

SESSION: Ornithology

MARS Themes:

Ecosystems, Biodiversity and biodiscovery

Title:

Eradicating Invasive House Mice *Mus musculus* from Marion Island: Gains and Challenges

Author(s): add rows below if more authors

S Tonin

Affiliation: add rows below for more affiliations

Mouse-Free Marion Project, Birdlife South Africa

Abstract:

This conservation management action is a once-off eradication of introduced and increasingly damaging House Mice that are driving Marion Island into a state of ecological crisis by eating and burrowing into plants, and preying on invertebrates and seabirds. Because of their isolation, islands host unique species assemblages that contribute disproportionately to global biodiversity; because they often lack indigenous terrestrial predators, these biotas are particularly vulnerable to invasive alien species. Approximately 5% of the plant species on Marion Island appear to be endemic to the Prince Edward Islands group, as are some of the insects eaten by mice on Marion Island (three weevil and one moth species). Several species of the native invertebrate fauna have been reduced to tiny proportions of their pre-mouse populations, thereby altering nutrient cycling and other key ecological processes. Marion Island is a globally significant breeding island for 28 seabird species. Left unchecked, mouse impacts are expected to lead to the local or functional extinction of 19 of these within an estimated 30-100 years.

Removal of invasive alien predators from islands is a highly effective biodiversity conservation tool. Preparations to eradicate House Mice from Marion Island commenced with a feasibility study in 2015. Subsequent planning has been informed by best practice principles and guidelines developed over decades on similarly-invaded islands owned by New Zealand, Australia, Mexico, the USA, France, and other member states of the EU, amongst others.

The eradication is being planned and will be undertaken by the Mouse-Free Marion (MFM) Project partnership between BirdLife South Africa and the Department of Forestry, Fisheries and the Environment (DFFE), assisted by many organisations and individuals. Custom-formulated rodenticide bait will be broadcast from helicopters, the only approach that has proven successful for large oceanic islands. Comprehensive bait coverage of every part of the island, essential for success, will be guided by advanced GPS tracking and GIS mapping. Successful eradications of House Mice from Southern Ocean islands include Macquarie Island (12,875 ha), Antipodes Island (2,025 ha), Coal Island (1,189 ha), Enderby Island (710 ha), Ile Chateau (220 ha), and parts of South Georgia Island (4,932 ha of which had mice). A powerful motivator is the dramatic population recoveries of seabirds and other fauna following mouse removal on these islands. At 30,000 ha, Marion is by far the largest island on which such an eradication will be attempted in a single operation. We are closely examining failed mouse eradication attempts such as those on Gough and Midway islands to incorporate lessons learned there into our planning. Assessment of risks, including those to non-target species, is critical to maximise the MFM Project's chances of success and is applied to every phase of planning and execution. Assessing and monitoring the ecological outcomes of the mouse eradication initiative will require a long-term monitoring framework, which makes use of pre-eradication baseline data against which post-baiting monitoring can be compared.

<https://mousefreemarion.org/conservation-campaign/>.

Format:

Oral presentation

Keywords: (add ; between keywords)

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