

TRANSCRIPT

INTERVIEWEE: Thane Wibbels

INTERVIEWER: David Todd

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David Todd [00:00:03] Well, with your approval, Dr. Wibbels, we plan on recording this interview today for research and education work on behalf of the Conservation History Association of Texas, a nonprofit group, and also for a book and a website for Texas A&M University Press, and finally, for an archive at the Briscoe Center for American History at the University of Texas at Austin. And that's our goal for the recording, but we wanted to stress that you would have all rights to use the recordings as you see fit as well. And I wanted to make sure that sits well and is agreeable to you.

Thane Wibbels [00:00:43] Absolutely. So is your book like the history of conservationists in Texas?

David Todd [00:00:49] That's, that's kind of the goal. You know, where it will be when it's done, I'm not quite sure, but we've done a couple of previous books about environmental history, one about people and one about places. And then this is more about the animals that are affected. And, but it's, a lot of it is oral history based. So it's going to have to go where the interviews lead us, I think. Anyway, that's our goal. And I was hoping that that seems acceptable to you. And if so, then just give me the high sign or whatever the oral equivalent to that is.

Thane Wibbels [00:01:29] Nope, that, that, that sounds great. I think the more we, we record and get the history of all the people that have been contributing to the Kemp's ridley, the better. And there's a lot of neat stories out there.

David Todd [00:01:42] Super. Well, I look forward to learning more. So let me just lay out the date and time and where we all are and, and then maybe a little bit of introduction to Dr. Wibbels.

David Todd [00:01:59] It is June 28th, 2021. It's a little past 1:00 o'clock in the afternoon, in Central Time. My name is David Todd and I am representing the Conservation History Association of Texas. I'm here in Austin. We are really fortunate to be conducting an interview with Dr. Thane Wibbels, who is a professor at the University of Alabama at Birmingham in the biology department and is also the director of the undergraduate honors program there. During his career, he has studied a variety of sea turtles, including the Kemp's ridley, and we look forward to learning about both his, his life and career, and then also about the Kemp's ridley and some of the things he's learned over the years.

David Todd [00:02:46] Since he is in Alabama, I believe in Birmingham, this interview is being done remotely by Ringr.

David Todd [00:02:56] So we usually start these interviews with just a question about your childhood and what might have possibly influenced you - people or events, experiences, friends, family, teachers - who might have spurred your interest in working with animals and sea turtles in particular.

Thane Wibbels [00:03:16] Well, in actuality, I wasn't really set directly on sea turtles, I was more interested in science in general. And again, I was growing up, the really formative years, probably, in the 1970s, in grade school and high school. And, and that's a time when on TV you got some good science programs. But they were, you know, the National Geographics and the Jacques Cousteaus, et cetera. And I watched all those.

Thane Wibbels [00:03:44] Luckily, my, my parents, my parents were teachers. And so we had a little bit of time off in the summer. And every summer we'd travel and actually travel out and see, you know, the Grand Canyon or the California coast or the Florida coast and things like that. So I kind of had the good fortune at that time to actually be able to travel, see things and also getting things on TV. But I was always interested in science, and by the time I was ready to go as an undergraduate in college, I kind of started homing in on biology and not necessarily sea turtles, but biology in general. And probably the same as many, many people at that age and interested in biology, it was like I want to study marine biology.

Thane Wibbels [00:04:31] And so I started looking at various schools, etc. that had marine biology programs and I was checking out Florida and Texas and et cetera. And I ended up through a series of things down at University of Houston and they had a marine science program down in Galveston, on the coast, etc. It wasn't all that far from the Midwest. I grew up in Nebraska and, and so after I graduated with a degree in zoology at University of Nebraska, I traveled down to University of Houston and started working at the marine science program. And that's where I got kind of hooked on sea turtles.

Thane Wibbels [00:05:13] And that's because that was this was, you know, as a 21, 20 year old or whatever going down there. All of a sudden I'm going into a place that's trying to save the most endangered sea turtle in the world. And they literally had a barn full of sea turtles. We called it the turtle barn. They had upwards of one to two thousand Kemp's ridleys that were, they were raising in the National Marine Fisheries Service. And the National Marine Fisheries Service was on or part of the place that the University of Houston had their marine science program, down at, on Galveston. And so that's kind of where I really became kind of interested in and hooked on, on sea turtles working on that program.

Thane Wibbels [00:05:57] And that was right at a time, again, the early 1980s, when the Kemp's ridley is virtually on the, on the verge of extinction. All right? So it's going down for the count. And literally everyone is doing everything they can, you know, including a Head Start program, in hopes of, of having all these backup plans and trying to enhance what's going on in the wild. And that's kind of how it all started. And so after two years of working on, on more than that, a little bit, I was down. I think I worked for the National Marine Fisheries Service. I was an intern for them while I was doing my degree, and my job was to literally raise turtles, OK?

Thane Wibbels [00:06:39] But at the same time, I was studying them and that's what I did my master's degree on was, you know, they actually let me kind of study the ones we had in captivity and look at their orientation characteristics. I went out with them and when we released them, we had radio transmitters on them and we'd track where these Head Start

turtles go after we released them out into the Gulf of Mexico, et cetera. And so that's kind of how it all started.

Thane Wibbels [00:07:03] And really wasn't just, you know, working with the Kemp's ridley, but, you know, I think a lot of it was the fact that I was also exposed to all the different people who were doing sea turtle biology and sea turtle research, sea turtle conservation at the time, because they were a lot of people around the world were interested in the Kemp's ridley, et cetera. And so that, I think, was one of the kind of major advantages.

Thane Wibbels [00:07:32] And so I basically started there at Galveston, all right? And did my master's degree there. And in the meantime, I met Dave Owens from Texas A&M University, who was a world expert on sea turtles and sea turtle reproduction and, and biology. And that acted as kind of a springboard where I hopped into his lab to do a Ph.D. after working in Galveston. And we continued on doing similar things. We kept working with Kemp's ridley a little bit, but we worked a lot of different sea turtles. And we also, the really kind of cool thing that we did was we generated a project with one of the world's foremost sea turtle experts over on the Great Barrier Reef in Australia, and were able to go over there and actually study turtles there.

Thane Wibbels [00:08:19] And so it's just been kind of an evolution of, of topics that I've done that related to sea turtles. And I'm making this really short here. We can hop into specifics, but after I got out of that, I went and did a postdoc at University of Texas, OK, at, in the biology department. And there I was studying one of the things I've become interested in with the Kemp's ridley and sea turtles in general was the fact that they have this temperature-dependent sex determination. So I went and I did a postdoc for a number of years at University of Texas, and that kind of got me into not only sea turtles, but you know, really kind of, really interesting physiological science, evolutionary science, et cetera. And it was something that I could apply back to sea turtles.

Thane Wibbels [00:09:06] And so once I got out of there, I got my position here, which was way back in the early '90s. And since that time, one of the main things we've been studying is temperature-dependent sex determination. But because I'm now or was have I jumped from, let's say, the federal government to back into being a student? Once you're a professor, you've got a faculty position - number one, you're busy 150% of the time, but you also have flexibility. And so one of the things that I would do is that, as time permitted, I kept kind of getting back, or should I say, gravitating back towards the Kemp's ridley.

Thane Wibbels [00:09:52] And so by 1998, I think, I was actually back doing research at Ranch Nuevo. You know, I was doing other turtles too, et cetera. But that was a main focus and it was so really kind of cool where early on I was exposed to the Kemp's ridley, and to a lot of the people, and then not too much later, all of a sudden I'm back in there and seeing how that program's going and I've been working with it ever since. We basically have some of the longest long-term databases on the Kemp's ridley on nesting beach temperatures, sex ratios and things like that. And we're literally still working there today.

Thane Wibbels [00:10:33] And so I've always felt very fortunate to be a person who, you know, being able to get into something, you know: sea turtles and specific aspects of biology like temperature-dependent sex determination and being able to stay on top of it. That was one of the reasons why I really liked working for National Marine Fisheries Service, again, just as an intern, you know as a college intern, or whatever. But there it was a little bit more political, where one day you might be working on sea turtles and the next day might like, well,

we're not doing this anymore. We're going to be doing shrimp. And the nice thing about being in academics, you got a little bit of freedom there, but that's again, because you're doing all these other things to, to justify your existence.

David Todd [00:11:12] [Laughter].

Thane Wibbels [00:11:12] But to actually do it, you know, you have that flexibility.

