forgot to say at sometime around 6 A.M. tomorrow, but, not at the moment. So, I think we're all good.

David Todd [01:09:47] Okay. And then I have a favor to ask, and if you don't want to go there, I totally understand, but, I've heard from a number of people that Barbara Mahler was a fabulous person, and I'm wondering if there's anything that you could sort of impart about her interest in the natural world or in the salamander in particular.

Mark Kirkpatrick [01:10:12] Yeah. So, okay, I'll just mention a couple of things, sort of off the record from the interview, but, we had a very unpleasant divorce in 2000 and 2001. And, yeah, so I've got some. It took me a few years to get over that. And I still have a little bit of emotional baggage attached.

Mark Kirkpatrick [01:10:40] And then the other thing I'll mention is that she died last April. She had a horrible, horrible car accident that I wouldn't wish on anybody in which her husband and her dog were killed. And she received very, very serious injuries, including brain damage. And she finally succumbed to that after several years in hospice.

Mark Kirkpatrick [01:11:04] So anyways, it's a little bit complicated, but let me answer your question now.

Mark Kirkpatrick [01:11:10] So, she, like me, was always very strongly oriented towards the natural world. So, during the 17 years that we were together, we would do long backpacking trips, typically in the Rockies and the Sierra Nevadas in California, but also in places like New Zealand. And so, we had an awful lot of shared love of nature.

Mark Kirkpatrick [01:11:37] And so, she was a musician when we first met, and when she moved to Austin to follow me here, she made a very calculated decision of how she was going to support herself in Austin, Texas. And she decided she would start a whole new career as a hydrogeologist. And that was a way to wed her interest in the natural world with a career.

Mark Kirkpatrick [01:12:04] And so, she, after graduating with a, she got a Master's and then a Ph.D., and ultimately got a job with the U.S. Geological Survey, where she made some very important contributions to identifying pollutants entering the Barton Springs aquifer, for example. So, she she had a continued impact, yeah, after the listing of the salamander and was doing good stuff.

Mark Kirkpatrick [01:12:32] I'm sorry. I sort of drifted around there. Was that, did that answer your question? What was the question?

David Todd [01:12:37] No, I just wanted to, you know, unfortunately, there are a lot of people we would have liked to have spoken to that we can't for various reasons. And, it's nice to get a sense of of who she was and what she did. So, thank you for sharing that.

David Todd [01:12:53] That's that's really all I have, except a lot of gratitude for you doing this.

Mark Kirkpatrick [01:12:59] Thanks to you for doing it.

David Todd [01:13:00] Oh. Thank you. I wish you safe travels back to England in short order. Glad I caught you before you're off to the new, next adventure.

Mark Kirkpatrick [01:13:13] David, I'm just gonna add one final comment.

David Todd [01:13:16] Yes.

Mark Kirkpatrick [01:13:17] I'm bouncing back and forth between Texas and England, and one of the whiplashes I get is having to do with conservation. They are so green there, it's ridiculous.

Mark Kirkpatrick [01:13:29] Every time a small country lane goes over a tiny bridge with some water beneath it, there is a toad crossing sign. Every hedgerow has got some restoration effort to bring back the voles or whatever the local species is. It is everywhere you go.

Mark Kirkpatrick [01:13:47] So, England's got a bunch of other issues, but man, they are just so much greener and so much more conservation-oriented. It's just taken as a baseline, rather than being something that you have to fight with all your might for.

David Todd [01:14:02] I'm glad to hear that. There's hope for the rest of us who who aren't Brits. Maybe we'll evolve. Okay.

Mark Kirkpatrick [01:14:12] Cool. Thanks very much, David. Yeah.

David Todd [01:14:14] Really fun to talk to you.

Mark Kirkpatrick [01:14:16] Great to see you.

David Todd [01:14:17] All right. Thank you. Bye now.