



## **After the Fact** | [Scientists at Work: Why Are Giraffes Dying?](#)

Originally aired March 1, 2019

**Total runtime: 00:15:44**

### **TRANSCRIPT**

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*[Introduction music plays.]*

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

Let's take a trip to the African savanna to learn about the world's tallest animal. You might be surprised at what we know—and how much we don't know—about giraffes.

When you think about endangered animals, giraffes might not be the first ones that come to mind. That's because, while the giraffe population has declined about 40 percent over the last three decades, almost no one has noticed. That's our data point for this episode: 40 percent.

In late 2018, the International Union for Conservation of Nature listed two types of giraffes as critically endangered. That's after being classified as an animal of least concern—as in they're fine—just a few years earlier.

As experts at the San Diego Zoo and other organizations look to halt this decline, they've come to realize how little we know about giraffes—like how they live, migrate, and even why they have those long necks. You might think it's for eating from tall trees—turns out, nope.

Thanks to technology and the connective power of the internet, scientists are now using good old-fashioned community involvement to help study and identify these animals. More on how you can help out with that later.

This is our latest installment of our “Scientists at Work” series, and we're talking with two conservation researchers who are looking to put a spotlight on the plight of giraffes.

**David O'Connor, conservation researcher:** My name's David O'Connor, and I'm a researcher and community-based conservation ecologist at San Diego Zoo Institute for Conservation Research. I've been working in conservation and reporting on conservation for nearly 20 years.



**Jenna Stacy-Dawes, conservation researcher:** My name is Jenna Stacy-Dawes. I'm a research coordinator at San Diego Zoo's Institute for Conservation Research. And I grew up going to the San Diego Zoo—I'm a native San Diegan, so grew up absolutely in love with [the zoo] and dreaming of working here one day. So I finally got that opportunity, so now I work with Dave on our giraffe research project in northern Kenya.

**Dan LeDuc:** Well, I want to welcome both of you, David and Jenna. You're speaking to us from San Diego. And we're here today to talk about one of the world's probably most visible and distinctive animals. But what I've been surprised to learn is that this amazingly distinctive animal is also a bit of a mystery to so many of us. Tell us about giraffes—and more importantly, tell us what we don't know about giraffes.

**David O'Connor:** There's a lot we still surprisingly don't know about giraffe. Compared to other big famous megafauna, as we call it—like elephants or rhino or lions—we know really, really very little about giraffe. We don't know very well their home range. We don't know what necessarily they feed on. We don't know their social structure. We don't know how many species there are. And, interestingly enough, we still don't know why they have the long neck.

**Dan LeDuc:** Well, that's amazing to me. I think a lot of us assume it's because they like to eat from the tops of trees. But that's been pretty established as not the reason why they have long necks, right?

**David O'Connor:** Right. There's a lot of debate about it. Some people think that it could be due to sexual selection, to do with getting a mate. Other people say yes, that it's to feed from the tops of the trees.

But my take on it—and maybe Jenna can add in after—is that when you watch giraffe feeding in the wild, it depends on their environment. They're not always feeding at the tops of trees. They're often feeding with their neck straight out, in the zone where other browsers can feed. So perhaps the long neck, instead of reaching up, it's perhaps to reach over and get at the central top of shrubs where other herbivores can't get. But there isn't a definitive answer yet.

**Jenna Stacy-Dawes:** Yeah. And I think, Dave, that highlights a really great point about just how little we know about giraffe. For so many people, that's what we assume is why they have the long neck. It's to reach those branches at the tops of the trees that no one else can reach. But when you're in the field and watching giraffe, or even at a zoo watching them, they don't always have their necks stretched up as high as they can go trying to reach the top of those branches. They're often feeding at the middle level. That really also highlights just how little we know.



**David O'Connor:** Yeah. We do know that they do use their long necks to help their heads be like sledgehammers when they bash each other when the males are fighting. Which can be pretty violent.

**Dan LeDuc:** Well, that's what I wanted to talk about, what we do know a little bit from observation. Because the neck, again, is so distinctive and graceful and beautiful in nature. So you've seen them use it to bash somebody. What are some of the other things that you have seen, even if that wasn't maybe how nature intended when they were created?

**David O'Connor:** Yeah. Giraffe are really funny. And I don't mean that as an insult to giraffe, because I do love them very much. But they're so strange and unique. And it's one of the things that attracted me to them. They remind me of sort of dinosaurs in that you don't get these strange-looking unique massive giants anymore like we used to, back when there were dinosaurs.

But when it comes to their necks, especially when they're younger, they get up to all kinds of mischief with their necks and heads. If you think about it, it's sort of like another hand. They're exploring their world with their tongues. They're smelling everything. They're going down, they're going up.