David Todd [00:11:18] Well, you know, you mentioned in passing a number of interesting institutions and people - National Marine Fisheries Service and then Dave Owens, who I guess was at Texas A&M back in the day. And I was curious if there were people at either the National Marine Fisheries Service or at Texas A&M early in your career who, who, you know, were encouraging or helped inspire you?

Thane Wibbels [00:11:45] Well, yeah, absolutely positively. And, you know, there are the obvious ones - the people I have already mentioned, like Dave Owens, you know, a fantastic person. You know, things like when we went to Australia, we worked with Colin Limpus, who's like still considered one of the top sea turtle biologists, ever, etc. But the other thing is, in working with Dave and working, there's multiple chapters to this. And I understand we can't go on for two days here.

Thane Wibbels [00:12:16] But the thing is, when I was on, let's start out, when I was working at Galveston, it turns out the Kemp's ridley was such a hot topic at that time because, you know, there are seven species of sea turtles in the world and this one was going extinct, that the KUHT, out of Houston, the PBS station there, decided to do a documentary. And this is all part of, to a large extent, being at the right place at the right time. And so it's like they call over to like the biology department. They said, "Hey, you know me, anybody who's studying sea turtles? You know, there's this topic we want to look into it." And they said, "Well, we've got one guy who's doing a master's degree down in Galveston who's working with their programming." And the person I was working with was not a sea turtle person, person who like studied shrimp and things like that. And so it kind of fell on me, you know. I was like a year into graduate school. And I tried to help him and I was not, you know, audacious or anything like that, I was just like, I'm new to this, but I'll do everything we can.

Thane Wibbels [00:13:20] But the beauty of that was I got to tag along for their whole project. And what they did was, they would basically bring in all the people who were the movers and shakers in the sea turtle world and in the Kemp's ridley area. And so I got to meet people like Peter Pritchard and Henry Hildebrand, and I got to know the people in the federal government who were trying to save the turtles. Like, well, at the time, there was a lot of political things there, but the person who was really instrumental in that was a guy by the name of Jack Woody, who was the national sea turtle coordinator, later became the acting director of the US Fish and Wildlife Service and stuff like that. And so and I got to meet the people from Mexico, Rene Marquez, OK, who was in charge of the sea turtle conservation in Mexico. He was at Instituto Nacional de la Pesca at the time.

Thane Wibbels [00:14:20] And I also got to meet some of the what would be considered "grassroots" people from Texas down from the Valley. And so I got to meet like, well, I actually got to meet with Ila Loetscher through Dave Owens, OK, who was like the turtle lady of Padre Island. But also there was Dearl and Ethel Adams, OK, as examples. And I got to meet Pat Burchfield right as he was, now back, this was way back, OK, when I was just starting my master's, I got, got, got to meet Pat Burchfield, who is still running the Kemp's ridley program

down there 40 years later or something like that. And so it was pretty amazing - and all different personalities, you know, different emphasis in life, things like that. But it was, it was kind of interesting because the Kemp's ridley was this kind of unifying factor that literally kind of brought people together.

David Todd [00:15:20] Isn't that interesting that you all shared an interest in this, this creature and came from different walks of life and different experiences and skills? Yeah.

David Todd [00:15:31] Well, while we're talking about your, your early days and some of the mentors and educators that you might have run across, we often like to ask if there was a book. I mean I think you mentioned some media things - Jacques Cousteau's programs. But was there a book or a series of books that were in the sort of natural history or conservation field that, that were inspiring for you?

Thane Wibbels [00:15:59] You know, I did definitely have sea turtle books and read them, etc. But I want to say my greatest inspiration was mostly the people and just kind of the experiences. Now, now, the other thing is like when I'm working with, with down at Galveston and things like that, I got to meet like Archie Carr, who wrote, you know, all the books on sea turtles. And I got to meet Larry Ogren, who was one of his first students, OK? And I got to know them over time. Not necessarily Archie Carr. I mean, I, I see Archie at a few meetings and things like that. But, you know, Larry Ogren, I'd see him and talk to him on the phone several times from the National Marine Fisheries Service. I got to know a guy by the name of Llewellyn Ehrhart, Lou Ehrhart from University of Central Florida. And, and these were people who were all, and Peter Pritchard, OK, who was like, you know, number two only to Archie Carr and being a charismatic person who really portrayed that type of thing. And Peter wrote many books, too. I mean, I can I can literally, you were asking books like if if we were on a Zoom call right now, you'd see my, my bookcase behind me. We've got like two, two rows of books on either turtles or sea turtles and things of that nature by those type of people.

Thane Wibbels [00:17:17] The other person I got to meet that was really informative and wrote literally the books on sea turtle was Nicholas Mrosovsky, and he was the one who really brought temperature-dependent sex determination to life. But Nicholas, Nicholas, there's all sorts of stories. OK, but Nicholas was, he was from Canada and a very good scientist, very well respected, etc. And he wrote a book about how, how everyone was doing all this conservation really poorly. It's like, you know, like hold on, you're not thinking about this from a scientific standpoint. This is all emotional and stuff like that. And I think he kind of ruffled feathers and things like that.

Thane Wibbels [00:17:57] And so it was very interesting seeing these various personalities. In fact, one of Doc Ehrhart's student, Lou Ehrhart's students, we had a meeting one time at, at the University of Central Florida, and it was the, at that time, the Southeast Regional Sea Turtle meeting. You know, all the sea turtle people were there and they said they picked up Jack Woody, who was the national sea turtle coordinator for U.S. Fish and Wildlife Service and Nicholas Mrosovsky at the airport at the same time. And they get in the back seat and Jack says, "Hey, Nick, how are you doing?" "Fine, fine. How are you doing, Jack?" "Oh, everything's going fine." Jack and Jack Woody looks at Nicholas, and says, "You know, Nick, I read your book." "You did, Jack?" He said, "Yeah." He says, "I didn't like it." And he said, "That's why I wrote it, Jack."

Thane Wibbels [00:18:52] Yeah. And the whole thing is, in the sea turtle world, what you had are a lot of great personalities. And you still have a lot of great personalities, and you always

will. But they, they all to a large extent, got along and they understood kind of the main priorities, et cetera, you know. And so it was, it was, it is to a large extent camaraderie, which really made it nice.

David Todd [00:19:18] That's great. It is, I guess, sort of a translation project to, to go from the science to the personalities and to make these priorities work, you know, for the whole team to, to be on the same page.

David Todd [00:19:35] Well, you know, you mentioned your interest before we started recording in the history of the Kemp's ridley sea turtle. I think you were talking about deep history at that point. But I was wondering if you might be able to talk to us a little bit about the history of the turtle since maybe the discovery of the arribada in 1947. I think you've written about this and I'd love to hear your perspective on, on the discovery of the turtles down on Rancho Nuevo.

Thane Wibbels [00:20:07] Yeah. I mean, that's, again, the Kemp's ridley story will sell itself. It's got such a rich history, not only in its kind of ecology and evolution, but also in the, what I consider the cultural history.

Thane Wibbels [00:20:25] There are, there are seven species of sea turtles, or eight, depending on if you're a splitter or combiner with the genetics on the green turtle. But the whole idea of seven species are there are two that are regionally located. The other five are worldwide. And so the Kemp's ridley kind of eluded people's attention, at least worldwide in scientific attention for up until really the late 1800s, OK? And so, you know, we talk about the discovery of the arribada and things of that nature, but it was a gradual kind of evolution up to that discovery. And it involved a lot of those people that I've already mentioned - the Henry Hildebrand, the Archie Carr, et cetera.

Thane Wibbels [00:21:09] And it all, it all started in the, the western Gulf of Mexico, or excuse me, the eastern Gulf of Mexico, where it was initially described in the late 1800s by a person (and this always kind of blows my mind that you had people that were interested in turtles back in the 1800s and mid 1800s) and he brought a lot of attention, he brought it to the attention. This is a guy by the name of Richard Kemp, i.e., the Kemp's ridley, and he brought it to the attention of the, what I consider, the heavy-hitter biologists. And it was like he went right to the top and went to Harvard, where they had the Harvard Museum of Comparative Zoology and the top ichthyologists and herpetologists, literally in the world, and brought it to their attention where all of a sudden, you know, the species was discovered, OK? But nobody knew anything about it.

Thane Wibbels [00:22:01] And, and really, the concept back at that time, you know, we're looking at 1880, was the fact that you have this species. It's distinctly different than the loggerhead, the green, et cetera, that occur in this case now in Key West and Florida. But that, we don't see it around here, nesting. You know, like hold it. These things are really abundant. I would assume people are catching them and eating them all the time down there, and up here, in the Gulf of Mexico. I guarantee you, the people at that time would have been catching them all the way from, you know, the Texas / Mexico border in the United States, all the way around through Florida. And yet there's no record of it nesting.

