



THE CANNA SEABIRD RECOVERY PROJECT



Summary Layman's report

A **National Trust for Scotland** project in partnership with the **Royal Zoological Society of Scotland**, supported by the **EU LIFE (Nature) Fund** and **Scottish Natural Heritage**.



CANNA SEABIRD RECOVERY PROGRAMME

Project Background. The islands of Canna and Sanday are located at the southern end of the Minch in north west Scotland. They were designated as a Site of Special Scientific Interest (SSSI) and qualify as a Special Protection Area (SPA) by regularly supporting more than 20,000 individuals of 13 species of seabirds. Since then breeding success had fallen and seabird numbers had declined severely from about 21,000 breeding seabirds in 1995 to about 14,000 in 2004. Research showed that this was due to increasing levels of predation of eggs and chicks by introduced brown rats (*Rattus norvegicus*). The Manx shearwater (*Puffinus puffinus*) appears to have almost disappeared from the islands as a breeding bird. Only one seabird, the black-legged kittiwake (*Rissa tridactyla*), is increasing in numbers on the islands and this is only in areas where it nests on vertical cliffs inaccessible to rats.

Project Objectives. The overall objective of the project was to halt the decline in the internationally important seabird populations breeding on the islands of Canna and Sanday, and to facilitate their recovery and long-term protection.

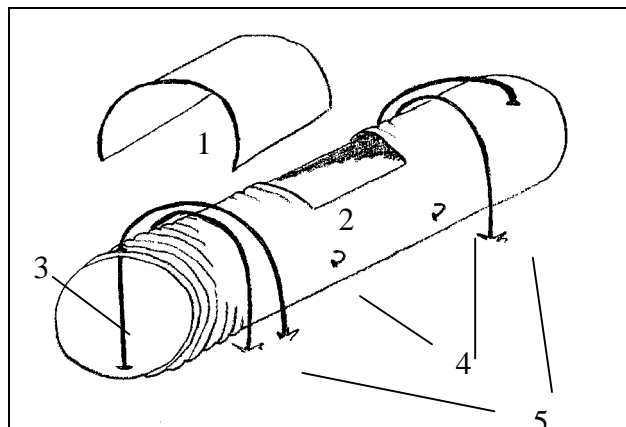
This was to be achieved by removing all brown rats (*Rattus norvegicus*) from the islands and to maintain them permanently rat-free. The main part of the project focused on rat eradication using a grid of bait stations containing poisoned bait to kill rats starting in winter 2005/06. Mitigating actions were developed to reduce the threat of accidental or secondary poisoning of non-target animals, particularly raptors and the island's distinctive woodmouse.

Supporting actions included the establishment of rat-proof waste management, freight and quarantine procedures and long-term rat surveillance, coupled with a contingency plan for action in the event of a rat being accidentally reintroduced to the islands. A comprehensive local and national programme was developed to raise public awareness of issues relating to conservation of seabirds, the NATURA 2000 network and problems of introduced species.

Approach/methodology implemented

The first stage of the project was to lay out the bait station grid. Each station was pegged to the ground with wire. Additional wires were inserted across the entrance so that no animal larger than a rat could enter (Figure 1).

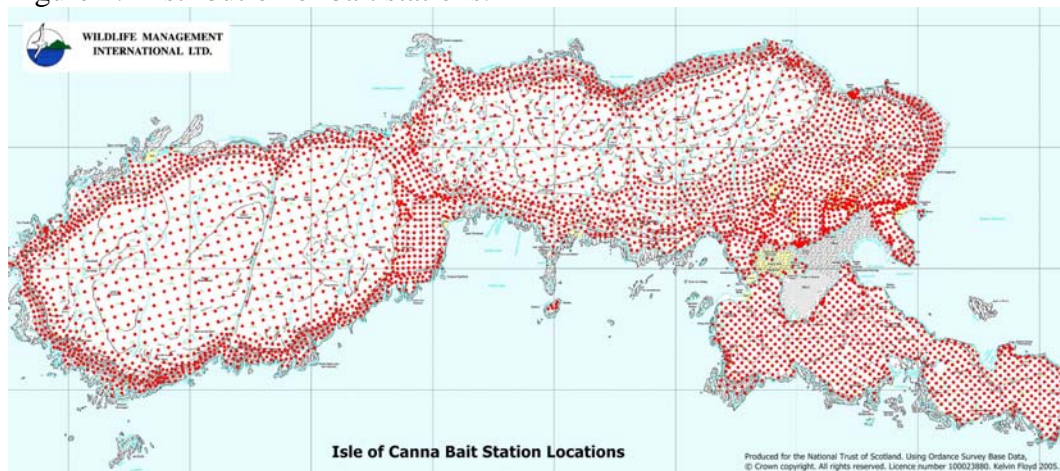
Figure 1. Bait station design.



