

# Easter Island's Last Endemics Flirt With Extinction

A few native species still survive in remote caves and along cliff sides.

BY NATHANIEL SCHARPING

➔ On Easter Island, isolated in the vast Pacific Ocean, 10 species of near-microscopic insects are all that remain of the island's native species — at least for now.

The endemic insects hide in volcanic caves and eke out an existence in an increasingly imperiled habitat. Tourists who flood this tiny island, called Rapa Nui by the native residents, endanger the tiny bugs' ancestral homes — fragile gardens of moss and ferns. On top of that, hordes of invasive species threaten to crowd them out. Iconic Moai, the monolithic stone statues standing some 40 feet tall, immortalized the island, but its most important inhabitants are almost too small to be seen.

## MOAI MATERIALIZE

Rapa Nui's textbook tale of environmental destruction began when humans arrived. Polynesian sailors, carried over the waves in giant canoes, made landfall sometime between A.D. 800 and 1200. Their new civilization turned tropical forests into boats and building materials. For food, they farmed and fished. And by its 17<sup>th</sup>-century peak, the population had swelled to about 15,000. But just a few thousand people remained when Europeans arrived in 1722.

The Moai-building islanders caused an ecological shift that devastated species adapted to a specific kind of environment. What was once palm-dominated scrub forest became grassland. The lost species included at least five kinds of land birds, sea mammals, insects and a type of giant



Tourists flock to Easter Island for a glimpse of its iconic Moai statues (top). Ecologist Jut Wynne takes field notes during research at a location high above the Pacific Ocean.

palm tree called *Paschalococos disperta*, or the Easter Island palm.

“Ecosystems don't collapse; they shift from one steady state to another, and that's simply what happened here on Rapa Nui,” says Jut Wynne, an ecologist at Northern Arizona University's Merriam-Powell Center for Environmental Research. “What caused that shift was a very fragile,

fire-intolerant ecosystem and the arrival of humans, timed inauspiciously with an extended drought period.”

Wynne says that shift strained the existing ecosystem, killing endemic species, and created a much more homogeneous environment.

## GONE UNDERGROUND

The island now hosts many non-native species, plus sheep, horses and goats, descendants of the livestock owned by ranchers who worked the island in the early 1900s. Hidden under their feet, however, are some of the last true natives of Rapa Nui.

Wynne's childhood dream of visiting Easter Island finally came true in 2008. That year he launched a baseline study looking at three caves. He sampled over a dozen more caves in 2009 and 2011, and turned up eight new species endemic to the island, bringing the total to 10. Last summer, supported by a Fulbright fellowship,



Jut Wynne examines a freshly caught insect. Cave art adorns the wall behind him.

he expanded his search.

The work took him to some of the most remote places on the island in search of fragile habitats where the insects make their last stand. He plumbed the depths of damp caves and rappelled down sheer cliff faces to find the fragmentary patches of moss and ferns where the insects could be hiding.

Previous studies showed that many native species once crawled across the island. The remaining insects have likely all retreated to places where conditions reflect the Rapa Nui ecosystem that existed before humans arrived.

So far, Wynne has discovered seven species of springtail, tiny insects whose defining feature is a spring-loaded tail that flips them into the air and away from danger — a built-in ejector seat. He has also found two isopod species, popularly known as “roly-polys,” and one species of book louse. And while the results are still tentative, Wynne says his team’s search last summer might have doubled the island’s known endemic species.

### ‘IN DANGER OF EXTINCTION’

Preserving those insects has also taken on new urgency. Roughly 100,000 tourists came through Rapa Nui in 2015, a surfeit of pedestrians for an island totaling only 63 square miles. Even though a national park covers



Original Easter Island occupants, clockwise from upper left: *Cyrtophania pakaratii*, *Hawaiioscia rapui* and *Entomobrya manuhoko*.

nearly half the island, that hasn’t stopped foot traffic. Tourists regularly walk through some of the insects’ habitats, completely oblivious to the ramifications of their behavior, Wynne says.

Even studying the insects in their natural cave environment presents a delicate balance between scientific enlightenment and harmful intrusion. Invasive species present another threat. American cockroaches, millipedes and other hitchhikers now pervade the island, threatening to crowd out — and eat up — the natives.

“And because of that,” says Wynne, “we believe that most of the insects on the island are indeed in danger of extinction.”

He hopes the future may not be as bleak as Rapa Nui’s past. Wynne is working with the park system, the community and the government to increase awareness of the island’s unique, invisible treasures. The park has now closed roads to reduce traffic in vital areas. Even small measures, like roping off areas and putting up signs, could have a large impact, Wynne says.

### DELICATE BALANCE

Economic incentives make fully protecting the caves difficult, however. The island needs revenue from visitors, and the beautiful vistas and caves filled with indigenous art are a potent lure. Sebastián Yancovic Pakarati, an expert on Rapa Nui’s natural heritage and one of Wynne’s collaborators, says the island must develop a plan to better protect its natural and cultural treasures before opening the floodgates of tourism. But he is heartened that residents seem willing to play a role in the ongoing protection of their island and its resources. With the combination of newfound support and greater oversight, he is hopeful that these endangered areas can be preserved.

“The new generations want to pay more attention, not just to conserving and preserving the Moai and the cultural legacy of our ancestors, but we also want to place a major emphasis on nature’s heritage and biodiversity,” says Pakarati, who serves on the Advisory Council of National Monuments.

And the park is now working on a conservation plan to protect and monitor caves in an area with the highest concentration of native species. “We hope this initiative can help with the conservation and preservation of the location, and eventually the rest of the island,” Pakarati says. ▣

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