Thane Wibbels [00:22:45] And this turned into one of Archie Carr's books. Archie Carr basically went on a search in the Caribbean, OK, and the Gulf of Mexico looking for the potential nesting beach. All right? And it made for a, if you read the books, "The Windward

Road" and, and also, "So Excellent a Fish", the stories are kind of brought out in that. And it was just bizarre. And Archie Carr, who's literally the dean of sea turtle biology and got the biologists as well as the public involved in sea turtles. It was a mystery. He considered it the most mysterious animal in North America. It's like, it's abundant. You can find it, you know, along the coast of Florida, no problem, et cetera. We don't know where - it doesn't nest.

Thane Wibbels [00:23:35] And so it got to the point where they thought it was a hybrid. They thought it was half loggerhead, half green, or was you know, offspring of a hybrid and things like that. And that's, that's literally the way the state of the knowledge stayed from like 1880 up until about 1960s in the scientific world. OK, I'm sure other people, if you know, depending on where you're at, et cetera, you may know more about the Gulf, about Kemp's ridley, you might be someone who's fishing in certain areas. And so, you know, the kind of the natural history.

Thane Wibbels [00:24:10] And so that, that took it to Herrera. And so again, 1880, you identify the sea turtle. There is no Internet, there's no at the most, you have newspapers once in a while, a few books and things like that. And so, you know, the news travels slowly at that time. And Herrera, and I've had the good fortune actually meeting Andres Herrera several times and being at his home several times. And he's got a great family. And he was a, I think they like to describe him as, a, a self-made man. That was what his daughter told me. And Andres was basically a productive rancher, business person, et cetera, at Tampico, Mexico, over in the western Gulf, just south of where the main Kemp's ridley beach is, and this is back in the 1940s, and he was an active, he liked to, he liked to fish and hunt and things like that. He also liked to fly and he had a small airplane, a little Cessna. No, maybe a Piper, I can't remember. I have to look. Anyway it was a single-wing, you know, bottom, you know, landing gear would not retract or anything like that. Real simple plane. And he had friends who flew also. That was what was bizarre. They'd go places. They'd say, let's go hunting this weekend, OK. We're going to go up to so-and-so. And they'd fly up there or they'd say, let's go fishing. And they go, hey, just south of Rancho Nuevo and they'd go fishing.

Thane Wibbels [00:25:50] And when he goes there, they find out that there's a fishing camp and the guy who runs the fishing camp tells him, hey, you know, there's a place north of here where these turtles nest by the thousands. Now, he didn't know anything about this whole mystery of the Kemp's ridley. Archie Carr has been writing it up in books, but he's not reading the books. It's not highly popularized. But what he says is, "Really?" He says, "like nest every day?". And they said, "No, no. They all come out once." And he's like, "What? That sounds crazy."

Thane Wibbels [00:26:19] And so he thinks, hey, I should capture this on film. And if I can capture on film, this would be something that I could send to the movie companies and it would document this interesting biological phenomenon for humans. So he does this for two years, OK, in 1946 and '47, he's flying or 1947. But he's flying back and forth from Tampico to the base of the border of Texas and back. He does like 33 flights, I believe. And he finally hits a jackpot where he gets over there in mid to late June flying over Rancho Nuevo and there are thousands of turtles coming out of the beach and nesting.

Thane Wibbels [00:27:02] And so he lands along with a couple other planes, or, no, two planes. So along with one other plane, they land and he gets out, films the event and he's got it, you know. And what's really cool about that is, because you don't see this in other species, is that it, and this is something we kind of brought out one in one of the pubs that we did, but it provided a benchmark that you don't get in a lot of endangered species. Because a lot of times

what you get in a species is like, oh, boy, this thing's almost going extinct. I wonder what it used to be like? Well, I'm not sure, but it's probably a lot of them, you know. Well, this actually gave us an indicator of how many were in the Gulf of Mexico at that time.

Thane Wibbels [00:27:48] And not only that - OK, this is weird. This would be better to get Zoomed because I'll be standing up and yelling at the camera here. But the point being is this is a species where you can figure a lot of the biology out by going to one place because you can see how many turtles are nesting because they all migrate to one location, at least a large proportion of them do.

Thane Wibbels [00:28:13] And so anyway, he gets the video or gets the movie. He's got a 16-millimeter camera. So it's a good movie camera. And he records that and takes it back. And the story goes that he just put it in his closet, didn't realize the significance. Well, he understood the significance. He just couldn't get anybody to buy it, or bite, bite on the story. And so he actually, he was well connected. OK, I've got a lot of, we actually donated, we interacted with the Herrera family and got all the documents from the family. And we donated them to the Archie Carr Museum of Natural History, or Archie Carr Sea Turtle Center at University of Florida.

Thane Wibbels [00:29:00] And he, he tried diligently to get people from the movie industry, the newspapers, TIME magazine, et cetera, to actually publish this back in 1947n. And he couldn't get anybody to go. And so finally it just kind of sat in his house because he tried, OK, he had tried. But he was always telling people about it.

Thane Wibbels [00:29:21] And that brought up Henry Hildebrand. And so the person who really kind of discovers this whole thing and puts two and two together is Henry Hildebrand. And that's because, Henry, I had the good fortune of meeting Henry back in the 1980s when we're doing those initial, well, actually, initially he used to come to the National Marine Fisheries Service in Galveston because he knew we were running the turtles. And so you talked to Henry, and Henry is this (you've talked to him), he is, he is this laid-back fisheries biologist. I call him a biologist's biologist, OK? And he could just sit there and talk, you know, fish and turtles all day. And that's what was great about Henry Hildebrand.

Thane Wibbels [00:30:08] He taught at what was a place down, what now would be kind of like University of Corpus Christi. And he'd take students, as well as himself, into Mexico periodically and look for, you know, talk to all the the people who are doing all the fishing, all the shrimping, et cetera, and get all the natural history stuff. And he went to the same fishing camp that Andres Herrera went to, which is just south of Rancho Nuevo. And the guy who ran the thing was still there. All right? And he actually, he did, he had been there before, but he actually called him. OK? I got this from his notes and he called, he called this guy by the name of Francis McDonald, who ran the fishing camp. And Francis tells him, "Oh, yeah, there are some." And he's interested in turtles in the western Gulf, in the western Gulf of Mexico. He says, "Francis, you know, you have some turtles nesting down there?" He says, "Oh, yeah, we got, we got that area kind of north here where they nest." He says, "And there's a guy who's got a historic film on it."

Thane Wibbels [00:31:04] And Henry's like, "What?" He says, "Oh, yeah, he took a film back in the 1940s of, like, thousands of turtles up on the beach." And Henry was like, "Really?" And he said, "Yeah." He said, "You ought to talk to this guy. He's Andres Herrera in Tampico."

Thane Wibbels [00:31:17] So and so, Henry immediately writes Andres a really nice letter and says, "Hey, there's this mystery." You know, Henry Hildebrand knew the literature. He knew Archie Carr's books, etc. And he said, "You know, we've got the, we've got this literature." Ah, or, excuse me. He said there's a film. So he, he sends Herrera a letter and says, "Hey, you know, rumor has it, you have a film of lots of turtles nesting. I'm trying to research this." He explains all the different turtles and things like that to him in the letter. And he says, "If you have it, I'll come pick it up." And Herrera, says, "Oh, no problem, I'll send one of my buddies up with it." He says, "I got people coming up all the time."

Thane Wibbels [00:31:59] And so, you know, this thing just like arrives at, at Hildebrand's office or at home. And so he takes it in and runs the film, you know, and all of a sudden, and it's like the original Herrera film, which I have, which I actually have, we also donated the original Herrera film to the Archie Carr. I remember thinking as I was driving back from Texas, like, you're going to have to be careful driving. I've got the original film.

Thane Wibbels [00:32:26] But anyway, it was where, the beauty of this whole thing is he, he's read all the books, he's heard all the stories. He knows the mystery of the Kemp's ridley and all of a sudden, boom, right there kind of, out, on the screen, in his office, he gets to see, oh, my goodness, this is way more than anybody had ever anticipated, etc.

Thane Wibbels [00:32:52] And so that's where, like I said, the history of the Kemp's ridley will hook you, not only from a biological standpoint, because it's just a cool biology, but also [excuse me], but also because the rich cultural history that's, that's actually involved in it. Yes.

David Todd [00:33:13] Well.

Thane Wibbels [00:33:13] So no go ahead.