They are thought to be very, very important pollinators. When they've been feeding on acacia sometimes and the pollen is there, they come out and their heads look all covered in pollen.

But they also use it for drinking. And they're rather funny-looking when they drink, because they have to put their head all the way down to the ground, spread their legs out. And this is a really awkward position that they're in. And then if they get startled, they whip their head back up as fast as anything. And it's this five-meter or so arc that they do in a second. And it's just amazing to me that they don't pass out. We get woozy sometimes when we stand up too quick.

**Dan LeDuc:** Right, right. Well, here's a thought. Any one of us has the experience of leaning over a drinking fountain, getting a gulp of water and standing up and knowing how we swallow. When they are bending way over, those necks are so long. How do they get the water down that big long pipe of theirs?

**David O'Connor:** It's one of those questions for an engineer or a physicist. But it's really to do with how they create this incredible suction power. And they have a lot of these valves internally that prevent back flow. So it's the interplay between this incredible sort of like a giant straw, and then they have a way to stop it back flowing back to their mouth.



**Dan LeDuc:** These things are like living plumbing systems.

**David O'Connor:** Exactly. A beautiful plumbing system.

**Dan LeDuc:** Well, as fascinating and as beautiful as they are, and as much as we don't know about them and want to be curious, we have some sad facts that we are becoming aware of in recent times. And tell us what those are.

**Jenna Stacy-Dawes:** Yeah. Unfortunately, giraffe are declining across Africa. We estimate about 40 percent decline of all giraffe populations across Africa. And they're already extinct from seven different countries that we know of. They could be extinct from more, but we just don't have the data on them yet. So that's a really alarming number for an animal that a lot of people just don't know are in trouble.

**Dan LeDuc:** Well, let's talk about what the threats are to giraffes. Talk a little bit about what's been changing for them.

**Jenna Stacy-Dawes:** Yeah. So the main threat to giraffe that we think is happening is habitat loss and land degradation. So just as we're seeing in the U.S., as how our human population is growing and expanding and our urban centers are expanding into these previously unoccupied areas of habitat, we're losing that space. And so these large megafauna like giraffe have nowhere to go. We're seeing the same exact thing happen in Africa. Urbanization is kind of spreading out and human populations are continuing to grow, so giraffe, elephants, rhinos are all really losing that critical space that they really need to survive.

And with those human populations, the livestock numbers are increasing. So in a lot of the areas that we're studying giraffe, there are these traditional pastoral systems. So people keeping livestock. And so as human population increases, so do those livestock numbers. And so as we increase those livestock numbers in these areas, they're further degrading the habitat due to overgrazing. And so those are the two main reasons that we really think are having the biggest impact on giraffe populations.

The third is poaching. So in the area that we're studying, we are seeing about 30 percent of the community is either engaged in illegal consumption of giraffe meat or illegal poaching. And so unfortunately, that is a threat to their populations across Africa.

**Dab LeDuc:** Let's talk a little bit again more about these beasts, though. Do we know what they sound like? Do we get a sense of how they communicate with each other?



**David O'Connor:** So that's interesting. We don't. And if you ever watch giraffe in the wild or anywhere, they're largely silent. They can make a noise, and it's a very deep—nearly a roar if they're really stressed or if they're in pain or something like that. But largely they're silent.

But what is interesting when you watch them, they're definitely communicating. Because they do coordinate their movements, and they'll see something, or they'll look together. So there's clearly some form of communication. And there's some research that perhaps shows that they're maybe communicating infrasonically at some kind of range that we are not picking up. More work needs to be done, but they could be doing something like that, similar to how elephants can communicate.

**Dan LeDuc:** Do you see them as sort of curious about the world, or about people if they are approached and they don't feel threatened?

**David O'Connor:** I would say they are curious. And more curious than people give them credit for. We've especially seen this, because we've been able to rescue some giraffe whose parents have been poached, or they've become lost in the drought. And rare are those, and thankfully they've all been released. And they show extreme curiosity about the world, and about people, and about cars and vehicles and things like that. So I think they're definitely a lot more intelligent than people give them credit for.

And I think part of that has to do with how they experience the world. The argument is, part of what developed human intelligence is our fingers and our hands. Being able to grab things, similar to the trunk of an elephant.

And I would nearly argue—again, unproven—that giraffe have a similar ability, because they have a huge range in their head. And they can use their head and their tongue to explore the world, sort of like a digit in a way. And you'll often see them carrying sticks around, or a bone, or something like that.

**Dan LeDuc:** Do we get a sense that—they just obviously have a much higher and better view than most of us do of the surrounding landscapes—that they really are doing that? Sort of taking it all in?

