



After the Fact | [Scientists at Work: 'The Jane Goodall of Penguins'](#)

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TRANSCRIPT

[Penguin sounds]

Dan LeDuc: Dee Boersma, we're listening to your world. Is that music to your ears or what?

Dee Boersma: Not only is it music to my ears, but it reminds me of talking to my neighbor over the back fence. You're listening to a male Magellanic penguin, and they have as distinctive voices as Carl Kasell or you have on the radio. You can tell them all apart.

Dan LeDuc: From The Pew Charitable Trusts, I'm Dan LeDuc and this is "After the Fact."

[Music]

Dan LeDuc: Dee Boersma has studied penguins for more than 45 years. She's a former Pew marine fellow and *The New York Times* calls her "the Jane Goodall of penguins."

This is the first in our "Scientists at Work" series, taking a look at the research behind some of today's science trends.

Our data point for this episode is 43 percent.

The strip of land in southern Argentina, where Dee studies penguins, has seen a 43 percent decline in the penguin population since 1987. But not all of them are dying. We'll explain more, in a minute.

First, we ask Dee what fascinates her about these birds.

Dan LeDuc: Why penguins?

Dee Boersma: Well, you could say why not, but I guess the real reason is I just fell in love with them. I think they are interesting, they're curious, they're cute, and they're a lot like people.



Dan LeDuc: Yeah, talk a little bit more about that because I mean, they are like this fascination for everyone. I mean, they're like nothing else out there.

Dee Boersma: Well, that's the way I feel about them too. I just find them endlessly fascinating. I like the way they look. They're always well-dressed, even when they have mud on them or blood. And they're just curious and so when they have time on their hands, they'll approach people. People walking on the tourist trail, if they hold still, they often have their shoelaces pulled or their jacket pulled because penguins are curious.

Dan LeDuc: Dee started studying penguins in the Galapagos in 1970. But in 1982, she started traveling to Argentina, to a stretch of beach known as Punta Tombo. It's a dry desert environment, and home to a lot of penguins.

Dee Boersma: After the Galapagos I really wanted to work in a seasonal environment, someplace where there are seasons again. So a temperate region, and in Argentina I'm working at 44 degrees south. So in the Southern Hemisphere, but it's like Portland, Oregon, and it's a desert. And I was interested in going someplace where there were a lot of penguins because in the Galapagos, there's not very many Galapagos penguins and you can spend a day and not see any and if you're on the wrong island, you could spend months and years and you'd never see one.

I wanted to see a lot of penguins, and Argentina had the largest colony of Magellanic penguins in the world, at a place called Punta Tombo.

And the Japanese at that point, a Japanese company was talking about harvesting penguins and turning them into high fashion golf gloves and protein and oil. And so I went down to see how many penguins there were and whether it would be possible to sustainably harvest Magellanic penguins. But you have to realize, that's been the main use of penguins. People have harvested them for their oil. They topped off the whaling boats. When they didn't get enough whales, they filled the rest of the oil instead of with whale oil, with penguin oil.

Dan LeDuc: So what's it like down there? I mean, is it a very isolated place? Are these penguins out by themselves now or are they starting to draw a crowd?

Dee Boersma: We're getting over 100,000 tourists a year. People want to come and see penguins and they want to come and see penguins all over the world. And this is one of the more accessible sites. And now they've paved the road most of the way out, so people do come and drive out to see the penguins.



Dan LeDuc: You might expect early mornings on the beach in southern Argentina to be quiet and peaceful. That's not the case in Punta Tombo.

[Penguin sounds]

Dan LeDuc: So I take it you don't go for the peace and quiet?

Dee Boersma: This way I don't have to have an alarm clock.

That was recorded actually outside the door of the trailer.

Dan LeDuc: Really, right where you sleep?

Dee Boersma: Oh yeah. And sometimes in the old days, the penguins nested underneath the trailers. So a lot of times they'd come back at two in the morning and there'd be chicks under there and so you'd hear this peep, peep, peep, peep, peep. And they'd just be begging for over an hour while the parents fed them.

But you get used to it. It's amazing what you can learn to sleep through.

That's the wake-up call and it's not quite as strong in the evenings, but close. It's during the middle of the day that it's actually quiet.

Dan LeDuc: Oh okay. So what's going on in the middle day when things get quiet? What happens?

Dee Boersma: They're sleeping. So they tend to be active in the morning and late in the afternoon. Of course, it's a desert and so it's not so hot then. So the best time to be in your nest is in the middle of the day because then you can be in the shade and sleep.

[Penguin sounds]

Dee Boersma: And he's in the water for the first time. And he's gone, off to Brazil.

Dan LeDuc: You've called these penguins ecosystem sentinels. In fact, you run something called the Center for Ecosystem Sentinels there at the University of Washington. What do you mean?