David Todd [00:33:15] No, I think it's just startling that that you go from no knowledge to a lot of knowledge in just one film, one event, you know, what is it, two, three minutes of film? That's extraordinary.

David Todd [00:33:32] Well, and so that's, as you said, sets up the, this sort of benchmark for these sea turtles, their population in 1947. Can you tell me a little bit about the, the trends in the turtle's population in the years since then, I mean, some of the major shifts that have been seen since that first sort of acquaintance with how many there really were?

Thane Wibbels [00:34:02] Yeah. And so, so, so that sets it all up. And Henry, Henry Hildebrand, actually presents that, that, the movie at a scientific meeting in Austin, Texas, OK, in the early 1960s. And it's like, OK, mystery solved. No problem. We know it.

Thane Wibbels [00:34:21] So people start going down there, and not only scientists. In particular, some of the people from the Valley start going down. And that's because he makes a copy of the film and one of the copies was kind of distributed down in the Valley. And it's seen by a number of people. And some of the first people to go down there are actually people living right down in the Texas Valley, in particular, Dearl Adams and Ethel Adams. He's a wealthy contractor. I think he built the, he told me, he, I think he and his brothers built the airport at Brownsville, as an example. And so he was, and he was he was an avid sportsman, OK, just like Andres Herrera.

Thane Wibbels [00:35:04] And it was interesting because I've done some interviews of his, his kind of the people he hung out with and people of Brownsville at that time. And a standard procedure, if you lived down in Brownsville, Texas, back in the 1960s, as an example, and you were, if you liked fishing and hunting, what you did is you went into Mexico, OK? And so they'd routinely go down there and go fishing in various locations, knew the area very well. And so Dearl actually went down, and once he heard about that nesting beach, went to the nesting beach itself. And what he saw and he actually wrote this up in a couple of articles, a layperson, and he writes it out, up in a general herp/biology journal. And it was on the fact that when he gets there, there is mass kind of exploitation of eggs. When they get down there, there's commercial exploitation of eggs.

Thane Wibbels [00:36:03] And this is where, you know, like a lot of the local groups, I'm sure knew that the Kemp's ridley's nesting there. And then we've talked to the locals that grew up at Rancho Nuevo, well, that's exactly what they told us. And so, "Yeah, yeah, people'd come up, say, hey, arribada, arribada!" And so you'd go down and if you have to collect eggs, you'd collect eggs, et cetera. They didn't take a lot of turtles, per se. That did not seem to be the general trend. But eggs went out by the thousands. OK, you know, you collect what they call like a gunny sack full of eggs and you sell it for, I can't remember, five pesos or something like that.

Thane Wibbels [00:36:36] And so what Dearl noted was heavy exploitation at the time, and it was commercial exploitation. They were bringing in big trucks from Mexico City and things of that nature.

Thane Wibbels [00:36:46] At the same time that was occurring, we're now in the the '60s, 1960s and into the '70s, you also have increased pressure out in the Gulf of Mexico because the shrimp and fishing industries are expanding, and in particular like shrimping industry. And so, you know, not only do you have heavy exploitation on the nesting beach, but what you're seeing is that some of these turtles, that one in one hundred, one in a thousand, that makes it to adulthood is getting taken out by the shrimp industry, inadvertently, you know, incidental catch. They don't want to catch them. They were, they were catching prior to turtle excluder devices. And so there were a lot of things happening.

Thane Wibbels [00:37:31] But what they did find out when they went back in the '60s is they weren't seeing those, they were seeing some, still some pretty good size arribadas, but nothing like the Herrera arribada, OK. And so the population had declined. And so then what happened was it continued to decline.

Thane Wibbels [00:37:48] And we always talk about, in 1978, we started an international Kemp's ridley conservation program. Well, actually the Mexican government and Rene Marquez and actually some people who predated him, Chavez, et cetera, were there from like 1966, on. And so they, they recognized it. Dearl, as an example, told me, "Oh yeah. We sent letters to the Mexican government, and you know, said, "You've got a problem. You can't just keep taking all these eggs and not expect the population to crater." And so they started doing something about it. So they actually had egg corrals back in 1966 where they were collecting eggs and putting it. But it just wasn't quite enough.

Thane Wibbels [00:38:34] And so this is where other people got involved. And it is a rich history. I did try to write this up, at least a portion of it, in a summary of one of our Kemp's ridley symposia that Pam Plotkin from Texas Sea Grant was instrumental in getting together.

Thane Wibbels [00:38:56] But the point being was that there were a lot of things going on that caused the decline of the Kemp's ridley both out in the water and on land, and gradually it came of light. OK? And, you know, because the Mexican government is down there. And so now we're in the 1970s. The population's now starting to really decline, OK, to the point where, hey, this thing could be going extinct right now, OK? And that got the attention of the United States to a large extent. OK? Mexico's already down there. There are a few people on the beach, but they don't have a lot of money in the program and things like that, just because of the situation.

Thane Wibbels [00:39:38] And that got the interest of Padre Island. And this, again, it's just amazing all the different people who become involved in this. And, in the 1970s, so now we're probably early 1970s, there's a guy, Bob Whistler, who is the naturalist down at Padre Island. And it just turns out, and I didn't know this, but Donna Shaver told me this, was that Bob Whistler was kind of like a neighbor of Henry Hilderbrand's. And so I don't think he's next door, but he's in the same neighborhood. And so he talked to Henry. And because I always kept thinking, because I knew Bob Whistler, I'd gotten to meet Bob Whistler. And it was kind of like, you know, to me it was like, it was like Bob was a good naturalist, but like he wasn't like a dyed-in-the-wool sea turtle biologist or something like that. And yet at one time it was said, Bob Whistler came up with the whole idea of like the Head Start program. Well, like, really?

Thane Wibbels [00:40:34] And it turns out he's talking to Henry Hildebrand. And Henry Hildebrand's probably planting these seeds, these ideas. And Bob, what Bob does is he sends the idea up the chain of command, through the National Park Service, to Albuquerque, where the headquarters are. And basically there's a guy there, Ro Wauer, and Ro Wauer later becomes the head scientist for the National Park Service in Washington, D.C., not regionally, but like the whole, you know, so there's a lot of interesting people that were part of this.

Thane Wibbels [00:41:09] And he's you know, he calls a guy over at US Fish and Wildlife, in Albuquerque, Jack Woody. And says, "Hey, Jack, you know anything about this Kemp's ridley? I just got this thing from Bob Whistler." So, and Jack's like, "No, but I'll check into it." And Jack's a hands-on person, later become the national sea turtle coordinator. He's the endangered species specialist at that time. And he, he says, "I'll check into it." And the way Jack checks into things is he goes and checks things out. And so Jack goes down to Padre Island, etc. Not only that, but Jack tells me, he says, "Oh, yeah." And then he said, "I basically snuck down to Mexico without telling the agency to see what the heck was going on." Now that type of stuff would never happen today. OK, but what that was like a classic Jack Woody.

Thane Wibbels [00:42:02] So anyway, that kind of gets things rolling in the United States. And what that then does, (this is now '76, '77), that starts getting meetings going between the United States and Mexico. And what happens is, the fact that they decide, and this is to a large extent Jack Woody's idea, and Jack decides that, you know, trying to start what Bob Whistler suggests, via discussions with Henry and stuff like that, is that if this thing's going extinct in Mexico, we should probably try to get a secondary beach here. And we could potentially bring sea turtles up here and release them and they might imprint to this beach. All right?

Thane Wibbels [00:42:49] And so that was kind of the idea that went up the chain to Albuquerque to Ro Wauer. And Ro Wauer talks with Jack Woody. He also talks with the head researcher at U.S. Fish and Wildlife Service, et cetera. And they decide that they want to try to generate an international program, and so they talked to Rene Marquez down in Mexico, et cetera. And as luck would have it, what we generate is a binational program starting in 1978.

And Woody's idea was, "Hey, I'll tell you what. If you can send us up, you know, you've got several thousand nests a year maybe or whatever. And if you can send us up, oh, 20 nests of eggs and let us hatch them out on Padre Island, what we'll do..." And this is, this was, this was Woody's way. He, he didn't really see Padre, let's say, the end-all of end-alls of saving the Kemp's ridley. But what he saw, it was a way of getting a foot in the door to get more support down in Mexico, and so what he did was he said, "I'll tell you what we'll do. We'll get a bunch of students and some equipment and send it down there to help you patrol the beaches so that you can save more eggs." And they said, "Sounds good." And so that's exactly what they started in 1978.