- Where
- 1 = removable inspection lid.
 - 2 = access hole.
 - 3 = wire skewers to halve entrance diameter.
 - 4 = wire skewers to hold bait in centre of station
 - 5 = wire legs to peg station to ground.

The position of all 4388 bait stations was marked with bamboo poles and flagging tape and its location was noted on a GPS. The grid of bait stations was laid out at a spacing of 50m on all the coastal slopes and cliffs, the in-bye area and Sanday. On the plateau areas of Canna, where rat density is known to be lower, the spacing was 100m (Figure 2).

Figure 2. Distribution of bait stations.



Permanent “Philproof” bait stations were placed in each of the farm buildings and derelict buildings on Canna and Sandy and lockable bait stations in each inhabited building. Each bait station was marked by a flagged bamboo cane and each had an individual number (for recording purposes). The position of all stations was plotted on maps as the grid was laid out.

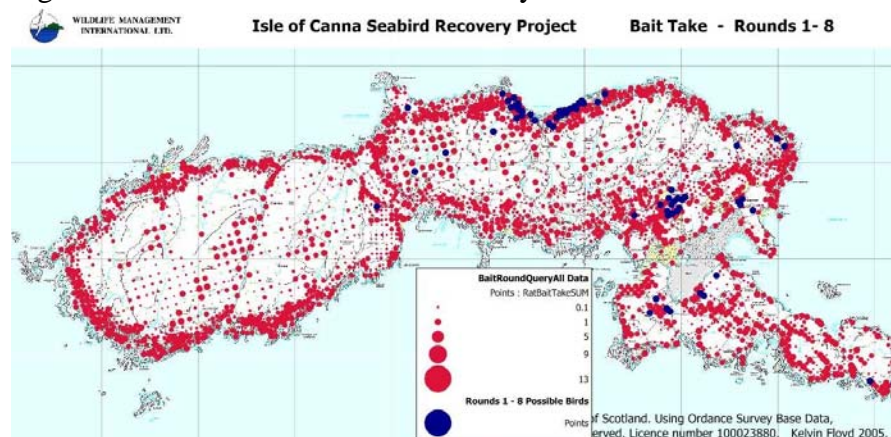
Figure 3. Ditrac blox in bait station



In November 2005 10 blocks of Ditrac™, a first generation rodenticide, lethal to rats but not to birds and domestic livestock, were placed in each station (Figure 3). Stations were checked every two to three days and the bait replaced, as it was consumed by rats. Bait take from stations was recorded in notebooks in the field and these data entered into a computer at the end of each day. This allowed immediate analysis of the progress of the poisoning programme and for refinement, if required, as it proceeded. Figure 4

shows the total bait take recorded in the first eight checks up till 19th December 2006. Checks after this continued and were used to identify hot spots of activity.

Figure 4. Bait take on Canna and Sanday rounds 1-8.



Following the poisoning phase it is essential to monitor the situation intensively for a further eight weeks. This is to ensure that any rats which may have escaped poisoning either because they were resistant to bait, or were unwilling to enter bait stations, are targeted and killed. This third phase began in December 2005 through to March 2006. A monitoring grid of attractive food items such as soap, chocolate, candles and chew sticks (small wooden sticks soaked in used vegetable oil) was pegged out equidistant between the bait stations and from early March a wax block impregnated with cocoa powder was placed in each bait station (Figure 5).

Figure 5. Chocolate wax block in bait station.

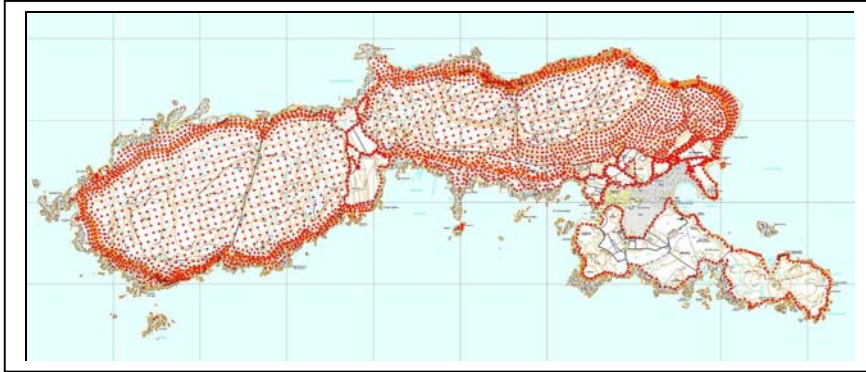


Each monitoring site was visited at least once every three days to look for signs of rat activity. When a rat sign was detected an intensive poisoning programme began. Bait was placed in normal stations and also in a denser grid of stations located under stone cairns. Traps and alternative baits (including a second generation poison, Bromadiolone) were also used to target these remaining rats. The last positive rat sighting was noted on 24th February 2006.