Dee Boersma: Penguins tell us about the environment. They tell us not only about the land environment, about the sea environment. They can certainly alert us to overfishing and that's what the African penguins have done in Africa. There used to be millions of African penguins. Now we're down to maybe 20,000 African penguins. They simply can't



find enough food. They can't compete with our nets and our human fishing. And so they're really good at alerting us to not only environmental change, but how we have to manage humans in these marine environments or in the terrestrial environments.

The Center for Ecosystem Sentinels started because I've now worked on two species of penguins—one for over 45 years and the other one for 35, but we know that there are many other sentinels. And so, whales for example, sharks, birds of prey, all of those are sentinels. And so we wanted to expand to include these other important organisms that people love, and identify with, and tell us so much about the environment.

Dan LeDuc: So when you're there, you're doing what, banding these guys, counting them, you're sort of like a version of a census taker, right?

Dee Boersma: Absolutely. I've just been interested in these penguins. I thought I'd go down there for a year or two and now, I don't know, suddenly 35 years have passed. But it's just gotten more and more interesting as time has gone on because I've learned more and more about individuals. And I think it's really important for people to understand that penguins can teach us a lot about ourselves as well as the environment. And it's only long-term studies that can really do that. So that means going back year after year.

If you only go a couple of years, you don't really know what's going on and you can be wrong. The penguins at Punta Tombo grew very rapidly from the first penguins that first came to Punta Tombo. There weren't penguins always at Punta Tombo. The first penguin showed up in the mid-1930s, and the population grew to probably something like 400,000 breeding pairs. And now, there's a little over 200,000 breeding pairs. So they come and go and penguins, just like people, vote with their feet. So when things are not going well at Punta Tombo, they'll move someplace else.

Dan LeDuc: So tell me now what, 30, 40 years of studying in one place with all of these penguins is telling us about this species? We've seen a big decline, I know you've documented. What does this also just mean for the world? Why is it important to do this?

Dee Boersma: Magellanic penguins at Punta Tombo are declining by now, since 1987, almost 40 percent. So we've lost a lot of penguins. They haven't died, necessarily. They are moving with their feet. The fish move and they have to move. And so there's new colonies of Magellanic penguins that are now formed further north than Punta Tombo. Punta Tombo started in 1935, the next ones were found on the peninsula Valdez not until like 1965. And now they've continued to move further north and a new one was found in 2007. So they're voting with their feet.



One of the things we really want to know is why are they voting with their feet? So we were interested in what's changed. And one of the things that's changed is these Magellanic penguins at Punta Tombo are having to swim further to find food than they did 35 years ago. So penguins, in terms of their swimming, these Magellanic penguins will swim about as much in their lifetime as we will drive a car in a year. About 16,000 miles.

Dan LeDuc: Wow, that's quite the trip. These things can swim!

Dee Boersma: Oh gee, over 170 kilometers in a day.

Dan LeDuc: Wow.

Dee Boersma: They can make Michael Phelps look like not a great swimmer.

[Music]

Dan LeDuc: You've been down there so long, it's like, as a scientist, you know a species, but as a person, you know these individual penguins in some ways, don't you?

Dee Boersma: Yes I do.

Dan LeDuc: You can tell the difference in a male versus a female sound? Let's play something again for a second.

[Penguin sounds]

Dan LeDuc: Okay now that sounds really cool, but I can't tell a thing of what I've heard there other than maybe those are penguins. What did you hear?

Dee Boersma: So what you're hearing there is a number of other penguins around, but it's a male and a female that have come back to their nest and are greeting one another. So it's just exactly like when you come home and say, "Hey honey, I'm home." Your significant other says, "Oh good, dinner's almost ready." It's that same thing that penguins do.

And the funny thing about it, one of my students worked on this for his dissertation. And he was able to show that the penguins that had been mated and stayed together for five years or more, they paid less attention to that mutual call. They did it to one another, but if they heard their mate, they reacted to it, but if they had just gotten together that year and you played the other call, the other one would run over and look. And in fact, if the female was there by herself and you played the male's call, she'd



come out and look. But after they'd been together for five or six years, often she didn't come out and look. She knew he should be coming in any time, but she didn't bother to look.

So it reminded us of husbands and wives that complained, you know you just never really listen to me.

And they live a long time. I mean, penguins that we banded as chicks so we know the year that they were hatched, one of them was found last year: 32 years old. And so it drives me crazy when my students are out weighing penguins and they'll catch a penguin, read the band number and they'll say, "This penguin is older than me." And I say, "Don't say that. None of them are older than me."

Dan LeDuc: You were there putting the bands on them 30 years ago.