Thane Wibbels [00:44:09] And up till this day, that program is still working based on that. And they not only did that, but what they did was they get the eggs up to Padre. And for the first 10 years or more, they decided, well, to give these turtles a better chance, let's raise them for a year. And so they got the National Marine Fisheries Service involved in Galveston. And that's where initially Jon McVeigh and Ed Clima and later on, Charles Caillouet. Charles took it over and ran it for years, OK? Would basically raise turtles and then release these turtles when their one year of age, supposedly where they would get through the high mortality portion of their life history.

Thane Wibbels [00:44:53] And so that's kind of how that all got started. And it's, like I said, a lot of different people who, who just kind of interacted and then someone else would take the ball and and run with it, etc.. And at the time they got, when they started down in Mexico, they actually had Peter Prichard. So also Peter Pritchard, who was Archie Carr's Ph.D. student, who is very well known in Florida Audubon Society. He heads the program up for the first few years, OK, for about the first three years.

Thane Wibbels [00:45:25] And then Woody realizes it might be good to get someone right there on the border who's really, you know, down, going down, looking at the place and interacting a lot down there. And so he then gets Pat Burchfield from Gladys Porter Zoo. And Pat has run it till this day, the kind of the U.S. contingent of that binational program. And it is still going very strong now, interacting with CONANP, which is the Mexican National Park Service, rather Instituto Nacional de Pesca. And they have an evolution of of the various agencies in Mexico, just like we do here in the United States.

Thane Wibbels [00:46:01] And so that's, to make a long story, long, is kind of how it all got started. And a number of just really instrumental people. And it's interesting because when we did that Heartbreak Turtle thing back in the 1980s, I got to talk to all, a lot of, those different people and later, the people I didn't get to talk to, if they're still alive, I actually went and talked to them just to kind of get a feel for their personalities and what the, what the history was. And it is a rich history.

David Todd [00:46:31] Oh, that's great to get that sort of first-hand exposure to people who were intimately involved.

David Todd [00:46:36] You know, one thing that you said in passing I thought was, was intriguing was about Jack Woody and his idea that the Padre Island National Seashore, part of its significance, I guess, would be as a second nesting site. But, but that it was also, as I took it from what you were saying, sort of a, of a mark of good faith, a bargaining chip, to get some sort of engagement with the Mexican government. Is that, is that what you were trying to say, or did I misunderstand you?

Thane Wibbels [00:47:06] I think what we saw was that he could say, hey, we'll send U.S., this is my opinion, but we can send U.S. Fish and Wildlife people down there to help you on the beach. And Mexico's going to say, "No, no, this is our project. We got it." But then he said, he said it was kind of a quid pro quo, but, hey, we would like some eggs. And in exchange for the eggs, we'll send students and some ATVs and, and things like that. And then they saw us, like, OK, this is where we're still, Mexico's in charge of the whole thing, and we're helping out the United States, not the opposite, so to speak. I mean, it was, it was, it was, it went both directions. But I think Jack kind of understood the politics and understood that he could get it through that way.

Thane Wibbels [00:47:45] And that's only part of the story. I won't launch into the whole other thing. But so it all starts in '78 and it's like, "OK, this is great." We get, now we've got some pickups down there, we got ATVs, we've got students as well as Mexican biologists. We're getting a lot more eggs. The eggs are going, they're making a lot of hatchlings. The hatchlings are going in the water.

Thane Wibbels [00:48:07] And what happens? The population continues to go down. It's like, "Uh oh, what's going on here?" We've got this great international program going. You see all these wonderful little hatchlings going into the water every year. I mean, hundreds of thousands of hatchlings going in and we keep getting fewer and fewer coming back. What's, what's, what's going on?

Thane Wibbels [00:48:30] And that's where, again, a lot of people came into play on this. Not, this is back with Archie Carr, OK, and, and the people over in Florida and Jack Woody, OK. And the people up in Washington, D.C. You have NGOs that are working on this. In particular, a couple of people that were instrumental - Marydele Donnelly and a guy by the name of Mike Weber, who worked for one of the instrumental NGOs that was pushing for sea turtle conservation at that time out of D.C. And they actually worked with Jack a little bit.

Thane Wibbels [00:49:07] But the whole idea is they said, "Well, if they're all dying out in the, in the water... [By the way, it was Center for Conservation, Center for Biological Conservation. I think I'm, I'm probably misremembering; I apologize]. And but the point being was, that if they're dying in the water, how do we how do we prevent that? And that was the second phase of saving the Kemp's ridley, and that was the whole, the whole turtle excluder device story.

David Todd [00:49:39] Yeah. Would you tell me about that? It'd be interesting.

Thane Wibbels [00:49:41] Well, you know, I'm not a super expert on that. But the whole point was, this was something that was identified early on, in particular by the National Marine Fisheries Service. It was like, "OK, yeah, we're catching a lot of sea turtles because they put, they put observers out on the boats. And they came out with estimates of thousands and thousands, tens of thousands, actually, of sea turtles being captured every year in the Gulf of Mexico and the Atlantic coast of the United States on turtle excluder devices, or, I mean, in shrimp trawls. And so it was like, "OK, we have to do something about this."

Thane Wibbels [00:50:15] So what they did is the National Marine Fisheries Service got on board, and they started developing their own turtle excluder device for a number of years, spending a lot of money on it, a lot of TED testing, all this type of stuff. I mean, they went to great pains to actually develop a turtle excluder device. And so then they came on to where they were going to put it on.

Thane Wibbels [00:50:35] And basically there was such a backlash from the shrimping community that there was heavy politics going on at that time from senators that was basically kind of shut down the implementation of tents temporarily at the NOAA level. This was at, and actually more, higher than the NOAA level, should I say. It was at the Department of Commerce level. So we now have, like the Secretary of Commerce saying we've made a decision. And again, I want, you want to retrace this. And there's actually a really good history of this that Marydele Donnelly did, as well as Mike Weber, where they did one on one called, "Decline and Denial", or something like that or something. There's a, there's an interesting publication they did. Yeah, "Denial."

Thane Wibbels [00:51:28] Anyway, but the point was, like the head of the Commerce Department says, "OK, we're not going to put TEDs on. We'll pull them back off. But we're going to limit the shrimpers to 90 minutes per tow." And so that was going to be the thing. But, you know, depending on what water temperature is, and things like that, you're going to be killing turtles with 90 minutes.

Thane Wibbels [00:51:48] And so there was a big political battle for a number of years. And finally, basically, Jack Woody and the NGOs pushed it through and it came down to Jack telling the public that, or telling Congress that, "OK, that's fine, but the Kemp's ridley is going to go extinct if you don't put turtle excluder devices on." And so they basically were, were, I guess, shamed into putting the turtles excluder devices. And the rest is history.

Thane Wibbels [00:52:15] At that point, that started saving the turtles. Gradually, the turtles started coming back. There was also a slight decrease in shrimping pressure on the Gulf of Mexico, just due to the economics and things like that. And so there were a number of factors. But that significantly, after that, if - you can look, and turtle excluder devices go on in about 1990 and then you look at the Kemp's ridley and the Kemp's ridley starts to rebound in the '90s, which is great. And so that was kind of the second phase of saving the Kemp's ridley. And that took both, again, the United States and Mexico because turtle excluder devices had to go on boats down in Mexico also.

David Todd [00:52:55] I see. And just to back up a little bit, you know, it sounds like a lot of the factors in the turtle's decline were related to, to human activity, whether it was this commercial collection of eggs or the shrimping offshore. Do you think that that there was much in play from just the natural predators on the Rancho Neuvo beach and the near shore? It sounds like these turtles really run a gauntlet of, of just natural predators. Is that right?

Thane Wibbels [00:53:32] Oh, yeah, absolutely, positively. I mean, that's one of the things we've hypothesized. You know, I think Hildebrand was one of the first ones to hypothesize, both Hildebrand and Carr, back in 1963, when this all came to light in the scientific world. They were the first to hypothesize that the weird nesting behavior of ridleys might have evolved because there were so many predators on the beach, OK? And Carr, actually, Arch Carr, in his book "So Excellent A Fish", talks about the arribadas at Rancho Nuevo. But he also said there weren't always just arribadas of ridleys. There were also our arribadas of coyotes and things like that based on what talking to locals. And so, yeah, that could very well have had.

