



Henderson Island Restoration Project

Frequently Asked Questions

Q: Where is Henderson Island and why is it so special?

A: Henderson is the largest island in the Pitcairn group, four remote islands in the central South Pacific that together form the Pitcairn Islands, a UK Overseas Territory. Situated over 3,000 miles from the nearest continent, it is one of the most remote islands on the planet and the last pristine raised coral atoll of significant size in the world. Declared a UNESCO World Heritage Site in 1989, the island is home to four unique land-birds found nowhere else on earth: the Henderson Fruit-dove, Henderson Lorikeet, Henderson Crake and Henderson Reed-warbler. It is also the only known nesting site of the endangered Henderson Petrel and a global stronghold of the gadfly petrel group, the most truly oceanic of all birds. Also holding nine unique plant species, eight unique snail species, dozens of unique invertebrates and crucial nesting habitat for endangered marine turtles, it is clear that Henderson Island is one of the crown jewels of UK biodiversity.

Q: What is the problem?

A: The wildlife on Henderson evolved over hundreds of thousands of years in the absence of any predators. When Pacific rats were introduced by Polynesians, sometime early in the last millennium, this wildlife was unable to cope with the sudden arrival of an aggressive predator. Four unique land-birds soon became extinct and the formerly vast seabird populations have been ravaged. Of the possible 5 million breeding pairs of seabirds estimated to have been on Henderson before rats arrived, only around 40,000 pairs remain. Evidence indicates that over 95% of gadfly petrel chicks are eaten within one week of hatching- over 25,000 chicks every year. Given that these petrels lay only one egg in a clutch, such levels of predation are simply unsustainable. The Henderson Petrel will be driven to extinction without intervention. In addition, rats are having significant detrimental effects on other seabirds such as noddies, terns and shearwaters; all four unique land-birds; a range of invertebrates and plants; and the island's nesting population of endangered green turtles (rats descend onto the beaches to eat turtle hatchlings when they emerge). Video evidence of the devastating impacts of rodents can be viewed here: www.rspb.org.uk/hendersonisland.

The UK is legally required to protect the Henderson petrel and restore Henderson Island under the Convention on the Conservation of Migratory Species (CMS) and the World Heritage Convention. Indeed, in August 2010, the UN World Heritage Committee described a rodent eradication scheme as being of 'critical importance to maintaining the Outstanding Universal Value and integrity of the property', and urged the UK Government to 'rapidly secure adequate funding to implement [a] rat eradication scheme'.

Q: How are you going to remove the rats?

A: Rats are extremely prolific breeders, so every last one must be removed from Henderson in order to permanently protect its unique wildlife. The only feasible way of achieving this on a large and rugged island is by spreading bait containing a rodenticide (rat poison).

Brodifacoum, the active ingredient in many household rat poisons, will be used. The toxin works in a similar way to warfarin, gives the highest probability of success, degrades to base components of water and carbon dioxide, and has been successfully used on many other large islands around the world. Since brodifacoum is a highly effective toxin, the proportion of rodenticide present in each bait pellet will be only c. 0.002% of the pellet by mass. One metric tonne of bait pellets would therefore contain just 20 grams of brodifacoum. Given the very rough terrain of Henderson, helicopter application will be necessary in order to spread the bait into all the areas of the island inhabited by rats. Helicopters will use GPS-satellite technology to ensure that no areas of rat habitat are missed.

No lethal control programme is ever undertaken lightly, and the proposed methods have therefore been evaluated to ensure compliance with RSPCA Australia's principles of Humane Vertebrate Pest Control (HVPC). Aerial application of bait containing brodifacoum is the only tried and tested method that fulfils these principles.

Q: Will the operation be successful?

A: Rats have been successfully removed from at least 284 islands around the world, and no aerial baiting operation against Pacific rats has yet failed. Whilst there can be no certainty of success in such a large and complex operation, all indications suggest that our comprehensive planning should result in a successful operation and the recovery of threatened seabird populations.

Q: Will the rodenticide persist in the environment?

