

Glimmer of hope for Tahitian tree snails' survival

Despite the mass extermination of Tahiti's unique species of tree snails in recent decades, much of their original genetic diversity can still be found in remnant populations that survive on the island, researchers report in the July 3rd issue of *Current Biology*, a Cell Press publication. The findings offer renewed hope that targeted conservation measures may yet preserve a representative, although impoverished, fraction of Tahiti's endemic tree snail genetic diversity in the wild—a feat earlier believed to be impossible.

“The Society Islands were a biodiversity hot spot for tree snails, containing approximately half of the described species in this land snail family,” said Diarmaid Ó Foighil of The University of Michigan, Ann Arbor. “Only a few years ago, it looked like the sole survivors from this radiation would be the captive populations that have been painstakingly established and maintained for decades in European and American zoos. Our new study indicates that it may be possible to maintain genetically representative remnant wild populations on Tahiti, the largest Society Island, although this will require proactive conservation measures. Progress on Tahiti may pave the way for the re-introduction of surviving captive snails to the other Society Islands.”

He emphasized, however, that the new discovery does not change the basic fact that the vast majority of the small, colorful tree snails are now gone.

“Prior to the recent mass extirpation, they were very conspicuous in their natural rain forest habitat and Society Islanders used them, in large numbers, to make traditional shell lei jewelry,” Ó Foighil said. He said his colleague Jack Burch, also of The University of Michigan, described their collecting in 1970 “as being like picking berries—they were that common.”

Today, all but five of 61 described Society Islands partulid tree snails are extinct in the wild, following the introduction of the carnivorous rosy wolf snail, he said. The predatory intruder was meant to control yet another snail, the giant African land snail, which was presumably brought to the island as a potential food source. It instead became something of an agricultural pest, and the rosy wolf snail was brought in. As a consequence, Tahiti's tree snail populations have been almost completely wiped out, and three of the island's eight endemic *Partula* species are officially extinct, a fourth persisting only in captivity.

In the new study, the researchers compared the genetic diversity of tree snails that remain in the wild and in captivity to that of the 1970 museum specimens. Although severe winnowing of lineage diversity has occurred, none of the five primary Tahitian *Partula* taxonomic groups, or clades, present in the museum samples is extinct, they found.

In addition to their implications for the tree snails, the findings point to the conservation value of museum specimens in general.

“Natural history museum collections represent time-islands of biological diversity whose real value only becomes apparent in the long run,” Ó Foighil said. “Jack Burch went to Tahiti in 1970 as a museum curator engaged in basic collection-oriented research. At the time, his Tahitian tree snail collections did not have any special conservation value. They are now priceless.”

Source: Cell Press

This document is subject to copyright. Apart from any fair dealing for the purpose of private study, research, no part

may be reproduced without the written permission. The content is provided for information purposes only.