Thane Wibbels [00:54:18] I mean, but, that's something that the Kemp's ridleys had evolved over several million years to be able to accommodate. OK? We're still trying to kind of figure out why exactly they nest the way they do and where they do. But it most certainly deals with

survival. And the whole idea is they were able, they were at an equilibrium. And they, you know, if you go back to the 1940s, you know, on the Herrera film, there were a lot of turtles out there. OK? And they were nesting in the thousands, in the tens of thousands. We actually estimated, based on the number of turtles on that beach and the number of arribadas per year, that there must have been at least 100,000 to somewhere between 180,000 turtles nesting that year. Now, there's caveats to that. But the whole point is there used to be a lot of turtles.

Thane Wibbels [00:55:16] And, and the point being they'd learned, they had learned how to survive, and to the point where they were stable. And it was this kind of, you know, on top of that, now we throw in human exploitation at multiple levels. And not only that, but, you know, a coyote taken 100 eggs or a coyote eating 50 eggs, is nothing compared to taking out an adult female in a shrimp trawl. OK? That shrimp trawl, maybe a thousand eggs, that may be ten nests it took to actually produce that animal.

Thane Wibbels [00:55:53] And so there were some pressures there that, you know, in a 50-year period, that were thrown on top that they hadn't experienced over the past million years or something like that. Yeah. So yeah.

David Todd [00:56:05] OK.

Thane Wibbels [00:56:05] But yes, absolutely, positively. The thing about Rancho Nuevo, it is a wide-open area and originally, and this is where it's kind of nice because you don't see this nowadays at Rancho, but back kind of in original times went down and actually Ro Wauer wrote a book on this, the guy from U.S., or National Park Service. And there used to be kind of thorn forests behind the beaches and those would harbor a wide variety of predators ranging from coyotes, coatimundi, probably wild boar, also a variety of wild cats. OK? I mean, in particular, there are like, you know, panthers, et cetera, that did occur in that area. I think there were like four different species - jaguarundi, OK, as an example.

Thane Wibbels [00:56:58] Anyway, so, yes, there were a lot of predators there. And that's the thing: the Kemp's ridley is getting it from all sides. It's getting both the natural side and the human side. And so it's still hanging in there, which is good. And it's come back and gotten to the point.

Thane Wibbels [00:57:11] And the other thing is that this arribada behavior is very instinctive in that, you know, for many years they didn't have the monster arribadas and we're starting to see them again, which is really cool. Yeah. And if you do, due to a lot of, lot of conservation and a lot of people who put in efforts and attention to the Kemp's ridley over the past 40 or 50 years.

David Todd [00:57:34] Well, and you know, my understanding, and this is just a layperson speaking here, is that there's really a tremendous rebound in the Kemp's ridley population after some of the protections at Rancho Nuevo and then the Head Starting and then the shrimp trawl protections. But then something happened over 10 years ago and things plateaued. And I was curious if you could talk a little bit about what you think was responsible for this tapering off in the increases in the population around 2010.

Thane Wibbels [00:58:09] Yeah. So right around 2010, 2009, 2010, the population is rebounding exponentially. So it's really jumping up, year to year. And I mean, it might pop down a little bit, then pop way back up. And the modelers at that point are saying, "Hey, this

thing's on recovery. It's going to keep doing this." I mean, basically in other populations, what we see is that these populations of animals will now start coming back because we're taking care of the main threats that were affecting.

Thane Wibbels [00:58:39] And instead, it drops down to like, you know, drops from 20,000, over 20,000, down to about 13,000 nests. Like what's going on here? Maybe it's going to pop back up. Then it popped back up a little bit, a little bit. And what it's been doing is hovering somewhere around 20,000 nests, rather than jump back up to 100,000 nests like we were kind of anticipating, things like that.

Thane Wibbels [00:59:02] And initially we thought, well, maybe this is like a Deepwater Horizon, a temporary impact or something like that, but it still hasn't really significantly increased. It's still, like I said, hovering around 20,000. And it's been doing that for a decade now, or close to a decade.

Thane Wibbels [00:59:21] And so a lot of other things come in. Charles Caillouet wrote a good kind of overview suggesting that, and this is also there's a guy named Benny Galloway, who's a great fisheries biologist from Texas and a conservationist, as well as kind of runs his private biological consulting firm for fisheries, et cetera. And what their concept is, is that it's also quite possible that the Gulf of Mexico that we see today is not the Gulf of Mexico, that we, that Herrera would see back in the 1940s.

Thane Wibbels [01:00:00] And that's evident in a lot of the other fisheries, too. If you look like blue crab fishery in Texas, there's indications that there's been some significant declines in that, etc. I mean, just think about the coastal development we have, the amount of fisheries we have now compared to, let's say, 60, 70 years ago or something like that with all the automated boats, et cetera.

Thane Wibbels [01:00:21] And so it may be that that what we call the carrying capacity for the Gulf, for the Kemp's ridley, is just not the same as it was, you know, 60 or 70 years ago. And so, you know, we don't know if this is a temporary setback, or if it potentially is the new normal for the Kemp's ridley, OK, where, you know, based on historic numbers, we still consider the Kemp's ridley critically endangered. But maybe this is a, we have to change terminology for 2020, where, you know, it's, it's you know, if it's, if it's 20,000 nest a year, maybe that's as good as it's going to get and it's stable at least at that, maybe. That's, that's what we have to figure out.

Thane Wibbels [01:01:05] On the other hand, it might, you know, jump back up. We're not quite sure. But at this point, some of the best guesses is that the, the Gulf of Mexico ecosystem is just kind of maxing out on its ability to actually maintain Kemp's ridleys.

Thane Wibbels [01:01:21] And the other thing is, as the Kemp's ridleys come back, they're trying to take more spaces up here in the Gulf of Mexico, here in the northern Gulf as an example, or down in the Bay of Campeche, where their developmental and forging habitats are. And the more turtles you put there, the probably the slower they're going to grow and the fewer turtles that it will support. So the comeback is actually affecting that, too. But we're hoping that the Gulf can easily sustain way more than that. But right now, we're not quite sure.

David Todd [01:01:51] Well, do you think that the, the limits on the carrying capacity, if that is what's going on, is mostly due to decline in prey species or are there pollution problems? Or is it all intertwined, and it's hard to untangle it.

Thane Wibbels [01:02:06] I think, I think what you're going to see is it's going to be very much interrelated so that, you know, depending on the dead zone coming out of the Gulf or coming out of the Mississippi and stuff like that, and primary productivity is going to be feeding onto the next level in the food, food chain to where, depending on the situation, maybe there aren't as many blue crabs. And what's one of Kemp's ridley's favorite foods? Blue crabs. And there's a lot of other foods it'll eat. But the whole point is it's, it's an indicator that there is not quite as many of those things.

Thane Wibbels [01:02:43] What we really look at with the Kemp's ridley is it's a upper-level kind of predator. And so I've I've always considered kind of a canary in the coal mine for the Gulf of Mexico, OK, because it's what we call higher trophic level predator, where, you know, it goes as the Gulf goes. If the Gulf's having a good year, the Kemp's ridley's having a good year because it needs all those things that are underneath it in the, in the food pyramid, so to speak.

Thane Wibbels [01:03:13] And so, again, I think it's a, it is, to a large extent. And the other thing, and I didn't bring this up earlier. I mean, I brought up a little thing on the fact that it has a regionalized distribution. But to me, the Kemp's ridley not only is kind of a canary in the coal mine for the, for the Gulf of Mexico, but it is also what I consider a real signature species because it evolved kind of in the Gulf of Mexico and it is evolved to the Gulf of Mexico. OK? You find them up along the Atlantic seaboard, clearly in large numbers too. Those are developmental habitats. But a large proportion of the life history and really population of the Kemp's ridley is reliant on the Gulf of Mexico at Rancho Nuevo, and this type of thing. So, yes, I think it's a very complicated issue, but it relates to the Gulf of Mexico as a whole and what it can support.

David Todd [01:04:12] I see. You know, one thing I've heard that you are a real expert on, and have thought a lot about, is, is the role of the temperature dependency of sex determination in the progeny of these Kemp's ridley sea turtles. And I was wondering if you could explain what's going on there, and if that might have a role to play in the restoration of the turtle?

Thane Wibbels [01:04:37] That's something we're worried about with all sea turtles and a lot of other reptiles. Reptiles are, are primitive, compared to mammals, so to speak, or mammals seem to be derived from reptiles. But the point being is, they don't have X and Y chromosomes. Instead, what they have is they have sex chromosomes, clearly, because, but it's not an X and a Y gene that turn them on or turn them off or things like that. Instead, it's the temperature of incubation. And so somewhere right around the middle third of incubation, generally speaking, you know, if you're at relatively warm temperatures in a sea turtle, you become female or at relatively cool temperatures in a sea turtle, you become male. And by that I mean 78 degrees Fahrenheit, you're going to be male, where 88 or so, you're going to be female, if that sand is that temperature.