A: Whilst the rats will consume much of the bait, some pellets will initially remain on the ground where they will be quickly consumed by hermit crabs (which are unaffected by the poison) and broken down by rain, invertebrates, moulds and microbes. The toxin itself binds very closely to soil particles and quickly becomes unavailable for consumption. It has very low levels of solubility, so there is minimal potential for water contamination. The toxin will be broken down by soil micro-organisms into its base components of carbon dioxide and water over a period of 3-6 months.

Q: Will other wildlife be affected by the rodenticide?

A: All the petrel species and other seabirds present on Henderson feed exclusively at sea, and will consequently not be exposed to the toxin. Of the four species of land-bird, the only one whose feeding habits may put it at risk is the Henderson rail. Based on other eradication operations it is very unlikely that all rails will take pellets, and our research expedition to Henderson in 2009 confirmed that we can successfully capture and keep rails. We will therefore be establishing an 'insurance population' on the island, where we can keep them away from any bait pellets and release them after the operation is complete. It is expected that the rail population will increase dramatically once they no longer have to compete with rats for invertebrate food.

Small numbers of several species of migratory wader over-winter on Henderson. Their numbers peak in December-January, so the operation will take place in August-September to avoid this period. Some birds do arrive as early as September however and efforts will be made to scare these birds away prior to commencement of the operation in order to mitigate this risk. It is still possible that some will be exposed to the bait and we anticipate that there may be some unintentional deaths. Whilst there may be temporary setbacks in local

populations, these will be insignificant in comparison to Pacific-wide populations. A possible temporary reduction in the number of shorebirds must also be weighed against the ongoing killing of 25,000 petrel chicks every year, as well as the longer-term benefits of an eradication: scientific modelling suggests seabird populations on Henderson will increase up to a hundred-fold once rats are removed.

Invertebrate species are not considered at risk of brodifacoum poisoning as they have a different blood-clotting system to vertebrates. There are no native mammals on Henderson Island. Land crabs that are present on the island will consume bait, but studies on other islands has established that they are unaffected by the toxin.

Q: Will people be affected by the rodenticide?

A: Henderson is uninhabited. The rodenticide, brodifacoum, is toxic to humans, but in doses much larger than could be acquired because of this operation- the average human would have to deliberately ingest over 1kg of bait pellets to receive a lethal dose. In such a case, there is an effective antidote available (Vitamin K). Brodifacoum has a very low solubility in water, so it is extremely unlikely to dissolve into water supplies. There are no streams or permanent bodies of water on Henderson.

Members of the Pitcairn Island community do occasionally visit Henderson. The Pitcairn government is a partner in the project, and Pitcairners will avoid visiting Henderson for a set-duration after the operation has taken place. Signs will be placed on the island to alert any private vessels which may stop to visit. The health risk to the public, which is already very small, will therefore be minimised as far as possible.

Q: What will the benefits be, and how will they be maintained?

A: The conservation benefits are enormous. The annual death of 25,000 petrel chicks will be prevented and the endangered Henderson petrel saved from its slide towards extinction. Moreover, at least ten further unique species will be safeguarded for future generations, a large (37km²), near-pristine island will be restored and a globally significant seabird sanctuary created. Seabird populations could increase by up to a hundred-fold, and small nesting seabirds which were long ago driven from Henderson are likely to return. Given projected sea-level rises, the considerable size and height of the island means that it could provide increasingly important nesting habitat for many species of Pacific seabird whose other breeding sites are threatened. Other wildlife will also benefit enormously. The nesting green turtle population will no longer be affected by rat predation, and many of Henderson's unique invertebrates are extremely likely to experience a population boom. Indeed, it is even speculated that invertebrate species as yet unknown to science, may be discovered on Henderson as their populations increase to detectable levels. The unique plants found on Henderson should also benefit from the removal of the rats that currently eat their bark, flowers and seeds.

It is a fundamental requirement of the operation that an effective biosecurity plan is implemented to reduce as far as possible the chance of rodents being re-introduced. The RSPB is working in partnership with the Natural Resources Division of the Pitcairn Islands Government to further improve biosecurity measures. A Henderson Island quarantine briefing is being developed, alongside a passenger checking facility on Pitcairn Island itself. Henderson's isolation, in conjunction with the difficult landing conditions, means that the island does already have a good natural level of protection. Encouragingly, Oeno and Ducie, two other islands in the Pitcairn group, have both successfully remained rat-free since eradication operations in 1997.