eol podcasts

Encyclopedia of Life
eol.org

Red Knot Podcast and Scientist Interview

Calidris canutus rufa

The red knot is a tiny shorebird that undertakes a mind-boggling migration from the tip of South America all the way to the Arctic Circle. One of the few stops on that marathon journey is the Delaware Bay, an estuary that offers a banquet for migrating birds. Here, for some 20,000 years, red knots have flocked by the thousands to fuel their journey. But humans may be writing a tragic ending to this extraordinary evolutionary success story, unless biologists armed with an unusual tool can win a race against time.

Transcript

Ari: From the Encyclopedia of Life, this is: One Species at a Time. I'm Ari Daniel Shapiro.

On the beach, shorebirds are like little wind-up toys. They follow the waves in and out, zigzagging up and down the sand on their tiny legs. About 1200 shorebirds are doing that here, at the Delaware Bay in southern New Jersey. Charles Duncan is a biologist with Manomet – a conservation non-profit – and his eyes are locked on the birds at the water's edge.

Duncan: It's a mix of ruddy turnstones, a few semipalmated sandpipers in there, and a good number of sanderlings.

Ari: And scattered amongst these birds are a handful of yet another kind of shorebird – the red knot, or Calidris canutus rufa. They really stand out – they're the only shorebirds with red breasts. Duncan's one of about 20 scientists and volunteers out here today to give these birds a little medical checkup. But first they have to catch them.

There's a net that's buried in the sand. Both ends of the front of that net are connected to weights. And these weights get launched out of makeshift cannons – three-foot long pipes partly filled with gunpowder.

Duncan: And that takes this big net out and covers over the birds. It doesn't entangle them, but it covers them. There's the net.

Ari: The net's launched. The team springs into action. They take off at a sprint along the beach where a hundred shorebirds are now fluttering beneath the net. A tarp is laid on top to keep the birds cool and calm. The group works the birds free, one by one. They call out the type of bird as they go. Barry Watts is one of the volunteers.

Watts: What we're now doing is separating them into the various cages, generally 15 birds to a cage.

Ari: The cages are red plastic boxes with air holes punched through the sides. Some of the red knots have little numbered bands around their legs. The birds without a band will get one today. The number is a unique ID.

González: It's like giving a name to the bird.

Ari: Patricia González is a biologist with Fundación Inalafquen – a shorebird conservation group in her home country of Argentina. She bands red knots in Tierra del Fuego – at the southern tip of South America. And she's flown here, to the Delaware Bay, to look for her banded birds – by spotting their unique numbers. Because some of them have just made the same journey she has – as part of their annual migration.

González: I really feel very emotional and happy when I see them in the beach.

Ari: So here's what the red knots do. They eat like crazy in Argentina, and then they take off. They fly for up to 2000 miles without stopping, at altitudes of 20,000 feet where the air's incredibly thin and there's no food or water. And as they fly north, there are a handful of specific places where they land reliably. Brian Harrington is a retired biologist who's studied red knots for 40 years.

Harrington: I think of stopovers as, like, stepping-stones. And very often, they're places that are used by a variety of shorebirds – not just red knots – because they tend to be just a very, very highly productive little patch of the Earth. And the shorebirds know that's a place they can find enough food to quickly put on the weight that they need to go to their next stepping stone.

Ari: The red knots use the Delaware Bay as one of their stepping-stones between Argentina and the Arctic. They weigh as much as an avocado upon lift off. But they often weigh half that when they show up, having burned off fat and sometimes even muscle during their inbound flight. Which means they need to bulk up fast once they do come ashore. The meal of choice in the Delaware Bay?

Harrington: Horseshoe crab eggs.

Ari: Horseshoe crabs have been around for at least 300 million years. They lay their high-fat and high-protein eggs on the shores of the Delaware Bay. It's a feast for the red knots. Or at least, until recently. Over the last few decades, horseshoe crabs have become more popular as fish bait and for medical purposes. Fewer horseshoe crabs mean fewer horseshoe crab eggs, which means fewer red knots.

Harrington: It's one of the fastest declines of a non-endangered bird that's ever been documented.

Ari: In the 1980s, Harrington counted 90,000 red knots on the Delaware Bay. Today there are fewer than 20,000. And the red knots depend on each of their stopovers spread out across the Americas. Patricia González.

González: So when something's happening in the environment, we can detect this problem through the birds. If we don't have birds, it means that we are in serious trouble.

Ari: González is working with communities across North and South America, coming up with local solutions, to protect the red knots. Each bird is special to her, particularly the ones she gets to hold in her hands.

González: It's something that touch you forever. You can feel the beating of the heart of the bird, and it's like feeling the beating of the heart of the Earth.

Ari: On the beach, a red knot has just been weighed and measured. Tom Virzi – an ecologist from Rutgers University – holds the bird snugly in his right hand. He walks along the sand a few paces.

Virzi: 3, 2, 1, release.

Ari: The bird sails out of his hand, and flies out to sea. It's gone within seconds.

Ari: Check out our website – eol.org – to see pictures of the red knots and horseshoe crabs from Delaware Bay. And to hear Patricia González explain one of her favorite mottos, "The power of one is the power of everyone."

González: El poder de uno…es el poder de todos.

Ari: Our series, One Species at a Time, is produced by Atlantic Public Media in Woods Hole, Massachusetts. I'm Ari Daniel Shapiro.

Meet the Scientist

Meet scientist Patricia Gonzalez who you heard featured in the Red Knot podcast:

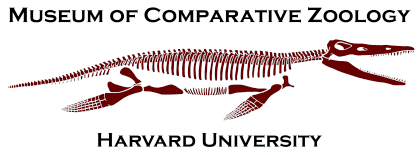
Where do you work?
I am the Wetland Program Coordinator of Fundación Inalafquen in San Antonio Oeste, Argentina South American partner of Global Flyway Network.

What do you study?
Conservation and migratory strategies of long distance migratory shorebirds, particularly Red Knots.

What are three titles you would give yourself?
Researcher biologist, environmentalist, mother of my son and daughter…and others.

What do you like to do when you are not working?
Love and take care of my pets and garden; read about "strange" things like marketing and human perception, share yoga and gym classes with friends, test the video games made by my son (which I have no idea how to play) and learn about "exotic" cloth designs from my daughter. I try to learn French by watching movies from Quebec. I love to watch movies about investigations as well as documentaries about views of life from other cultures. I chat through the computer with friends around the world that shorebirds brought to my life.

What do you like most about science?
The creative part of developing a research project and following discoveries. To be in the field watching banded shorebirds through spotting scopes at different places in the flyway between Argentina and Canada, following individuals that I had in my hand or I know their stories. Feel my link with the Planet when I am alone in the beaches with the birds. When I make others to feel the same emotion as me about these incredible travellers of the world.



The One Species at a Time podcast series is supported by the Harvard Museum of Comparative Zoology.