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Ants Podcast

Solenopsis invicta and Paraponera clavata

Renowned evolutionary biologist E.O. Wilson has spent his long career cracking the code of ants.

Transcript

Ari: From the Encyclopedia of Life, this is: One Species at a Time. I'm Ari Daniel Shapiro. The Encyclopedia of Life is an online, evolving library of all life on the planet. And it was dreamed up by Edward O. Wilson.

Wilson: I am a retired – in quotation marks – professor at Harvard University. And I'm very active in both research around the world, particularly on ants.

Ari: E.O. Wilson is 81 now. I sat with him in his spacious library at the Museum of Comparative Zoology at Harvard. I came to see him not about the Encyclopedia of Life, but to have a conversation about his favorite organisms – ants. He began by telling me about the ants all around us.

Wilson: We are surrounded by mementos that I've accumulated over the years – gifts given to me, blown-up photographs, sculptures of ants, prizes for working on ants. It's a little museum of memorabilia – all myrmecological in nature. Myrmecology is the scientific study of ants. Ants are ideally suited for the study of advanced social behavior as it evolved in insects. They have among them the most elaborate social systems found in the whole world – next to human beings. They are so very strange. For example, they communicate almost entirely by pheromones, exchanging chemical substances one to the other in a way that's quite invisible to us.

Ari: Can you tell me about a species you've studied in the field where you've kind of seen this chemical communication in action?

Wilson: One of the ant species that I studied a great deal was the one that I discovered when I was a 13 year-old boy in Mobile, Alabama. I was the one that found the first colony of the imported fire ant. Now that species of fire ant is throughout the south, in California,

and parts of Australia, and southern China, and the West Indies spreading out as a major pest. I used that ant in the laboratory in the late 1950s and early 60s.

Ari: How did you determine that it was the chemicals they were using?

Wilson: It became rather obvious. They weren't making any noises, they weren't singing like birds. Also, they weren't really tapping one another with their legs or antennae. So with all those sensory modalities removed except chemical, it certainly seemed it had to be chemical.

Ari: Wilson's experiments clinched it. His fire ants laid chemical trails by dragging the tips of their abdomens over the ground. This behavior recruited other ants to follow them. So Wilson extracted the substance to make artificial scent trails. It was potent stuff. He could lure those ants wherever he wanted. When exposing the fire ants to an especially high dose, Wilson was able to clear out half the workers from a colony.

Wilson: The fire ant's correct name – scientific name – is *Solenopsis invicta*.

Ari: You know, every episode we actually say the genus and species name of the organism that we're describing. Why are these names important?

Wilson: They're important because your name is important to you. They distinguish the species without ambiguity. For example, *Paraponera clavata* – the giant ants of Central and South America with a terrible sting. So one of the common names for them is "dos semana," which means two weeks. That's the time it takes to get over a sting from one of these ants. But you can't have that because it differs from one place and one person to another. So these scientific names are strictly chosen and monitored. You can't change them.

Ari: Myrmecologists have to be precise when naming ants. There are over 14,000 species of them. And they're crawling everywhere.

Wilson: Whenever I hear of a person who's going to a very odd place like Bhutan or the mountains of southern China, I say, "Oh, while you're there, pick up some ants." I did that once with a film company that was making IMAX film of the tabletop mountains of the Lost World of Venezuela. I said, "Now, when you get up to the top, nobody's ever collected ants on any of these places. I want you to collect ants up there for me." And sure enough, he brought down the ants and I got them to look at them for the first time.

Ari: What continues to motivate you? You'd mentioned you were retired in quotes, but sounds like you still keep pretty active.

Wilson: I think my life proves that if you are truly a dedicated naturalist, if you've known

the joys of exploring biodiversity, and you've become fairly familiar with ecosystems that feel like home to you when you step into them – that home isn't just the house or the city – it's the land, the natural environment…that is a source of lifelong pleasure, adventure, challenge, and excitement.

Ari: You can visit eol.org to see a video of the myrmecological contents of E.O. Wilson's office. And to hear him explain how you can name your own species – ant or otherwise!

Wilson: You too, dear listener, can be part of the adventure.

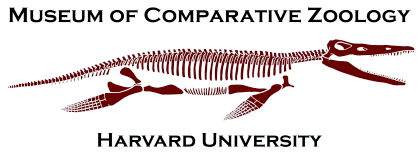
Ari: Our series, One Species at a Time, is produced by Atlantic Public Media in Woods Hole, Massachusetts. I'm Ari Daniel Shapiro.

Meet the Scientist

What do you study?
I suppose you can say my specialty is myrmecology, the study of ants and ant biology. But then in addition I am an entomologist. I have always had a broad interest and engagement in the study of insects. And beyond that, I am an evolutionary biologist, that is I am a biologist who spends a great deal of his time studying the evolutionary process, using the creatures that he is most familiar with. But beyond that I guess I am a biologist generally, because I write broadly across the areas of biology and the relationship of biology and the other branches of learning.

What do you do when you are not at work?
Each evening at 5:00 pm I shut down. I usually work very long and hard through the day and I tend to shut down and listen to music or watch a movie. And that turns my mind off and then the next morning, early I am ready to go again.

What do you love about science?
Science is not an odd and special human activity or set of beliefs in the same way that theology or dentistry are human activities that you think of as different in their own way and often among a host of other human activities and belief systems. Scientific knowledge is quite simply what we know for sure about reality. It is something that is shared by every human being whether they know it or not, their lives depend on it. And the activity of adding to science, which isn't just the realm of so called scientists, is the most important-now in our time of overpopulation and decline and shortages and continuing conflict-the most important activity I believe for the future of humanity.



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