**South Farallon Islands Restoration Project – Talking Points October 2011**

* The U.S. Fish and Wildlife Service, PRBO Conservation Science and Island Conservation partnered to establish the South Farallon Islands Restoration Project to protect and restore the ecosystem of the Farallones, including seabirds and other native species, by removing destructive, non-native house mice.
* The Farallon Islands sit at the Continental Shelf, where the ocean floor plunges from 300 feet to more than two miles deep. This change creates ocean upwelling and nutrient rich waters which provide food for marine fish, birds, and mammals. **The islands are home to 13 species of breeding seabirds, including the world’s largest population of the rare Ashy Storm-Petrel, five species of marine mammals, an endemic salamander and an endemic cricket.** Great White Sharks, several whale species and other marine creatures forage in the surrounding waters.
* **About fifty percent of the world’s population of the rare Ashy Storm-petrel breeds on the Farallon National Wildlife Refuge islands**. The Ashy Storm-petrel is listed as a Species of Management Concern by the U.S. Fish and Wildlife Service and Endangered by the International Union for Conservation of Nature.
* **Ashy Storm-petrels on the Farallones declined by 40% from 1972-1992 and have not recovered.** A Population Viability Analysis (assessing the ability of a population to survive over time) conducted in the mid-1990s found that predation alone could account for the observed population decline in Ashy Storm-petrels.
* The native species of the Farallones are harmed by destructive, non-native house mice, especially rare Ashy Storm-petrels. House mice were accidently introduced to the South Farallon Islands by humans well before to the U.S. Fish & Wildlife’s acquisition of the islands in 1969. Among these early visitors were seal hunters, commercial egg collectors, lighthouse keepers, and the U.S. Navy. Many of the seals and seabirds have recovered significantly from the harvesting that occurred in the 19th century before the Refuge was established. The house mice, however, remain a damaging legacy of earlier island users.
* Why this project, now? 1) We know a lot more about the connection between the presence of the mice and the threat to the storm-petrels, and 2) methods of addressing infestations like this have gotten better in recent years.
* The Farallones, as with most islands, are vulnerable to invasive species. Non-native animal species often significantly damage the ecosystems to which they are introduced, both directly and indirectly, and cause native species to decline or even become extinct.
* Past efforts by the USFWS and PRBO helped remove European hares and cats that were harming seabird populations and altering island habitat.
* Removal of non-native hares and cats helped to restore a colony of Rhinoceros Auklets on the Farallon Islands.
* There are ongoing efforts to control invasive plants, which reduce nesting habitat of burrowing seabirds such as the Cassin’s and Rhinoceros Auklets.
* Farallon species need help to recover their populations to better respond to increasing human pressures on the ecosystem, including from climate change and negative food web impacts.
* Reducing unnaturally high predation is one of the best strategies to help native populations to recover.
* The house mouse is an introduced non-native species on the South Farallon Islands that is affecting the well being of endemic native species, including seabirds, salamanders, crickets, plants, and the overall health of this unique island ecosystem.
* **One of the last remaining non-native animals on the Farallon Islands is the house mouse.**
* The invasive house mouse population fluctuates seasonally and annually, but **a recent sample of mouse density on Southeast Farallon Island suggests a preliminary estimate of over 500 mice per acre at times – which would be among the highest mouse densities reported worldwide.**
* Direct impact to Ashy Storm-petrels
* **Mice are frequently encountered inside burrows, including Ashy Storm-petrel burrows, causing disturbance to nesting seabirds.**
* Shells from predated eggs have been found with rodent bite marks.
* Using decoy eggs made of modeling clay, biologists confirmed that mice would chew on eggs when they are available.
* Chicks of storm-petrels and auklets have been found with toes or feet eaten off by mice (David Ainley, pers. comm.).
* **Every year, at least 225 to 270 Ashy Storm-petrels, out of a population on the Farallones that is likely in the low thousands, are predated within PRBO’s study area, which covers less than 50% of the island's landmass.  PRBO expects actual predation rate to be much greater.**
* Several migrating Burrowing Owls land on the Farallones in the course of their fall migration and find a plentiful food source when mice are at a seasonal population peak. By winter, the mouse population plummets according to its predictable annual cycle when many mice die off. **Left without a reliable food source when the mice numbers decline in winter, the owls are forced to turn to rare Ashy Storm-petrels for food.** Ashy Storm-Petrels begin arriving in late winter in preparation for the spring breeding season.
* **Overwintering Burrowing Owls account for 40% of all documented predation on Ashy Storm-petrels at the colony.**
* **In recent years, the number of Ashy Storm-petrels killed by Burrowing Owls has been increasing.**
* On an individual basis Burrowing Owls have about 750 times greater impact on Ashy Storm-petrels than native Western Gulls, their other main predator.
* A Population Viability Analysis (assessing the ability of a population to survive over time) conducted in the mid-1990s found that predation alone could account for the observed population decline in Ashy Storm-petrels.
* Although owls will continue to find their way to the island, removing the mice (an artificial food source) will greatly reduce the time owls spend on the island during the fall and in turn reduce their impact on the storm-petrels.
* Burrowing owls are also a California Species of Special Concern and are listed as endangered in Canada.
* While Burrowing Owls are native to coastal California and a natural migrant to the islands, the large numbers of wintering owls on the Farallones is not natural. No Burrowing Owls breed on the Farallones. **The Burrowing Owls that stay do so as a direct result of the seasonally abundant food resource of non-native mice, but when mice die off the owls are stranded without suitable habitat.**
* **Migrant Burrowing Owls feed on Ashy Storm-petrels, but they are not an ideal food source. Many owls have been found emaciated, and some have died, by spring. The unnatural food cycle caused by invasive house mice on the Farallones is bad for both owls and petrels.**
* **The U.S. Fish and Wildlife Service, Island Conservation, and PRBO Conservation Science are confident that once mice are removed, any owls landing on the South Farallones in the fall will continue on their migratory path and find better wintering areas on the mainland**, having found insufficient food resources on the islands.
* In addition to impacting rare Ashy Strom-petrels and migrating Burrowing Owls, non-native mice feed extensively on native invertebrates, reducing their populations, competing for food and preying on endemic Farallon arboreal salamanders. Mice also eat native plants and may contribute to the spread of other invasive species by dispersing the seeds of invasive plants.
* **Mice prey on native camel crickets (Farallonophilus cavernicolus).**
* **Mice consume native plants and disperse non-native plant seeds.**
* The U.S. Fish and Wildlife Service, PRBO Conservation Science and Island Conservation are currently analyzing the most scientifically sound methods of mouse removal, and are engaged in a public process to review a number of options.
* **No decisions have yet been made regarding appropriate methods of mouse removal. In accordance with the National Environmental Policy Act, a number of alternatives to accomplish mouse removal are being developed and analyzed for their effectiveness and effects on the environment.**

