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EVOLUTION

# Scientists Launch Worldwide Search for Lost Species [Slide Show]

A new initiative sets out to find and save long-missing animals before they really disappear

By Richard Conniff on April 19, 2017

The world's rarest insect, the Lord Howe Island stick insect has been successfully bred at Melbourne Zoo, bringing it back from the edge of extinction. Seen here is a new baby on the back of an adult on April 21, 2005. *Credits: The AGE Getty Images*

A few years ago at a bar in Reno, graduate student John Zablocki was talking about his research on the rediscovery of lost species—those presumed to have gone extinct only to turn up again alive and well—when a stranger chimed in. “What about the Lord Howe Island stick insect?” he suggested, recalling the widely reported 2001 rediscovery of that species on an island in Australia. Recalling the celebrated line from the 1993 movie *Jurassic Park,* the stranger added: “Life, uh, finds a way.”

This is the tantalizing thing—when a species thought to be lost comes back, in effect, from the dead, Zablocki says. It hints at rebirth in an era otherwise dominated by headlines about climate change and mass extinction. Scientists even refer to these rediscovered organisms as “Lazarus species,” after the man said in the New Testament story to be raised from the dead by Jesus Christ.

But finding lost species does not take a miracle, according to Global Wildlife Conservation (GWC), a small Texas-based nonprofit. The GWC is now launching an ambitious “Search for Lost Species” initiative to rediscover 1,200 species in 160 countries that have not been seen in at least 10 years. The first expeditions will launch this fall in pursuit of the 25 “most wanted” species, says GWC herpetologist Robin Moore, who is leading the effort.

Among the top 25: a pink-headed duck last seen in 1949 in Myanmar, a tree-climbing freshwater crab last observed in 1955 in the West African forests of Guinea and the world’s largest bee (with a wingspan of 2.5 inches) last sighted in 1981 in Indonesia. “For many of these forgotten species,” Moore says, “this is likely their last chance to be saved from extinction.”

The plan is to work with international partners to put scientists in the field, with an initial

fund-raising goal of $500,000. That's not much—just $20,000 each for the 25 "most wanted" species, which have been missing in action for a collective 1,500 years. But Moore is optimistic, he says, because of his past experience leading a 2010 "Search for Lost Frogs" initiative. That effort, a collaboration between the GWC and Conservational International, rediscovered only one of its "top 10" species in its first six months but found a total of 15 species over its first year as a result of 33 expeditions. In one case in Borneo, local researchers made repeated expeditions over eight months before eventually finding the missing frog higher up the mountain than it had ever been seen. "Some species," Moore says, "just require persistence."

To improve the odds of success, the plan for the new initiative is to put researchers in the field in places where recent evidence suggests a lost species may persist. For instance, the long-beaked echidna, a spiny, egg-laying mammal, is known from only a single specimen collected in 1961 by a Dutch researcher in Indonesia's Papua Province. But a 2007 expedition in the Cyclops Mountains there led by the Zoological Society of London spotted burrows, tracks and the sort of holes echidnas dig for worms. Local hunters have also reported sightings of the elusive creature. "We have been in touch with an Indonesian conservation group about setting up an array of camera traps in the area over a longer period," Moore says, "to see if we can get a photograph."

Other technologies could also make rediscoveries more likely. Sequencing the DNA in a body of water, a technique called environmental DNA (eDNA) sampling, can reveal the presence of certain fish or amphibians. Likewise, sequencing blood from mosquitoes or leeches, known as invertebrate DNA (iDNA) sampling, can reveal which species they have been feeding on. New mapping technologies can also combine high-resolution images from Google Earth with species data to identify an animal's likely habitat more precisely.

Even without modern technology, finding lost species has been a common occurrence. A 2011 study in *Trends in Ecology & Evolution* documented 351 such rediscoveries over the previous 122 years—an average of about three a year. These include such sensational cases as the 1938 finding of a living coelacanth, a fish that was presumed to have gone extinct with the dinosaurs; the 1966 discovery of Australia's mountain pygmy possum, previously known only from bones found in a cave; and the 1951 rediscovery of the cahow, or Bermuda petrel, then thought to have been extinct since the 1620s.

In northern Australia a research team not connected to the GWC initiative is currently undertaking fieldwork with the equally sensational goal of rediscovering the thylacine, or "Tasmanian tiger," which has been presumed extinct for the past 80 years. James Cook University ecologist Sandra Abell, who is leading the effort, rates the likelihood of success as "low" but "not impossible." Even so, Richard Dawkins excitedly tweeted, "Can it be true? … Has *Thylacinus* been seen alive? And in mainland Australia not Tasmania? I so want it to be true."

The reality of such rediscoveries, says John Zablocki, a biologist at The Nature Conservancy who is not involved with the GWC effort, is that wildlife biology suffers from "a gap in knowledge" about the behaviors and whereabouts of most species. "Our survey capacity is just so limited. Even here," he says, of properties The Conservancy owns in the Mojave Desert, "we may have an 'extinct' vole" that is actually just missing.

Zablocki (of the Reno bar conversation) wrote his master's thesis, "The Return of the Living Dead," on rediscoveries. The thesis recommended exactly the sort of focused rediscovery effort now being undertaken by the GWC, partly for the potential to engage the public in what amounts to a wildlife detective story. "It's still kind of tantalizing that we just don't know what's out there, even with our remote-sensing technology and DNA analysis," Zablocki says, "and it does give us hope. Conservation is so fraught with doom-and-gloom stories that the opportunity to get things right a second time is also important. The flip side is that it can give people the sense that species can come back from extinction or that the extinction risk isn't as serious as it really is," he notes.

Both Zablocki and Moore argue, however, the excitement about rediscoveries tends to motivate conservation efforts. For instance, after researchers discovered a remnant population of 24 Lord Howe Island stick insects dwelling under a single bush on an island cliff face, conservationists launched a major captive-breeding program. As a result, the Melbourne Zoo hatched 16,000 eggs in 2016 and established insurance populations of the species at three other zoos.  The rediscovery also helped motivate a program to eradicate species-killing invasive rats from the island group.

Rediscovery, says Moore, is "a very powerful motivator. The risk of always telling people how bad things are with the environment is that we instill despair. We're trying to instill

that glimmer of hope, to remind people that there is still a lot worth fighting for, and that the world is a wild and mysterious place."

## ABOUT THE AUTHOR(S)


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Richard Conniff is an award-winning science writer for magazines and a contributing opinion writer for the *New York Times*. His books include *House of Lost Worlds* (Yale University Press, 2016) and *The Species Seekers* (W.W. Norton, 2010).

*Credit: Nick Higgins*



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