

## Concern over fallout of bombing mice with pesticide

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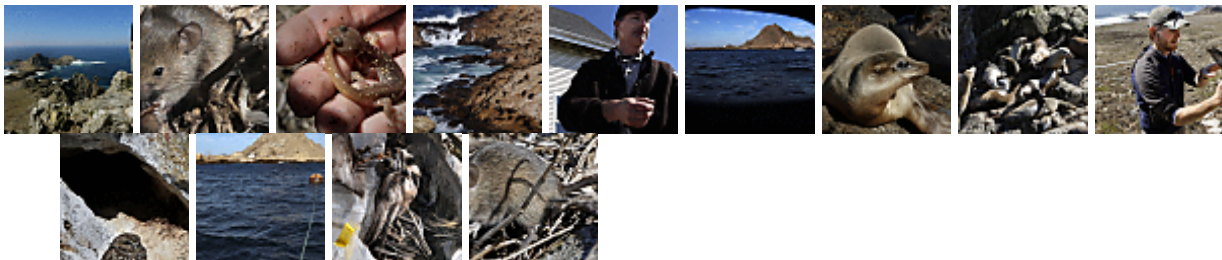


Michael Macor / The Chronicle

Megan Elrod, with the Point Reyes Bird Observatory, looks out from the highest point on Southeast Farallon Island off the coast of San Francisco, where an exploding mouse population has altered the ecology.

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### IMAGES



The mouse scurried over some brush on Southeast Farallon Island, pounced on a large spider and consumed it behind a rock, out of sight of a burrowing owl scanning the craggy shoreline for rodents and small seabirds.

The glorious and tragic realities of natural selection appeared to be at play on this unusually warm and sunny day on the ancient archipelago 27 miles off the coast of San Francisco - except the owl-and-mouse game wasn't at all natural.

The Farallon Islands are crawling with nonnative house mice, which could be seen in broad daylight darting and scampering in and out of burrows, on crags amid the cliffs and, as if in mocking defiance, around the 124-year-old Victorian house where scientists study the island ecosystem.

The mice are one of the last remaining introduced species left on the islands - and their population has grown to "plague-like" proportions, according to biologists, who are hatching a scheme to kill off the wily rodents, which devour insects and spiders and attract owls, which also chow on seabird chicks.

"The goal is to have as healthy an ecosystem as possible, and having mice on the island is not helping maintain a healthy ecosystem," said Bradford Keitt, the director of conservation for Island Conservation, which is working with the U.S. Fish and Wildlife Service and PRBO Conservation Science to develop an eradication plan.

"It's pretty incredible how much impact a rodent can have on an island," he said. "Each one of these mice has to eat, so they are taking a huge amount of biomass out of the ecosystem."

The issue, according to animal welfare groups, is that the solution might be worse than the problem. Federal regulators are considering a plan to drop from the air pesticide pellets potent enough to kill all of the mice - that's tens of thousands of rodents.

### **Nontarget species**

"Our concern is there will be nontargeted species that are affected," said Maggie Sergio, director of advocacy for Wildcare, a San Rafael nonprofit. "Anything that eats those poisoned rodents will die of secondary poisoning. The gulls will consume the pellets. Other species of animals will eat the pellets. Also, this stuff will get into the surrounding water."

Wildcare, which focuses on animal rehabilitation and has historically opposed pesticide use, has circulated a petition that now has 2,700 signatures from people opposing the aerial bombardment.

Fish and Wildlife officials and PRBO scientists insist that every alternative will be explored in the draft environmental report expected out next spring but that rodenticides may be the only surefire method.

The issue is troubling for everyone involved not only because of the potential death toll. The final solution, everyone admits, will undoubtedly involve human intervention in a problem caused by humans.

The Farallones have been exploited by humans since 1579 when Sir Francis Drake landed and discovered an enormous Northern fur seal colony covering the entire island terrace. His crew gathered seabird eggs and seals for meat.

