

Support provided by



NOVA

INQUIRY: AN OCCASIONAL COLUMN

The Fate of Easter Island

Can what happened on one South Pacific island serve as a cautionary tale for the planet as a whole?

By Peter Tyson | Posted 04.20.04 | NOVA

To see just how clearly a growing human population relies on and impacts its natural environment, one need look no further than Easter Island, the South Pacific isle with the famous stone statues known as *moai*. I have been reading much about the fate of Easter in preparation for an upcoming trip, and, as the geographer John Flenley and archeologist Paul Bahn write in *The Enigmas of Easter Island*, "it is a story with an urgent and sobering message for our own times."



The hundreds of finely carved statues found across Easter Island bore mute witness to the collapse of Polynesia's most advanced megalithic culture. What happened? [Enlarge](#)

Photo credit: © Brenden Kootsey

Easter Island is the most isolated piece of inhabited land in the world. A speck of volcanic rock only about twice the size of Manhattan, it lies roughly 2,250 miles northwest of Chile and 1,300 miles east of Pitcairn Island (of *Mutiny on the Bounty* fame). When, as most scholars believe*, the first Polynesian settlers arrived from the west about the middle of the first millennium A.D., they found a pristine tropical island. Covered in a palm forest, it resounded with the cries of 25 or more species of nesting seabirds and at least six land birds. Though its soils were low in nutrients, the island bore a wide coastal plain well suited for cultivation of the taro, yam, sweet potato, and other crops these pioneers brought with them and which became their staples.

The population grew slowly at first, then more quickly, reaching a peak around the middle of the second millennium A.D. of anywhere from 10,000 to 20,000 people. By this time, the Rapanui, as the islanders are known, had developed a complex society of chiefdoms and elaborate stone architecture epitomized by the moai. Beginning around 1600, however, Rapanui civilization began to fall apart, and by the mid-19th century, it had all but disappeared.

After decades of painstaking work, a host of archeologists, ethnographers, and other specialists have painted a comprehensive picture of what transpired on Easter Island. And the parallels between what happened there and what is occurring today in the world at large—albeit more slowly and on a much vaster scale—are, the evolutionary biologist Jared Diamond says, "chillingly obvious."



Moai are enormous: The largest one successfully transported from Easter's quarry and set upright on a pedestal was about 32 feet tall, more than 10 feet across at the shoulders, and weighed over 80 tons. The one seen here is smaller but still impressive. [Enlarge](#)

Photo credit: © Brenden Kootsey

TREES OF LIFE

Scholars have argued that Rapanui culture and society rose and fell with the fortunes of the island's trees. Studies of pollen and charcoal from extinct plants have shown that, before people first arrived and well into the early centuries after settlement, a subtropical forest blanketed the island. Among its species was the world's largest palm tree. It outsized even the giant

Chilean wine palm, today's biggest, which grows to 65 feet tall and a yard in diameter.

On Easter Island, the Polynesian word *rakau* ("tree," "wood," "timber") meant "riches" or "wealth." This is not surprising, for the Rapanui used trees and their products for almost everything. They ate the fruits of the trees as well as the birds that lived among them. They thatched their houses, which looked like upended boats, with palm fronds. They fashioned bark-cloth clothing. They burned firewood for cooking and for keeping warm on winter nights, which on Easter Island can drop as low as 50°F. They built oceangoing canoes and crafted harpoons to spear dolphins and pelagic fish such as tuna. And they used some combination of log rollers, sleds, and/or levers, along with rope made from tree fibers, to transport and erect the hundreds of moai that once stood around the edges of the island, their brooding faces gazing inland.

By 1872, the number of Rapanui had plummeted to just 111 individuals.

Archeologists have deduced that clearing of trees for crops and other uses began soon after the first Rapanui arrived and was largely over by 1600. In a recent article for *The New York Review of Books*, Diamond called it "the most extreme example of forest destruction in the Pacific, and among the most extreme in the world: the whole forest gone, and all of its tree species extinct." (A single endemic tree, the *toromiro*, survived in botanical gardens in Sweden, after some seeds germinated that the ethnologist Thor Heyerdahl had collected from the last surviving specimen, and someday the tree may again grace Easter's grassy slopes.)



When Captain James Cook visited Easter in 1774, he saw no trees taller than about 10 feet. Today, small stands of trees like these palms at Anakena, as well as several large eucalyptus plantations, can be found on the island. [Enlarge](#)

Photo credit: © Brenden Kootsey

FALLEN IDOLS

The end of the forest had devastating consequences, both directly through the loss of the trees' raw materials and indirectly through what those products allowed the Rapanui to do. Archeologists have found, for example, that by 1500, porpoise bones all but vanish from the island's refuse heaps. Common dolphins weigh up to 165 pounds and live far offshore, yet the Rapanui had clearly found a way to fish for them. In garbage remains at an early site on the north coast, porpoise bones constitute more than one-third of all bones. Experts infer that the Rapanui must have built sturdy, oceangoing canoes out of the now-extinct trees. Without the trees, that rich food source fell frustratingly out of reach.