Thane Wibbels [01:05:30] And number one that has significant implications, because, just as an example, when they first started doing sea turtle conservation, it was great. It's like, "OK, these predators are getting on the beaches or the poachers are getting on the beaches. Let's just take them and protect them and we'll put them in Styrofoam boxes." And they hatched out great. And these people are watching these little hatchlings go back in the water, and

they're thinking this is fantastic. We're just saving the, saving the species. And this is one of the things that Nicholas Mrosovsky brought up in his book. He's like, "You know, this all looks good, but what good are you doing?" You know? And what it turns out is a lot of those early programs were producing mostly males. And it's like maybe that's not the best way to bring back a species to produce 90 percent males or something like that.

Thane Wibbels [01:06:12] And so it's important to actually monitor those type of things. But, you know, the whole concept of climate change and long term changes, and what we're seeing is a gradual increase in temperatures in many locations. That could adversely affect what you could do. I mean, you know, initially it was like, and we monitor this now in the, in the Kemp's ridley, and we make sure that we're producing both males and females and that if we have to go one way or the other, we're going to go females, because maybe we produce more eggs. But generally speaking, we try to, try to keep it semi-natural.

Thane Wibbels [01:06:47] But it can be to the point where all of a sudden, not only do you get skewing where it becomes like detrimental, where there's not enough males around or there's not enough genetic diversity for males around or something like that.

Thane Wibbels [01:07:02] But the other thing you have to worry about with temperature is that it's not just sex determination. It's actually the whole development, that is, the way a turtle develops is dependent upon the incubation temperature. And it was funny, like I had a student, Jenny Layton, who did a Ph.D. And we went down to Florida and monitored nesting beaches at various locations in Florida. We had 26 or 24 nesting beaches at one time, on loggerheads. And when we looked at the data and we put the data loggers at nest depth and looked at the data, it was like, they're all about the same. It's like what goes here? I mean, we can be over at the Atlantic coast or we can be up in the Panhandle, we're getting about the same temperatures on these beaches.

Thane Wibbels [01:07:51] Well, you know, the thing, the thing is, we're thinking from a human standpoint, sea turtles have figured this out. What they do is they go to nesting beaches that are the right temperatures. And that gives them a good temperature for their eggs to incubate and hatch out. And if you hatch out at too warm or too, if you're too cold, you just won't develop. If you're too warm, you might die in the egg. Or you can hatch out, and it looks like a perfectly good hatchling, but if you look at it, it's not quite as fit as other hatchlings.

Thane Wibbels [01:08:19] And so the turtles had this figured out. What they're not anticipating are any major changes. Again, we're talking like a million, couple of million years in the case of the Kemp's ridley. And so all of a sudden you may be getting some changes that it can't accommodate that quickly. All right? And so that's something we really do have to monitor with, with the, the animals.

Thane Wibbels [01:08:40] And it's kind of easy, easier with the Kemp's ridley because they all go to one nesting beach. So what we've been doing is looking at that, that nesting beach and what we see are, are changes in some temperatures over time, you know. We'd like to get, that's why, when I first did this, we were doing it just to see, well, are they producing males or females. And that kind of pre-dated a lot of the, the major global climate change stuff that came out. And I remember keeping doing it for a couple of years and people saying, "Why, why are you still doing it? You already did it once. You know what sexes are being produced out there." And I'm like, "Oh, I don't know. It's kind of interesting because it could change year to year with, with hurricanes and things like that."

Thane Wibbels [01:09:15] And then all of a sudden, it becomes very important to actually have these 20- or 30-year databases to see how, how things are changing with time. And so that is something we're monitoring, what our temperatures down at Rancho, they're pretty warm. Quite frankly, they're producing on a year where you don't get a lot of rain. It depends on, again, tropical weather systems in the Gulf. And so a lot of this could be variable, is it gets pretty hot, gets to a point where sometimes they actually have to wet down or sometimes put shading over the top of the egg corrals to keep them at temperatures that are conducive to healthy hatchlings. So, yeah. Absolutely, definitely, definitely something we need to keep monitoring and monitor in the future.

David Todd [01:09:58] Well, and I think you said that these long-term temperature shifts may be affecting their sex determination, but that there's also sort of a fitness role that temperature plays. Can you give me some examples of, of the sort of things that you might be concerned about?

Thane Wibbels [01:10:17] Well, the, what they've shown is that temperature of incubation has a distinct effect on the hatchling in multiple ways. Number one, depending on the temperature, you can get larger or smaller hatchlings, OK? Larger hatchlings can do things like crawl faster on the beach. But that may actually also be interpreted, if you develop faster, and this is stuff that's still really need to be kind of worked out, but if you develop faster, you might set some of your physiology a little faster. You might grow faster and you might get to adulthood faster.

Thane Wibbels [01:10:57] And the other thing is, they've shown that, like I said, if you, if you're a little bit too hot, you may not be able to crawl quite as fast. OK, not just because of size, but maybe you're not quite as active of a turtle as some of the other ones that were at kind of the normal range of temperature. All right.

Thane Wibbels [01:11:15] So you have to worry about too cold. You don't develop fast enough and sometimes it won't develop at all. Too warm, you actually get into lethal temperatures. Like down at Rancho, they can easily push what we call like 34, 35 degrees centigrade. And at 35, it's been pretty well documented by Roldan Valverde over on olive ridley beaches that by the time you start hitting 35, your hatching success goes way down. So instead of getting 90 percent of those eggs producing hatchlings, you only get 60 percent. And those 60 percent may not be super healthy because they may not be, you know, as active of a turtle as the other, the ones that are being incubated with normal temperatures.

David Todd [01:11:59] I see, well, that's very helpful to understand. Thanks for explaining that.

David Todd [01:12:04] Well, so we've talked a lot about the history to date of the recovery of the sea turtle and, you know, some of the, the dips and peaks along the way. I was hoping that you might be able to tell us what you foresee for the Kemp's ridley sea turtle. I understand you were involved in the IUCN Red List assessment recently about the conservation status of the turtle. And, you know, perhaps you can use that to help us see what might be coming down the pike.

Thane Wibbels [01:12:35] Yeah, well, number one, I'll just say, just the current status: we're not, we're not certain how it's going to go in the future because it's leveled off. The good news is, OK, I'll start with the good news. The good news is in 1985, you were looking at just a little

over 700 total nests for the Kemp's ridley. And in recent years, we're pushing right around 20,000 or more. It'll go a little bit above; it's gone a little below that, that type of thing. 20,000 nestings, compared to 700. So that's really good news.

Thane Wibbels [01:13:09] The other good news is luckily the Padre Island National Seashore has been involved in this for, you know, since the 1970s. Like I said, it started with Bob Whistler. And at that time, they had a few other people that were down there. And luckily, one of the, the people who just started there, I'm not sure if she started as an intern or just as kind of a project biologist, but was Donna Shaver. And she started, she started her thing about the time, I actually met Donna back in the early 1980s when we were getting turtles to bring up to raise in Galveston. And she was down there collecting eggs and stuff. And so she, she luckily became, again, passionate about this and kept that program going full blast to the point where they regularly get anywhere from 100 and 150 to 300 sea turtle, or nests, a year, Kemp's ridley nests a year. It'll depend on the year, you know. I think this year's a little bit down. But every year they see some.

Thane Wibbels [01:14:10] And so the point being is back, if you go back to the 1980s, you had like almost probably zero nests detected on Padre Island. Historically, it may have been a place, you know, if you go back 100 years, that's a different story. In fact, one of the first recorded, reported, and in the literature indications of nesting for Kemp's ridley was on Padre Island. And so they apparently did nest there historically. But they've got to a point now where, you know, you get several 100 a year, which is really cool.

Thane Wibbels [01:14:42] And what do we have? We have 20,000 down at Rancho Nuevo and you can have maybe 500 in the state south of Tamaulipas, down in Veracruz. OK? And so the overall situation right now compared to the 1970s is really good.

Thane Wibbels [01:14:59] But what is it compared to what it was historically and how far is this turtle coming come back? We don't know. And that's why I think it's important to actually monitor it. And that's why it's nice to continuing to have the US / Mexico binational program, which is our biggest indication of the, the status, the conservation status of the Kemp's ridley right now is the number of nests per year and the vital information that we get from that, not only how many nests, but how often do these turtles come back and how many times a year do they nest.