**Jenna Stacy-Dawes:** Yeah. And just to kind of echo what Dave said, they really are curious. And when you're watching them in the wild, you'll see them not always just feeding on branches but investigating them as well. And we've termed them the watchtowers of the savanna. When you're watching them with other species, a lot of times you'll see giraffes notice something that other animals won't. And so it'll perk the attention of the other animals.



Let's say there's a predator coming, or something that's kind of alarming. And so as soon as the giraffe's attention perks up, those other animals will notice as well. And so they really are providing this extra layer for other species that they're cohabiting with, like impalas or zebras.

**Dan LeDuc:** You've mentioned how you're beginning to employ technology to monitor these animals in the wild. Talk a little bit more about the systems that you have and how you're doing it.

**Jenna Stacy-Dawes:** Yeah. So one of the ways we're doing it, as Dave has been talking about, is these satellite tracking units. So that's one form of technology that we're using to really try and understand their movements better.

And then we're also using this amazing coat recognition technology. So just like human fingerprints, giraffe's coats are unique to every individual. So we can use those coat patterns to keep track of individuals.

And last but not least, we're also using a crowdsourcing tool called Zooniverse. So on the Zooniverse platform we have a site called Wild Watch Kenya. And anyone from all over the world can log on to this site and help us with our giraffe conservation efforts. So we have motion-activated trail cameras that are deployed in the field in Kenya. And these take pictures of anything that moves in front of the camera. So giraffe, elephants, wild dogs. And we gather—I believe it's over 3 million images so far since we started the project in May of 2016.

And so we need help processing all of these images, so we can put these images up onto Wild Watch Kenya. And anyone from all over the world can log on and really help us classify those images.

**Dan LeDuc:** Well tell me more about that, because if someone's sitting at home in Bethesda, Maryland, or Kansas City, they can actually just log on to the internet and actually make a contribution. What exactly would someone do if they did that?

**David O'Connor:** Yeah. They can do that. They can even do it while they're waiting on the bus or on their phone. So what happens is you log in. There's a small bit of instruction; it's super easy. And then you go into the site, and you're presented with a photo. And you have a certain number of choices. So the choice will say, is this photo empty? It has nothing in it. Or does it have livestock?

And there's a certain number of species that we're interested in. And then people just click on what they see. Is it an elephant, a zebra, or whatever? And if it's one of those species that aren't as familiar, say, a dik-dik or something like that, then there's a little guide—a field guide—right there so you can click and see, oh,



that's what the photo is. Okay, that's a kudu, not a dik-dik. And it's as easy as that. And it just keeps going. Once they do one, the next one pops up.

And there's a great community side to it too. There's a lot of people who'll share cool images that they found, or little stories. And we try to give updates from our team in Kenya to try and really make it a connected space. And we've also had some amazing schools involved, all around the U.S., who have woven this into some of their science and biology curricula. So it's been fantastic.

**Dan LeDuc:** This is like citizen science at its purest.

**David O'Connor:** Yeah. Yeah. No, it is. And it's amazingly, amazingly helpful. We would be so far behind, and I would be blind if it weren't for these people. So, thank you.

**Dan LeDuc:** Many of us have been fortunate enough to see giraffes at terrific zoos, like the one in San Diego. But let me ask each of you, what was it like the first time you saw a giraffe in the wild that very first time?

**Jenna Stacy-Dawes:** So seeing giraffe in the wild is absolutely amazing. They're so graceful. When you think of giraffe, I always thought of a really gangly and kind of awkward animal. But when you see them run in the wild, they're so magnificent and graceful.

**Dan LeDuc:** And they only exist in Africa.

**Jenna Stacy-Dawes:** Yeah. They're uniquely African, which is really something we don't always think about. With elephants, you'll find them in Southeast Asia. Lions kind of extend to the Asiatic peninsula as well. But giraffe are only found in Africa.

**Dan LeDuc:** What is going to be the future of the giraffe? Do you still retain some optimism, despite these frightening numbers?

**David O'Connor:** I remain incredibly optimistic. And I'll tell you why. Conservation is not about wildlife; it's about people. If the animals have the space and they're safe, they know what to do. They'll come back, unless they're a tiny remnant population.

So it's really the people issue that we have to sort out and find ways where people can sustainably coexist with wildlife in the places where these wildlife that we care about are.



**Dan LeDuc:** Well, Jenna and David, thank you. And we wish you continued good luck there.

**Jenna Stacy-Dawes:** Thank you so much for having us.

**David O'Connor:** Yes. Thank you so, so much.

*[Transition music fades in.]*

**Dan LeDuc:** If you want to view photos from the San Diego Zoo Global cameras on the African savanna or learn more about these long-necked animals, visit [pewtrusts.org/afterthefact](http://pewtrusts.org/afterthefact).

And don't forget to subscribe or leave us a review wherever you listen to podcasts.

*[Closing "After the Fact" theme music plays.]*

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