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Study of land snails suggests Earth may have already lost 7 percent of its animal species

By [Robert Gebelhoff](#) August 11

Twenty-five years ago, [Robert Cowie](#) would climb atop the mountains of Oahu, Hawaii, and find one or two specimens of a brightly colored snail squirming around.

As a bioscience researcher at the University of Hawaii, Cowie would note the animal, one of many snail species that were identified as endangered on the island. But it's been a long time since anyone has seen the snail, and researchers believe that's probably because it's gone extinct — along with many of its other sibling snails.

“I was probably one of the last people to see it alive,” Cowie said in a telephone interview with The Washington Post.

The Hawaiian archipelago is, geographically, the most isolated place on Earth. As a result, it's home to a vast array of animals completely unique in the area.

[\[Earth is on brink of a sixth mass extinction, scientists say, and it's humans' fault\]](#)

But there's another unique aspect of the island that's making scientists concerned: Hawaii has more endangered species than any other U.S. state, and the rapid decline in species on the islands has given the area the unfortunate moniker of “the extinction capital of the world.”

Data on snail extinctions had led a team of international scientists to fear that the loss of biodiversity on the planet is far larger than previously predicted. Taking into account the millions of invertebrates often overlooked by researchers in the field, the researchers argue that the world has already lost 7 percent of its animal species, contributing to the [long-theorized “sixth mass extinction”](#) that is wreaking havoc on the planet's biodiversity.

On Hawaii alone, scores of brightly colored, tropical birds have been crossed off the islands' list of extant fauna over the past two centuries. The same fate came to a number of moths and insects, and as a result, other species relying

on those animals are now threatened. One of the islands' plants, the stout *Brighamia*, known for growing on Hawaiian sea cliffs, [now must be pollinated by hand](#) because the insects that would do it naturally are gone.

[[Graphic: The great mass extinctions](#)]

To date, only around 800 of Earth's roughly 1.9 million species are officially recorded as extinct by the International Union for the Conservation of Nature. The low number has had skeptics question if there is really a crisis, but the methods used by the IUCN to declare a species as extinct are extremely rigorous and take a lot of time. To cover the enormous amount of species in the world would take far more resources than would probably be possible, Cowie said.

To get a more full idea of what's really going on, Cowie and a team of researchers studied land snails throughout the world. The animal is the best invertebrate to study, because it leaves behind a trace that's far more easy to observe: shells.

In Hawaii, boys have long collected the bright snail remnants like baseball cards, and many have been donated to museums. As a result, museums on the islands have some of the best records of its past snail populations.

In a study [published this week](#) in the journal *Conservation Biology*, researchers determined that only 15 of the 325 species recognized in Hawaii can still be found alive, and that the rate of extinction in the state has been as high as 14 percent per decade.

Snail species are a bit trickier to study globally, but with the help of a mighty network of snail experts across the world, scientists were able [to look at 200 species in total](#). A tenth of the snails worldwide have gone extinct, they found. With that information, they were able to extrapolate the extinction rate to all other forms of invertebrates — such as the insects, spiders, arthropods and all the other spineless critters throughout the world.

[[Climate change could give San Francisco the climate of San Diego, scientists say](#)]

Because invertebrates make up about 99 percent of all biodiversity on the planet, the study estimates somewhere around 130,000 species have gone extinct — way more than the 800 officially recognized.

“It's a bit of a leap of faith, I admit,” Cowie told *The Post*. “We just have to wave our arms around and say that's the best we can do ... Even if it's not very accurate, you're still going to come out with a huge number, it's still a lot.”

“We're not criticizing ICUN, they're not set up to estimate the number of species,” Cowie added. “The point of the paper is to say, the vast, vast majority of invertebrates has not been assessed.”

The depletion of the planet's biodiversity is by no means a new concept. Scientists have recently laid out a theory that this is the sixth time Earth saw a huge wave of extinction. The last time it happened, scientists believe a six-mile-wide asteroid [slammed into Mexico's Yucatan Peninsula](#), killing off the dinosaurs.

Scientists say humans are the cause of the latest bout of extinction, pointing to activities such as overhunting, deforestation, pollution and the release of greenhouse gases causing climate change.

They also warn that eventually the trend will come back to hurt people, as extinctions may drastically alter and disrupt ecosystems upon which humans rely.

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Robert Gebelhoff contributes to The Washington Post's Opinions section.

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