

Of mice and the Farallones

GUEST COLUMN
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Last February, while I was in the Galapagos working on a project, a couple of island restoration colleagues invited me along on a trip to Santiago Island to release 20 Galapagos hawks back into the wild. They had been captured several weeks earlier before helicopters spread rat poison baits on several islands in the Galapagos National Park. The risk to the hawks was of indirect poisoning from eating lizards—which the poison does not kill—or eating dead, poisoned rats. Five weeks after the bait drop, the poison had broken down, and it was deemed safe to let the hawks go.

The goal of the restoration project was to kill every rat and none of the Galapagos hawks, one of the world's rarest raptors. Three months later, all indications are that the project is a success on both counts, though monitoring for the presence of rats will continue for a long time.

Why go to the trouble and expense of eliminating rats and some other non-native species on islands in the Galapagos and else-

where? It's pretty simple. Islands are biodiversity storehouses, with only three percent of the world's land mass but 20 percent of the bird, reptile, and plant species. Rats and other non-native mammals are the major drivers of extinction and ecosystem change on islands: of the global loss of species in modern times, 95 percent of all bird extinctions, 90 percent of reptiles, 69 percent of mammals, and 68 percent of plants have occurred on islands. Most of these extinctions were caused by non-native invasive species. Once invasive species are removed from islands, native species and island ecosystems usually recover with little or no additional intervention.

There are special places in the world worth restoring by eliminating the most ecologically disruptive introduced species. The Galapagos National Park is one of those. The Farallon Islands National Wildlife Refuge is another.

The US Fish and Wildlife Service, along with Island Conservation and PRBO Conservation Science have begun planning a project to eliminate non-native mice on Southeast Farallon Island, an important and long-dreamed-of restoration measure (www.restorethefarallones.org).

But do these people know what they're doing? Helicopters spreading hundreds of

pounds of green pellets on the island wildlife refuge sounds counterintuitive. Is this another case of the we-had-to-destroy-the-village-to-save-it mentality left over from the Vietnam War?

The realm of planning and executing projects that eliminate non-native mammal species from islands has two leaders: the New Zealand Department of Conservation and Island Conservation. Island Conservation, a Santa Cruz-based partner of the Fish and Wildlife Service for the Farallones project, has a hell of a record for restoring islands, with dozens of successes and zero failures.

The largest of the islands in the Galapagos that they cleared of rats this year is about ten times the size of Southeast Farallon Island. In 2008 Island Conservation, the Fish and Wildlife Service and the Nature Conservancy eliminated rats on an island in the Aleutians that is more than 50 times the size of Southeast Farallon. That project may have resulted in the deaths of as many as 41 bald eagles out of an Aleutian population of about 2,500. Mortality in non-target species can not always be avoided, but it is always anticipated and every project builds in ways to minimize it. For example, the Aleutian project was carried out at a time of year when conditions for humans were challenging but the risk to non-target species was minimal.

Holding the Galapagos Hawks in captivity earlier this year is another example of

how to minimize mortality in non-target species. That part of the project was planned and carried out by the Raptor Center of the University of Minnesota, a world leader in veterinary work with hawks (www.raptor.cvm.umn.edu/NewsandEvents/Galapagos/home.html).

Island Conservation and the Channel Islands California National Park used a similar strategy 10 years ago when they eliminated non-native black rats from Anacapa Island. They maintained a captive population of a mouse species native to the island until it was safe to release them. Mouse populations in the wild have since returned to normal.

This is necessarily a brief introduction to a valuable and complicated conservation biology strategy. If you want more information in one document, here's a link to a comprehensive look at the field that I co-authored: www.advancedconservation.org/library/donlan_heneman_2007.pdf

Burr Heneman has been involved with marine conservation on islands for 40 years. In the 1980s, he was executive director of PRBO Conservation Science, which manages Southeast Farallon Islands for the US Fish and Wildlife Service and where he has spent many weeks since his first stint there in 1971. More recently, he helped design and manage a new global seabird conservation program for the David and Lucile Packard Foundation. He currently is working on a Galapagos penguin conservation and research project.