The team returned to Canna in October 2006 and re-established a bait grid of 7608 monitoring stations across the island (figure 6). Closed stations contained a chocolate wax block. The open stations were placed between the closed stations and contained

pieces of chocolate wax and chew sticks held in place by a piece of fencing wire. A marking pole with flagging tape was placed by each station.

Figure 6. Monitoring grid used by WMIL team October-December 2006.



This grid was checked on a regular basis at least six times during October and November 2006. No signs of rats were detected during any of these checks. As a result of this the team were confident all rats had been eradicated. In late November 2006 all bait stations were removed and a permanent monitoring line established (figure 7) consisting of 719 closed stations, numbered and marked by a cane, each containing a wax block in, and another just outside, the station. In January 2007 an islander was given a contract to check the grid at monthly intervals till March 2008.

Figure 7. Permanent monitoring line



During December 2006 twenty five permanent trap boxes (figure 7) were set up round the pier to intercept any accidentally reintroduced rat.

Figure 7. A permanent trap box in situ on Canna Pier.



Quarantine procedures to deal with freight arriving on the island were prepared, one dealing with small freight items and the other with large freight items and these procedures are now being implemented by the island community. A set of contingency guidelines to deal with any rat sightings was also prepared ready for implementation.

RESULTS

Seabird monitoring work during summer 2006 and 2007 was undertaken by the Highland Ringing Group. The 2006 seabird breeding season on Canna was better than the 2005 one, but was characterised by late breeding and a probable food shortage early in the season. Many Shags, Guillemots and Kittiwakes probably did not attempt to breed. Following the eradication campaign there were signs of improved breeding numbers and performance for Shags and particularly Razorbills. A Manx Shearwater chick was also fledged from the Tarbert road colony, the first since 1997, and shearwaters were located at other sites on the island. These were very positive signs that the eradication of rats will result in improved breeding conditions for the island's internationally important seabird populations. In 2007 there was further evidence of food shortages affecting the number of breeding seabirds and their productivity. Despite this the numbers of nesting Shag, Razorbill and Puffin continued to increase in response to the removal of brown rats.

The eradication resulted in no secondary poisoning of any raptor or domestic animal. Mitigation measures meant there was no significant or long-term biodiversity losses among birds or mammals, including the locally distinctive population of woodmouse *Apodemus sylvaticus*. Raptor breeding successes remain comparable with those in recent years. All litter is now disposed of in rat-proof bins and removed from islands.

- Assessment of the conservation benefits for the Natura 2000 (pSCI/SPA) and species/habitat type targeted. Highlight briefly issues that may have important policy implications on NATURA 2000 also in relation to other EC policies if relevant

CONSERVATION BENEFITS FOR THE NATURA 2000 (pSCI/SPA)

The successful eradication of brown rats from the islands of Canna and Sanday means that seabirds now have breeding sites free of introduced alien mammal predators. This means that if food supplies in the surrounding seas return to normal, Canna's seabird populations will be able to return to the levels recorded in the mid 1990s when the island was declared an SPA under EU legislation. It is important to demonstrate that action can be taken to ensure that Natura 2000 sites, which have suffered a loss of biodiversity, can be managed in a way that reverses the causes of the declines. This expertise then has to be shared and disseminated to practitioners at other Natura 2000 sites. In addition public awareness of issues relating to conservation of seabirds, the NATURA 2000 network and problems of introduced species also needs to be highlighted. These aims were achieved via the project website www.nts-seabirds.org.uk, project leaflets, illustrated talks, a very successful project conference (<http://www.nts->

seabirds.org.uk/File/Conference%20proceedings.pdf) and visits to the island from workers on other SPAs such as the Isle of Rum and St.Kilda.

Through these various exchange mechanisms details of the successful methodology used to eradicate rats on Canna were widely disseminated.

COST-BENEFIT DISCUSSION ON THE RESULTS (ECONOMIC AND CONSERVATION BENEFITS).

The total cost of the project was €90,557. This was a small cost considering the conservation benefits of creating a rat-free environment for important breeding seabird populations. It should eventually result in the Natura 2000 site being restored to its former glory, with large internationally important seabird colonies.

It will also benefit the economy of the island, as healthy seabird populations are a major visitor attraction and the island relies heavily on the tourist trade.

The running of a successful scheme, such as this, at a reasonably low cost will re-assure others that such schemes, to remove invasive mammal populations to protect native populations, if carried out properly is a feasible approach. The transferability of the methodology to other projects has been encouraged throughout, via the website, project leaflets, papers, lectures and the project conference.