

Island Conservation Responses to Questions for California Legacy Project

1. The Farallon Islands have been infested with rodents for quite some time. What initially prompted the USFWS to propose the "South Farallon Islands Non Native Mouse Eradication Project"? [question for USFWS]

2. How did Island Conservation become involved in the rodenticide issue on the Farallon Islands? What is the role of the organization?

For us this project represents an opportunity to help reverse the decline of a threatened species and protect an entire ecosystem through a one-time action to remove an invasive species. IC is working with the USFWS and PRBO Conservation Science to help plan the project.

Our mission is to prevent extinctions by removing invasive species from islands. We have worked with many partners both in the US and internationally to protect native island species. We have partnered with U.S. Fish & Wildlife Service on many successful conservation projects, including in California's Channel Islands, in the Aleutian Islands in the Alaska Maritime National Wildlife Refuge, in the Tropical Pacific at Palmyra Atoll, and in the Caribbean Islands National Wildlife Refuge Complex based in Puerto Rico. These projects are all great examples of public/private partnerships that help protect our natural environment – and the results speak for themselves. After invasives have been removed the native species on these islands are thriving.

3. WildCare, a wildlife organization based in San Rafael, has voiced significant concerns about the project. Has Island Conservation or the USFWS worked with environmental organizations or concerned community members on this issue?

Yes, all three partners are committed to communicating with the public and concerned citizens. We have and will continue to have public meetings and solicit comment from community members. Our goal is to be very transparent with our decision process and to share the science that is used to support the final decision made by USFWS.

Representatives from the USFWS, Island Conservation, and PRBO have met with WildCare and other environmental organizations to discuss the project. A formal process under the National Environmental Policy Act (NEPA) to evaluate alternatives for removing invasive mice is now taking place. These alternatives will be released in a Draft Environmental Impact Statement (EIS). When the draft EIS is issued, it will list some proposed alternatives which will be subject to another round of public comment and review. A final EIS will then incorporate input from the public and other agencies. Only after this extended period of public and agency consultation will a decision be made on whether to move forward with the project, and if yes, what methods would be used.

4. In an article for KQED news, USFWS spokesman Doug Cordell was quoted as saying, "You have to get rid of every single mouse. Any method you choose has to be 100% effective, but it can't cause significant harm to other species." How does the USFWS define significant harm?
[question for USFWS]

6. How are the USFWS and Island Conservation working to calculate the extent of collateral damage from the rodenticide pellets?

Staff members from Island Conservation and PRBO Conservation Science are assisting the USFWS in evaluating options for removing invasive mice from the islands. We are using long-term research from the Farallones and scientific evidence from similar projects worldwide to inform an Environmental Impact Statement process. Over the past year, the USFWS and partners have been reviewing and analyzing potential invasive mouse removal methods that will meet the goal of removing all invasive mice from the island while simultaneously minimizing any short-term impacts to native species. The results of this extensive Alternative Selection process will inform the Action Alternatives that will be included in the Draft EIS, which will be released to the public for comment within the next year. Years of research and analysis of data from the Farallones collected by our partner, PRBO Conservation Science, is informing this EIS process.

7. Given the extent of the infestation, do you think it is possible to completely eradicate house mice on the South Farallones without endangering other species?

Yes. We believe it is possible. Complete eradication of rodents from infested islands has been done successfully on more than 500 occasions.

However, none of the project partners would be willing to proceed with an attempt to eradicate invasive mice from the Farallon Islands if the results were likely to lead to significant harm to any native species. Based on past successes, we do know mice can safely be removed from islands and in the absence of invasive mice, the islands and their native species thrive.

8. Which methods of control is the USFWS considering in addition to the use of Brodifacoum?

During the past year, Island Conservation and PRBO Conservation Science have been assisting the USFWS with a process to consider methods. The USFWS has been carefully considering and assessing possible methods that might result in successful removal of all invasive mice from the Farallones in an extensive Alternative Selection Process. The FWS has considered nearly 50 different alternatives using a Strategic Decision Making tool designed to evaluate alternatives for this project for their potential impact to the islands resources, as well as their potential to successfully remove 100% of the mice from the island and their availability for use. Methods will include those gleaned from the growing published invasive species eradication literature, experts in the eradication field, as well as from agency and public input from the past several years, including from two public scoping meetings (in 2006 & 2011), and hundreds of agency meetings, phone calls and correspondence. The Alternative Selection Report will be included in the Draft EIS when it is released.

