



Encyclopedia of Life

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## Ravens Podcast and Scientist Interview

*Corvus corax*

We humans learn some of our earliest life lessons from our brothers and sisters, watching what toys our siblings play with and what treats they stash away for later. In this Halloween season podcast, Ari Daniel Shapiro journeys to Austria to learn how such social learning happens in a spooky bird—the raven.

### Transcript

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

**Schwab:** That's raven singing, what you hear. Yeah? They are songbirds – they are the biggest songbirds, and that's a raven song, yeah.

**Ari:** Christine Schwab is crouched outside a large mesh aviary containing 10 ravens, or *Corvus corax*. We're in Haidlhof, Austria, just south of Vienna. Schwab, whose hair is partially dyed a bright orange, is a biologist at the University of Vienna, where she studies culture...in animals. More on that in a minute.

Schwab looks at the 5-month-old jet-black birds in front of her. They're both her subjects, and her friends.

**Schwab:** So this bird over there – that's a very sweet female. Her name is Nobel. That's her brother – that's Joarst, in fact. He's the youngest one we have – the baby in the group.

**Ari:** And who's this?

**Schwab:** That's Paul. Paul unfortunately has slight problems with his hips. So that's why, when he's walking around, he looks a little bit strange.

**Ari:** Schwab slides open the gate to the raven enclosure and leads me inside. These birds were raised by humans, so they're comfortable around us.

Up close, the ravens are impressive, and a little intimidating. They're big, yes, but they're also bold. And curious.

They can tell I'm new here, and they approach me on foot almost immediately.

**Ari:** Which one's this one? This is Nobel?

**Schwab:** Yeah.

**Ari:** Nobel! Hey there.

**Ari:** Ravens are social birds. And that's key to what I said earlier about culture. We tend to think of culture as customs that distinguish one group of people from another. But it also applies to animals. Schwab wants to know how different behaviors – which are just different cultural traditions – are passed from one raven to the next, with one individual learning how to do something by watching another.

One clue is how the ravens watch each other. They don't do it equally. When they're young – within the first few months of hatching, ravens pay closest attention to their siblings.

**Schwab:** The sibs spend most of their time with each other. So if I teach Nobel a certain behavior, which would be a very easy task 'cause she loves working with us, then probably her sibs would be the next ones who would learn it from her.

**Ari:** In one of Schwab's studies, she allowed a raven to manipulate a little toy – let's call it the special toy – while another bird looked on. Only if the two birds were siblings would the onlooker prefer to play with the special toy, out of 5 possible toys.

Ravens also cache, or store objects. Schwab's ravens only cached the special toy if they saw their sibling cache it first.

**Schwab:** There it was, in fact, that the sibs would learn more quickly, or more readily from each other.

**Ari:** In fact, Schwab says that ravens probably learn how to make a good cache – one that won't get raided by another bird – by figuring out how to hide it from their siblings. That's one reason they spend all that time watching each other.

So early on, cultural behaviors tend to flow between brothers and sisters. But ravens are beholden to a pecking order, which is established a few weeks after they hatch, and lasts for the rest of their lives. And it's important to know that when you work with them.

**Schwab:** You have to obey their dominance rank. So if you first appease the more dominant ones, then it's also much easier.

**Ari:** That's become obvious in the aviary. Apparently, I've neglected Tom, one of the more dominant birds. I haven't given him enough attention, and he's making things difficult. I keep backing away, and he keeps strutting up to me.

**Schwab:** If he wants something, and you just don't react to it, he will tell you immediately, "Come on, I am the first one who gets stuff."

**Ari:** Tom isn't satisfied. I can't keep my microphone where I want it – next to Schwab's mouth. He won't let me get close enough.

**Schwab:** I think one of us is leaving the aviary now, I guess!

**Ari:** I do most of the rest of the interview outside the enclosure.

Schwab tells me she's just begun a more elaborate study to understand the connection between culture and raven social dynamics. She's using a specially-designed puzzle box – one that can be opened in a couple different ways to get at the treats inside. She picks a raven and, on its own, teaches it one method of opening the puzzle box. Then she reunites it with its buddies, and watches if and how that behavior propagates. Schwab is looking to see how a cultural tradition – in this case, lifting the door to the puzzle box, say, instead of pushing it in – might entrench itself in a population. Whether it happens along family lines or dominance lines or something else altogether.

But this isn't just about what happens inside this aviary. There are bigger questions at play. Such as, how ravens conduct themselves in the wild, in large, dynamic flocks.

**Schwab:** Hopefully the aim would really be to figure out more about their natural behavior.

**Ari:** And why ravens are so smart in the first place. Why they've got such big birdbrains.

**Schwab:** That's the most crucial question in animal cognition: what purpose does cognition serve? That's what we are all searching for, in fact. That's THE crucial question right at the basis.

**Ari:** It's a question taking Schwab into the heart of who these birds are, by probing their relationships, and by becoming part of the flock herself along the way.

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 biologist Christine Schwab from the Ravens podcast:



### **Where do you work?**

The Department of Cognitive Biology at the University of Vienna, Austria.

### **What do you study?**

I study social learning strategies in birds and how socially learned information spreads through groups of animals.

### **What are three titles you would give yourself?**

Cognitive biologist, *Homo corvidus*, hockey maniac.

### **What do you like to do when you are not working?**

Playing ice hockey and being outdoors.

### **What do you like most about science?**

Science allows me to satisfy my never-ending curiosity and to collaborate with exciting people and animals.

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