The wholesale slaughtering did not begin until 1810, when New England seal hunters landed on the islands and killed between 75,000 and 150,000 Northern fur seals and Northern elephant seals. When the New Englanders left, Russians from Fort Ross moved in, using Aleuts and Pomo Indians to help collect bird down, eggs, sea lions, fur seals and otters.

By the time the Russians left in 1841, fur seals and elephant seals had been completely wiped out along the California coast.

It is believed the Eurasian house mice that now inhabit the 120-acre southeast island in the archipelago disembarked from the seal-hunting ships.

Human habitation, which began with a lighthouse in 1855, meant the introduction of other nonnative animals like rabbits, mules, cats, turkeys, goats and chickens. The invaders trampled nests and preyed on wildlife.

Meanwhile, eggers removed an estimated 14 million common murre eggs and sold them in San Francisco. During World War II, more than 70 people lived in some 20 homes on the southeast island, which the residents referred to as Farallon City. There were movie nights, dances and even an island newspaper.

In 1969, the Southeast Farallon Island was declared a national wildlife refuge. The last rabbit and cat were removed in 1974, but nobody could figure out how to get rid of the mice.

### **Number of mice soars**

The mice population has ballooned over the last century. The 60,000 or so mice - about 500 mice per acre - now make up what is believed to be the highest density of rodents on any island in the world.

The teeming hordes devour the island's insects, the same food that the endemic Farallon arboreal salamander needs to survive. They also attract owls.

"The burrowing owls show up in the fall when the mice population is at its peak, which is now," said Gerry McChesney, the manager of the Farallon National Wildlife Refuge for the Fish and Wildlife Service. "They find this smorgasbord of mice, but then the mice population crashes in the winter, right when a lot of breeding seabirds arrive on the island."

The owls, in turn, begin eating the birds, particularly the Ashy storm petrel, a small gray seabird that breeds and nests in the Farallones, which are home to half of the world's population of the species. These birds, which are listed as a "species of concern" in California, have yet to recover after losing 40 percent of their population in a 20-year period ending in 1992. Only 10,000 to 15,000 are left in the world.

The remains of storm petrels, which have a very distinct musky tar-like smell, are regularly found in owl dens and in the undigested pellets that the predators regurgitate.

Scientists at the Point Reyes Bird Observatory believe the owls will stop coming to the islands or at least stay for shorter periods if the mice are exterminated.

Russell Bradley, the Farallones program manager and senior scientist for PRBO, said sterilization, trapping and the introduction of diseases to the mice population have been proposed. Some folks have even suggested introducing cats or snakes.

"We're looking at all alternatives," he said. "It has to be something that is effective and also minimizes impacts on other populations."

Poison has nonetheless proved to be the most effective way to rid an island of rats and mice, said Dan Grout, the project manager for Island Conservation, which claims to have successfully eradicated rodents on dozens of islands in the Caribbean, the South Pacific, the Aleutians and the Galapagos chain.

"Once the rodents are removed," Grout said, "the invertebrates return and a lot of other native birds, plants and reptiles rebound."

The air drops that are being considered would use pellets soaked with brodifacoum, an anticoagulant that triggers a massive bleed out from the mouth, eyes, rectum and ears. The trick is to prevent seagulls and other animals from eating the poison.

### **Hundreds of birds die**

Sergio said a 2008 aerial drop by Island Conservation on Rat Island, in the Aleutians, killed 47 bald eagles. In all, some 420 birds were killed, including gulls, ducks, teals, cormorants, murres and ptarmigans, according to a report on the incident by the Ornithological Council, a nonprofit policy group.

Grout stood the other day on top of Southeast Island with a spectacular 360 degree view of the 211-acre chain of craggy outcroppings and pointed out the inaccessible cliffs plummeting down on all sides. To save the Farallon arboreal salamanders, storm petrels and invertebrates, he said, "You have to get every mouse on the island."

"The real difficulty is getting those last two mice," he said. "The only thing that has worked in the past has been rodenticides."

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