9. Even if complete eradication of the nonnative house mouse is successful, reintroduction presents a threat. According to a USFWS scoping document, the organization plans to prevent the reintroduction of house mice to the islands. How might this be accomplished?

You are correct that reinvasion is always a threat to islands where invasive species have been removed and land managers (and communities on inhabited islands) must be vigilant to prevent reintroduction. A key prerequisite to any effort to remove an invasive rodent from an island is to assess risk of reinvasion. Only if that risk is sufficiently low is it worth considering moving forward. Access to the Farallones is restricted -- both physically by cliffs and legally by USFWS -- which makes reinvasion risk low. Also, if the project moves forward, a detailed biosecurity plan to minimize risk of reintroduction of mice would be developed and implemented by USFWS. Biosecurity plans such as the one that would be developed for the Farallones have been successful around the world at keeping islands with much higher risk of reinvasion free from reintroduction.

10. Is your organization currently pursuing other projects involving invasive species removal? Could you describe specific eradication projects that have been particularly successful?

Yes. Our mission is to prevent extinctions by removing invasive species from islands. We are now working in four regions to do so: in North America, South America, in the Caribbean, and in the Southwest Pacific. Since our inception, Island Conservation has protected 967 populations of 338 plant, animal, and reptile species and 338 seabird colonies on 51 islands by removing invasive species.

Most people don't realize the importance of islands to our world's biodiversity and the very significant impacts that invasive species have. Nowhere is the threat of extinctions bigger than on islands, and nowhere do we have a bigger opportunity to save species at risk (nearly 80% of all known extinctions have been of island species and almost half of all species at risk of extinction today live only on islands). By removing harmful invasive species from islands, we remove a major threat to biodiversity and allow nature to heal itself.

A project close to home here in California that has been particularly successful is the Anacapa Island Restoration Project. In 2001 and 2002, Island Conservation, the Channel Islands National Park, California Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, and other partners removed invasive black rats from Anacapa Island. Xantus's Murrelet nesting success increased by 91% the year after rats were removed and has remained around 90% since then. Within seven years, nesting adults increased by more than 93%. Cassin's Auklets, previously absent from Anacapa, are now breeding on the island, and the Anacapa Deer Mice are thriving. There's a video and more information about that project here: <http://www.nps.gov/chis/photosmultimedia/restoring-balance-anacapa-island-long-version.htm>

This year marks the 10th anniversary of completing the work to remove invasive rats and, later this fall, researchers, including some of our Island Conservation staff, will be presenting more information about the longer-term results of the restoration effort at the California Islands Symposium.

11. Over the last year, ecologists have fiercely debated the role of invasive species in natural systems. Some have argued against wholesale eradication projects, stating that they are often costly and ineffective. In a controversial article published last year in the journal *Nature*, authors Mark Davis and others argue that land managers must accept that some invaders are here to stay. Land managers, they write, must "incorporate many alien species into management plans, rather than try to achieve the often impossible goal of

eradicating them.” How would you respond to these arguments?

First, the authors of this article themselves admit that they are not speaking about invasive vertebrate eradications when they say invasives should be accepted as here to stay. They acknowledge efforts to remove invasive vertebrates can be successful and have demonstrated benefits. Clearly, islands are cases where the goal of complete eradication of harmful invasive species is not an impossible goal. Land managers across our planet have proven that invasive species, particularly invasive vertebrates, can be eradicated successfully from islands and that native ecosystems and the species that rely on them can recover. Projects like these have taken place on over 1000 islands in the last 150 years.

Island Conservation and partners have created a publically-available Database of Island Invasive Species Eradications (DIISE) where much more information can be found about these efforts – the many successful ones but also the attempts that were not successful. We hope that this database can provide a significant learning tool for those contemplating undertaking invasive species removal efforts and for those interested in learning more about the field.

Regarding the academic debate you mentioned, Island Conservation has been a co-author, alongside representatives of several large conservation NGOs and the International Union for Conservation of Nature (IUCN) on several responses (see <http://www.sciencemag.org/content/333/6041/404.2.full.pdf> and <http://www.nature.com/nature/journal/v475/n7354/full/475036a.html>).

As an organization committed to protecting biodiversity, we cannot ignore the threats posed by invasive species, particularly those posed by invasive vertebrates on islands.

Islands make up less than 5% of the earth’s land area, but are home to an estimated 20% of all bird, reptile, and plant species. Islands also contain 40% of all critically endangered species, and extinction rates are disproportionately greater on islands. If we’re not willing to protect island species now, the alternative is to lose them forever.