Macquarie Island
RABBIT AND RODENT ERADICATION PLAN

Impacts of rabbits and rodents
Macquarie Island Nature Reserve is one of the most valuable reserves in Australia. It is a World Heritage Area, an International Biosphere Reserve and it is listed on the Register of the National Estate.

The island is a breeding ground for seabirds, including four albatross species (wandering, black-browed, grey-headed and light-mantled sooty albatross), four penguin species (king, royal, gentoo and rockhopper) and burrow-nesting seabird species including grey, blue and white-headed petrels.

Many species of feral animals were introduced to the island in the 19th century including cats, weka, rabbits, rats and mice. These species multiplied and have impacted enormously on the natural values of the island. Rabbits, rats and mice are currently causing extensive damage to the island’s vegetation and seabird habitat. Consequently, the eradication of these animals is now the highest conservation priority for the reserve.

Managing feral animals
The Tasmania Parks and Wildlife Service has been managing feral animals on Macquarie Island since the 1970s. Cats and weka (a New Zealand bird) have been eradicated from the reserve, but rabbits and rodents remain.

The myxoma virus was introduced in the late 1970s to control the rabbit population, and this resulted in the partial recovery of the vegetation. Coupled with the eradication of cats, this enabled some burrow-nesting seabirds to successfully breed on the island for the first time in more than 100 years. The myxoma virus was however only seen as a medium term solution until such time that eradication could be undertaken.

Rabbit numbers have increased dramatically since 2001, and recent estimates place their numbers at more than 100,000. The increase in rabbit numbers has resulted from the development of resistance to the myxoma virus within the island’s rabbit population and the reduction in predation pressure on rabbits following the eradication of feral cats.

Control of rabbit numbers is no longer feasible, as myxoma virus is now unavailable and the rabbit calicivirus is considered unlikely to be effective in Macquarie Island’s cold and wet conditions.

Major impacts
Rabbits and rodents cause many negative impacts upon native fauna, flora, geological features, natural landscape values and nutrient recycling systems.

Rabbits not only eat and damage leaves, they destroy flowers, kill seedlings, destroy root systems and cause erosion of the steep peat-covered slopes. Rabbits also change the distribution of plant communities on the island by transporting seeds in their fur and enabling plant species that are less palatable to rabbits to dominate.

Grazing impacts have also affected many of the seabirds nesting on Macquarie Island. Burrow-nesting seabirds need tussock vegetation cover to shelter their chicks and provide protection against native predators.
Due to high seismic activity, steep slopes and rainfall patterns, landslips on Macquarie Island are not uncommon. However, the increased levels of rabbit grazing are thought to have contributed to a greatly increased number and frequency of landslips around the island.

Severe rabbit grazing over the last few years has left many of the petrel breeding sites unusable. By removing vegetation, rabbits also impact on some of the 350 invertebrate species (insects and worms) that live in the soils and on the plants.

Rats prey directly on the eggs, chicks and adults of the smaller seabird species. Mice can have catastrophic effects on native invertebrate communities.

**What is being done about the problem?**

A program to eradicate rabbits and rodents will cost approximately $25 million over seven years and is being jointly funded by the Tasmanian and Australian Governments. The World Wildlife Fund and Peregrine Adventures have also contributed.

The project will be the largest island eradication program for rabbits, rats or mice ever attempted, and one of the largest conservation projects in Tasmania. Eradication is more cost-effective in the long term than sustained control, e.g. a concentrated effort to eradicate feral pests is cheaper than having to devote a substantial amount of funding and resources to undertake control programs every year into the future.

The eradication program will involve helicopters dropping pellet baits targeting rabbits, rats and mice right across the island. Field teams will follow up on the ground to eliminate individual rabbits that have survived the bait drop. These teams will use a range of techniques including shooting, fumigating burrows, trained dogs and trapping over a five-year period to ensure that all rabbits are removed.

The cost of the program reflects a number of factors including the isolation of the island, costs of shipping and helicopters, contingency to allow for unforeseen delays and the need for up to 12 highly trained dogs for the follow-up part of the project.

Eradication techniques are very different to control measures. When planning to eradicate species, it is critical that every individual is exposed to the eradication methods used. For that reason, methods of rabbit control used on mainland Australia, such as mechanical destruction of rabbit warrens using heavy machinery, are simply not feasible for Macquarie Island’s steep terrain and sensitive environment, nor appropriate for a nature reserve and World Heritage Area.

For similar reasons the harvesting of rabbits for meat or skins is not feasible because it will not eradicate rabbits, nor is it possible to install the infrastructure that would be required for such methods. This would also do nothing to affect rodent numbers, which are equally targeted in this combined-species operation.

Aerial baiting is scheduled for winter 2010. The main reasons for this lead time is the requirement to have up to 12 dogs that are trained to hunt rabbits and rodents but not to harm native animals such as penguins; plus the need to undertake all the regulatory and logistics planning associated with the project.

The role of the dogs in targeting survivors of the initial bait drop is critical to the success of the project and it takes extensive training to bring dogs to the required standard.

While planning proceeds, exclosure plots have been established at locations around the island to protect plant species under severe grazing pressure from rabbits.