Thane Wibbels [01:15:39] These turtles don't just nest and go back to Alabama or Mississippi or Louisiana. They stay down there and they nest once, twice, three times, maybe. We need to know that type of information. And then we need to know if you go back to Florida, OK, or you go back to Bay of Campeche, how often do you decide it's time to nest again? And it doesn't look like it's every year. It looks like it's maybe every two years. And Donna Shaver at the National Park Service with lot of her great radio tracking study, or excuse me, satellite tracking study, was indicating that some of these might go, actually, up to four years, you know, depending on what the situation is.

Thane Wibbels [01:16:17] And that gets back to the Gulf. This all ties in together. It's like, OK, maybe there aren't quite as many blue crabs around. Well, I can't get quite as much energy. Well, I'll just take another year off and then I'll go back, OK? Instead of going back every two years, I'll go back every three. And those are the information that we need to get. And it's not until we get that information, and we see kind of a long-term trend, that we can really accurately estimate what's going to happen in the future.

David Todd [01:16:41] OK, well, you know, one of the things I think that's really remarkable about the Kemp's ridley sea turtle is that its story, as you've said and you've shown, is, is just so charismatic and dramatic and it's drawn interest from lots of different people and, you know, really key participation there. And I was curious, as you, I believe you're the director of the, the honors program at the University of Alabama, what sort of place do you think the Kemp's ridley sea turtle, and biology in general, holds with students who may not be studying biology? But, you know, is there much interest among students who are not in your zoology department, but do have a kind of openness to the importance of these creatures and a curiosity about it? Does that does that make sense, that question?

Thane Wibbels [01:17:38] Yeah. Yeah. Well, the example I'll use actually is that we do raise some turtles here. Not Kemp's ridleys, but we have a diamondback terrapin that we raise here and we do a similar type of thing where we just kind of, we have heavy predation, I mean, it's, it's another turtle we work with, but we have heavy predation of the turtle. And as such, one of the ways we circumvent that heavy predation when the raccoons take all the nests, we'll incubate some of the eggs and hatch them out and we'll get students to help us out. And these are all, many of these students, are like pre-med students, pre-dent students, pre-optometry students, and they're going to go on to be a medical doctor or optometrist or dentist or something like that. But I tell you, you can definitely see the earnest interest that they have. They can identify with the whole idea, it's one of the rare times where, in this day and age, you can actually identify with nature, where you actually see these animals, you know, they're going to be released, et cetera.

Thane Wibbels [01:18:37] And I think you see the same thing with the Kemp's ridley. And that's what I like about the Kemp's ridley. You know, when people see a turtle come out of the ocean and all of a sudden come up on land and there's all this, it kind of like to me, it's kind of like looking at the Grand Canyon like, "Wow!" You're not exactly sure, you know, but something big happened, you know. So it's like we don't, we don't quite understand everything, but it really gets across to kind of the intrigue and curiosity of science and also kind of the cool, the cool aspects of nature, you know. And so that's kind of what I see the Kemp's ridley as continually doing for, for people.

Thane Wibbels [01:19:19] I mean, I had to go give a talk at the National Park Service when they did their centennial thing a couple of years ago. And I was staying in Corpus and I'm driving out to the island at like 7 o'clock in the morning and there are hundreds of cars leaving. And I'm thinking, wow, are these all like campers that were here all night or something like that? Why? I mean, it was like a traffic jam getting out of Padre Island National Seashore. It turns out like Donna had done a turtle release, OK? And so as part of the things she had done a turtle release that morning, and literally, this like, you know, a huge population from Corpus Christi, is going onto the Island at 6 o'clock in the morning, at 6:30 in the morning to go watch these turtles. And so clearly, it catches people's attention. It kind of gives at least a feel or an aspect of nature.

David Todd [01:20:11] That's great, that seems very positive and encouraging. Well, well, I've kept you for a long time and I was hoping that maybe you could help me with just one last question. Do you, do you have anything you'd like to add about the Kemp's ridley sea turtle? You've worked with them for so long and you must have so many facts floating around in your mind, but is there a sort of a bottom line that you've taken away from so many decades of work for the animal?

Thane Wibbels [01:20:42] No, but it's interesting seeing kind of the evolution of the conservation and the different people involved, things of that nature. There have been a number of like, you know, just, just, just the names that I mentioned. And that's, that's just the tip of the iceberg. There's a lot of other people there that were tremendously involved in this. You know, I just think, you know, like, like with Pat Burchfield, who's been doing this for, you know, 40 years or more in and there at the zoo, you had Jaime Pena, who was kind of running the beach project for years and years and years. You get down on the beach there's Jaime Ortiz, who was there, literally, when I went to, I went, the first time I went to Rancho Nuevo was in 1982 when I was doing my, just starting my master's degree, Jaime Ortiz was there. And I mean, he's one of these people.

Thane Wibbels [01:21:31] This just epitomizes it. Like you can come up on a beach and you can see that a turtle's been up on the beach. And it's just all messed up because a turtle does that so the predators can't find it. And you know, the way they do it in Mexico, they kind of probe a little bit with a stick or something like that to see if there's any soft sand, OK, and you know, the people will get out there that have been there for a year or two kind of looking around, I'm not sure where it is, where it is. And if Jaime Ortiz is out there, it's like, it's right there, the nest cavity's right over there and just go poke your stick there. And nine times out of ten, it'd be right there.

Thane Wibbels [01:22:04] And it just epitomizes it: it goes all the way from, you know, the person that's on the beach. OK, Jaime Ortiz has been down there for 40 years working on the beach, to Jack Woody, who was, you know, had a US Fish and Wildlife Service role, and Ro Wauer, who was the chief scientist for, for the National Marine Fisheries Service. And then you've got people like Charles Caillouet and Donna Shaver who are raising turtles and also basically, you know, I'll just bring one other thing. I'm sorry to go off on a tangent here.

Thane Wibbels [01:22:39] Again, I should have brought this up before: when I go to Corpus, when I used to go to Corpus, if I was, if I came out of Mexico, a lot of times I'd just drive up to Corpus and stay there overnight. And I'd go down to like downtown Corpus where the good little restaurants are. There was an oyster bar down there, the Water Street Oyster Bar. And I'd go in there. I remember I had a turtle T-shirt on one time, I had a Kemp's ridley T-shirt. And a person says, he said like, "Oh, do you work with the Kemp's ridley?" And it was like, this is just like a random person at the restaurant. And it's like the whole town knows about it. And it shows that, you know, the people that are involved and actually it takes a lot of people and notoriety to actually get that information out, etc. And what you see in the whole Kemp's ridley program (I'm trying to draw this together) is that you have that at just about all the different types of levels.

David Todd [01:23:39] Well, that's really remarkable. I mean you've got this mute creature that spends most of its time in the water and wasn't even really known as far as its nesting until, what 70 years ago, and yet it has this following, these devotees that wear T-shirts and recognize people who are sort of part of the tribe, that they care about this species.

David Todd [01:24:03] Well, thank you so much for, you know, explaining, at least a brief introduction, to all that you've learned and done over the years for the turtle. I really appreciate it and I should let you go, but is there anything you'd like to add before we wrap it up?

Thane Wibbels [01:24:21] No, I think that, that sounds good. That gives you plenty. I apologize. I'm probably way more long-winded than you want it to be. But I will just say that's,

that's the tip of the iceberg on the Kemp's ridley story. For each one of those people that I mentioned, there's an entire story in itself, which is pretty cool.

David Todd [01:24:41] Wow. Well, this has been really just a wonderful chance for me to, to learn more from you. I really appreciate it. And I think that we are probably pretty much complete here. I'm just going to wait a moment so that our recordings will upload. And again, thank you. And I hope our paths cross at some point in the future. You're just, it's clear that you're so passionate about this that it's just infectious.

Thane Wibbels [01:25:14] No, I appreciate that. Yeah, well, the Kemp's ridley will grow on you. I'll just say that, you know, and so it's the story itself sells itself. And so I've been very fortunate to actually, it's kind of the one thing that's tied my entire career together because I do a lot of science and teaching and things like that. But the Kemp's ridley has been one that's kind of been a guiding factor, so to speak, where I can always like that was always kind of an emphasis and a primary kind of goal is to keep helping out as much as you can with that project. Yeah.

David Todd [01:25:50] Yeah. Well, thank you for all you've done and especially what you were so generous to do today. I really appreciate your time.

Thane Wibbels [01:25:57] Not a problem, but I apologize for taking so long to get back to you and stuff.

David Todd [01:26:00] No, no. It was, it was just a joy to talk to you. Thank you so much. You have a good day.

Thane Wibbels [01:26:06] You bet. All righty.

David Todd [01:26:06] OK, bye now.