Tasmania and Asparagus weeds: hanging in the balance

Jamie Cooper[A] and **Wayne Warren**[B]
[A] Dept. of Primary Industries, Water and Environment, PO Box 46, Kings Meadows, Tasmania 7249, Australia. E-mail: jamie.cooper@dpiwe.tas.gov.au
[B] Tasmanian Parks and Wildlife, Whitemark, Flinders Island, Tasmania 7255, Australia.

Abstract
With resources stretched to the limit, Tasmania is under threat from both bridal creeper, *Asparagus asparagoides* (L.) Druce, and asparagus fern, *A. scandens* Thunb. An eradication program primarily focused on bridal creeper in the past has had major successes but needs significant resources to enable eradication timeframes to be maintained.

The bridal creeper program has been predominantly community based, with assistance from a number of individuals from various local and State government agencies. Flinders Island has the largest number of sites and this challenge is compounded by a low population base. Over a dozen native plant species are expected to be lost if the eradication program is not maintained and increased.

Asparagus fern is increasing greatly in its range on both Flinders Island, King Island and the Tasmanian mainland. It is often found growing at the same sites as bridal creeper. This has been included in the eradication program as it would, over a short term, colonize the areas controlled for bridal creeper and would potentially have a similar impact. Eradication of both species is still feasible in Tasmania and both are identified in the Tasmanian Bridal Creeper Strategy as being eradicable weeds.

Eradication of invasive alien plants on Lord Howe Island, NSW using three *Asparagus* species (*Asparagus asparagoides* (L.) Druce, *A. plumosus* Baker and *A. aethiopicus* L.) as a case study

J. Le Cussan, Lord Howe Island Board, Lord Howe Island, New South Wales 2898, Australia. E-mail: rangers_lhib@bigpond.com

Summary
Of the approximately 500 recognized alien plants on Lord Howe Island, 17 are declared noxious weeds. Following many years of dedicated but ultimately futile 'control' effort, 15 of these (including three *Asparagus* species) are now targeted for total eradication on all land tenures. The two other listed noxious weeds, *Lilium formosanum* and *Ageratina adenophora* are so widespread and numerous, including in totally inaccessible areas, that eradication is not planned for these species at this stage. The distribution and total population of *A. plumosus* is relatively limited, while *A. aethiopicus* and *A. asparagoides* are more widely distributed and more numerous. In contrast to the mainland situation, the chance of reinfestation of the island following eradication of these species is very low given the distance offshore from mainland Australia (provided effective quarantine is maintained). A close-spaced grid-search and treatment methodology within 6–8 hectare blocks has been adopted for the whole island. Management is based on a model developed by the NZ Department of Conservation for their island weed management programs.

Introduction

Lord Howe Island (31°31'S, 159°04'E) lies 570 km off the east coast of Australia, 1350 km from New Zealand and 1250 km from New Caledonia. The flora of Lord Howe Island, on basalt derived and calcareous soils, is more closely related to New Zealand and New Caledonia than to Australia (Anon. 1994). Almost half of the island's native flora is endemic (106 species) with five endemic genera.

The island also supports a large endemic fauna, with many species listed as endangered or vulnerable. Due to its outstanding natural phenomena and biodiversity values, the Lord Howe Island Group and surrounding marine areas was declared a World Heritage Area in 1982.

Chief threats to the island's biodiversity reflect the global pattern and consist of invasive alien plant species, feral animals, human disturbance, introduced pathogens such as *Phytophthora cinnamoni* and potential impacts from global warming, particularly with regard to the island's montane habitats. Additionally, there are constant threats of accidental or deliberate introduction of other exotic animals and plants such as the cane toad, crazy ants and any number of highly invasive garden plants.

Except for rats and mice, all other feral mammals (cats, pigs and goats) have been successfully eradicated from 1980–1990s (though domestic dogs are permitted on the island), and a rat baiting control program has been operating on the island for 15 years. Under a new regional environmental plan for the island, further clearing of native vegetation is virtually prohibited, leaving invasive alien plants as a principal threat to the island's biodiversity.

The local management authority, the Lord Howe Island Board (LHI Board), has conducted weed control programs on an opportunistic basis over the past 10–15 years. In 2002, a Strategic Plan for Weed Management was developed. This represented the first attempt to develop a more time-bound and outcome-oriented approach to weed management on the island.

This paper outlines the current management approach targeting eradication, using three *Asparagus* species as a case study.

Mapping

From 2002–3, detailed mapping was conducted over much of the island's Permanent Park Preserve to determine the density and distribution of noxious plants within the Preserve. The Preserve occupies 70% of the island and includes the cliff bound, 800 m high Mt. Gower and Mt. Lidgbird. The mapping was conducted using 100 m spaced transects with sample plots every 20 m along transect (Le Cussan 2002a, 2002b, 2003a, 2003b). The results were alarming with both densities and distribution of noxious weeds within the Preserve being far greater than had been expected. The following maps show the