The expanding population put other food sources under extraordinary pressure. Garbage heaps show that seabirds and shellfish declined over time, and the six species of land birds, including two rails, two parrots, a heron, and a barn owl, went extinct. Their end came probably through a combination of hunting, loss of their forest habitat, and the stealing of their eggs by the Polynesian rat, the only animal to survive in abundance in the wild. (The rat forestalled any comeback by the vanishing trees: Every fossil palm nut that experts have turned up on the island had been nibbled by rats in such a way as to preclude germination.)



Many toppled moai were deliberately decapitated by having stones placed in the path of their fall. Here, pieces of a fallen moai frame the distant re-erected statues of Tongariki. [Enlarge](#)

Photo credit: © Brenden Kootsey

Even as the forests dwindled, Rapanui chiefs intensified food production, eager to create surpluses to support the carving of ever-larger statues. But that practice stressed an already fragile agricultural system built on marginal soils and insufficient water. "The removal of the forest may have reduced localized rainfall and lowered the productivity that was needed for corporate work efforts and by a large and growing population," says Christopher Stevenson, an archeologist with the Virginia Department of Historic Resources who has done years of work on Easter Island. "They reached a threshold where their economy took a really severe hit."

To us today, the most obvious manifestation of that hit is the crash of the moai culture. Oral tradition holds that the last moai was erected in 1620. With the religious basis of their power severely weakened or gone, the chiefs and priests who had held sway on the island for centuries were overthrown by military leaders around 1680. The society collapsed into civil war, and rival factions began toppling moai; the last erect statue recorded by European visitors was seen in 1838. (All standing statues today were re-erected in modern times.)

Can Easter Island be seen as a microcosm of our planet today?

In the decades before the Dutch explorer Jacob Roggeveen "discovered" the island around Easter, 1722—hence the island's

name—the Rapanui began to go hungry. Out of desperation, they may even have turned to cannibalism. Though Stevenson says the population had begun to rebound by the time Roggeveen's sails appeared on the horizon, contact with outsiders over the next century and a half spelled doom for the Rapanui through introduced diseases, slave raids, and other impacts. By 1872, the number of Rapanui had plummeted to just 111 individuals. (The population has rebounded to several thousand today.)



Just what lessons we should draw from Easter Island's natural and human decline remains a matter of debate among scholars. [Enlarge](#)

Photo credit: © Grafissimo/iStockphoto

METAPHOR FOR DISASTER?

Can Easter Island be seen as a microcosm of our planet today? Should we regard its tragic collapse as a cautionary tale of the utmost gravity? In the world at large, we are deforesting our land, overfishing our oceans, causing the extinction of species. We are watching our topsoil disappear by the millions of tons each year. We are starting to fight over ever-scarcer freshwater. We are overconsuming our resources as if there were no tomorrow, or future generations. One would have to be in denial not to see those "chillingly obvious" parallels to Easter Island, some experts maintain.

"The message is clear," says José Miguel Ramírez, a Chilean archeologist who served as superintendent of Rapa Nui National Park from 1993 to 1999. "In the past, some people on Easter Island, namely the ruling class, were able to destroy other people and their homes, but now some societies can destroy everything, and for the same reason: power and greed. The only difference is the scale—from a little island to the whole planet."

Some scholars take issue with the notion of seeing Easter's fate as a metaphor for disaster. Jo Anne Van Tilburg, one of the leading archeologists of Easter Island, considers it "a projection of Western values which emphasizes the self-destruction of the Rapanui culture over the actual, near-annihilation of it by contact with the West." Yet such cross-cultural contact is precisely the reason why we should be concerned, according to Jared Diamond:

Thanks to globalization, international trade, jet planes, and the Internet, all countries on Earth today share resources and affect each other, just as did Easter's eleven clans. Polynesian Easter Island was as isolated in the Pacific Ocean as the Earth is today in space. When the Easter Islanders got into difficulties, there was nowhere to which they could flee, or to which they could turn for help; nor shall we modern Earthlings have recourse elsewhere if our troubles increase. Those are the reasons why people see the collapse of Easter Island society as a metaphor, a worst-case scenario, for what may lie ahead of us in our own future.

Unless, the implication being, we can learn from the Rapanui and act accordingly.

*Editor's note: Since this article appeared in 2004, new studies posit a later arrival for the first Easter Islanders, a smaller maximum population, and a more complex explanation for what transpired there. See, e.g., articles by Hunt in Further Reading below.

This feature originally appeared on the site for the NOVA program *World in the Balance* (<http://www.pbs.org/wgbh/nova/worldbalance/>).

Peter Tyson is editor in chief of NOVA Online.

Further Reading



This website was produced for
PBS Online by WGBH.
Website © 1996–2015 WGBH
Educational Foundation



National corporate funding for NOVA is provided by Cancer Treatment Centers of America. Major funding for NOVA is provided by the David H. Koch Fund for Science, the Corporation for Public Broadcasting, and PBS viewers.