**[UPDATE]** After the Scoping Phase in the development of the EIS for the proposed project was completed in June 2011, the Service determined that it would evaluate all potential methods to achieve complete removal of invasive house mice for possible inclusion within the EIS. The Service and its partners, PRBO Conservation Science and Island Conservation, are currently developing an Alternative Selection Process that evaluates dozens of potential alternatives. Alternatives will be evaluated for their potential impacts to the environment, effectiveness, and feasibility. Many different rodenticides, as well as mechanical and biological removal methods, are being evaluated. The Service expects to select two to three alternatives that meet minimum operational requirements for full analysis in the EIS. The Alternatives Selection Process is expected to be completed by December 2011, and a Draft EIS will then be developed, which will likely be available in the latter half of 2012.

Rodent removal projects (invasive rats and mice) have been successfully completed on over 320 islands worldwide, including Island Conservation projects to restore California’s Anacapa Island in the Channel Islands National Park **and several islands in the Galápagos National Park**.

Land managers have successfully eradicated mice from more than 30 islands worldwide.

* **The South Farallon Islands Restoration Project will proceed only if the benefits to native species outweigh the risks to native flora and fauna.**
* **On other islands worldwide, the long-term benefits to native species following the removal of rodents have outweighed any short-lived negative impacts from an eradication operation.** Without the eradication of invasive rodents and other island invaders, these species would continue to threaten native and endangered species on islands throughout the world.

**DO NOT LEAD WITH THESE POINTS**

**Talking points only for responses to direct questions about potential methods and rodenticide.**

* The only eradication technique that has been proven successful is the distribution of bait containing a rodenticide into every potential mouse territory on the island.
* **The South Farallon Islands’ rugged and difficult terrain and sensitive seabird breeding habitat and marine mammal habitat prohibits foot access to much of the islands leaving an aerial application of rodent bait a likely potential technique.**
* Exclusive or primary use of trapping or bait boxes may be infeasible due to the islands’ terrain (steep or inaccessible cliffs) and the high probability of ongoing disturbance to sensitive wildlife.
* Brodifacoum is one of the rodenticides which will be evaluated for use in this project. Repeated, unpermitted, and even suspected illegal use of rodent-control products containing brodifacoum in the urban/wildland interface over many years has harmed wildlife in California and elsewhere. **However, in contrast, if this compound were used in an island restoration project, it would be a one-time use conducted according to strict guidelines by certified applicators under several permits from regulatory agencies and using efforts to minimize impacts to native wildlife.** EPA registered brodifacoum products for conservation use (for island rodent eradications) with bait pellets containing low concentrations of rodenticide (0.0025%).
* Island managers have successfully used strategies to minimize exposure to rodenticide, such as live capturing birds of prey and holding them in captivity. **Techniques like this have been used successfully during recent Island Conservation, Galápagos National Park, and Charles Darwin Foundation rodent eradication efforts in the Galápagos Islands.** Other measures, such as avoidance or aversion techniques like those employed at mainland landfills, airports, and reservoirs to discourage gull roosting and feeding could be considered to reduce secondary exposure to gulls. As part of the NEPA process, the Service will analyze a variety of measures to reduce any risks to native wildlife.

**A few points about Brodifacoum in water and soil**

**[AGAIN, these are points to keep in mind if asked specifically, but not preferred talking points]**

* Compressed grain pellets used in the Anacapa Island Restoration Project that entered the ocean were observed by divers to have completely disintegrated within five hours (Howald et al. 2010). Marine fish surveys carried out at three sites before and up to 2 months after the aerial application of brodifacoum baits on Kapiti Island found no change in the density of spotties. Divers noted no dead or moribund organisms (Empson & Miskelly 1999).
* Following aerial applications on Anacapa Island, hermit crabs, limpets, mussels and crabs sampled from five locations at 15, 30, and 90 days afterwards all had no detectable brodifacoum (Howald et al. 2010).
* Bait pellets [depending upon the product] absorb water and soften, becoming substantially degraded after rain.
* Degradation of uneaten baits on the ground is expected to result in residual brodifacoum binding to bait particles that remain in the surface litter or soil immediately beneath. Brodifacoum is probably absorbed to organic matter in soil (World Health Organisation 1995) and is unlikely to leach more than 2 cm into soil (Eason and Wickstrom 2001). Once in soil, brodifacoum is expected to degrade at rates that vary with soil type however the mechanisms and pathways of brodifacoum degradation in soil are not well described. Half-life estimates, that is the time taken for the residual concentration of brodifacoum to decrease by half, in soil range from 12 to 25 weeks (US EPA 1998). Laboratory testing can detect brodifacoum in soil to a concentration of 0.02 ppm.