Dee Boersma: Thirty-five years ago. So a lot of these penguins, we banded in 1983, '84, and some of them are still around. So I find that fascinating and it's really interesting. I mean, they're not that different from us. I mean, how many people live in their homes for 40 years? People do and some penguins do. How many people get divorced? Not everybody, some are faithful and they stay with their mates. We've had Magellanic penguins that have stayed together 17 years.

So some of them are really pretty devoted and they raise chicks. So they're not that different to me, anyway.

Dan LeDuc: So you've really gotten to know some of these guys as individuals. Can you recognize them when you're there?

Dee Boersma: Oh yes. In fact, one of them has got me into trouble, which is why we couldn't do any work in 2011 because some of the tourism [authorities] said that we played with penguins. And I said, "Yes, that's what we do." We have permits so that we can grab penguins, weigh them, measure them, see how well they're doing, where they go, put satellite telemeters on the back of them because we need to know where these birds are, what they're doing, so we can actually protect them.

And they were upset because of this bird that we called Turbo. And Turbo is still alive. I don't know how old he is. I probably met him when he was like 3, but he's now over 13 years old. And the way I got to know him is he used to hang out underneath our turbo truck, and hence the name Turbo. Because I wanted to know if there was only one penguin that was hanging out underneath this turbo truck or if there were several of them that were kind of taking turns because this is the truck we use to drive to town and we drove to town, it was like we were moving his nest. And so he'd stand around



out in the open. And so I wanted to know if there were more penguins that were really underneath this truck than Turbo.

Turbo has now moved to a really good quality bush. So he doesn't stand under the truck anymore and, in fact, the truck is no longer parked in that area. But that's how I first got to know Turbo, so it was putting a band on him, and then a few days after we banded him, we heard this knocking on this door.

[Knocking sound]

And I thought, "Jeez, what is that?" And then it was again like that. And I went and opened the door and there's Turbo standing out there. And I said, "Well, come on in." And he came in.

Dan LeDuc: He knocked on the door, I love this.

Dee Boersma: It's a metal door so you can hear it pretty well. And he was a young male and the reason we still spend as much time as we do with Turbo is he hasn't gotten a mate. Because the sex ratio is really skewed at Punta Tombo. There's a lot more males than females. And so that's a problem. So some of the males don't get mated and Turbo's been one of them. He's had one female that has visited him, that I know of, over the years and she moved in next door with another guy.

Dan LeDuc: Oh man, it happens to the best of guys, doesn't it?

Dee Boersma: Yes it does.

[Music]

Dan LeDuc: What do you think you don't know about penguins at this point?

Dee Boersma: Still so much. We don't know why the sex ratio is so skewed. Why are so many females dying? We know it happens in the winter, where? Is it because the currents have really changed? Is it because all the little fish, the anchovies are being taken in the winter so there's not enough food for the females and that they're slightly smaller than the males and so the males can get the bigger fish, but the females don't have enough to eat? We still don't know what's causing the decline of this population.

Dan LeDuc: Are we always going to have penguins?



Dee Boersma: Well, that's the real question. I do worry about it. I don't know. I mean, with climate changing so rapidly and with us hoovering all the fish out of the ocean, there's not as much room for penguins as there used to be.

Dan LeDuc: That's a little scary to say.

Dee Boersma: Well, that's my worry because certainly I feel like I owe it to the penguins. I mean, I have spent a lot of time working on these penguins, but they've given me an incredible amount of pleasure.

People keep saying, "When are you going to quit?" And I will have to at some point, but boy, I still like being out there. I mean, at one point, one of the people that has funded me over the years said, "You know you don't have to go check each one of those penguin nests. You can send your students." And I said, "No, you don't get it. I really like to check the nest and see who's home," because it is just like going next door and saying, "Oh, is Betty home? Where's Don?"

I think that people need to understand that if we really want to know about these sentinels, whether they be sharks, or whales, or penguins, we have to have long-term studies because we have to understand the places that they live and all places are not the same. Fortunately, there's crazy people like Jane Goodall who spent her entire life on chimps and me that spent my time on penguins. And I think this is really an important thing to enrich the lives of our children and of adults as well.

And in the end, it makes it a richer world for the penguins and for the chimps.

Dan LeDuc: Dee, thanks so much and tell the penguins we all said hi, will you?

Dee Boersma: I'll do that.

[Music]

Dan LeDuc: Our thanks to Dee Boersma and the Center for Ecosystem Sentinels at the University of Washington. If you'd like to learn more about their work, and how Pew is helping to protect penguin habitats, point your browser to pewtrusts.org/afterthefact.

We also have a photo of Turbo the penguin there for you to see.

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Thanks for listening. For The Pew Charitable Trusts, I'm Dan LeDuc and this is "After the Fact."