

# Benefits of Invasive Plant surveys on Great Barrier Island

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GBI weed surveys have been conducted since 2011, systematically working their way from north to south and walking every residential and commercial property (where permission is given) and public land with a potential for invasive plants to establish (including wetlands, dunes, coastal margins, track margins and managed parks). This has produced a significant database to assist council with planning biosecurity operations and Pest Management Strategy development, however there have also been many immediate tangible benefits.



## 1. Control of highly threatening species

- While the weed survey team's role was to collect data, they do remove small infestations of some of the most serious weeds (total control species), including mothplant, boneseed, and ginger as they encounter them. This is for both efficiency reasons (it takes only a few extra minutes to achieve) and to minimise risk of seed set and greater, therefore more expensive, infestation in the future. In 2011, Biosecurity Manager at the time, Jack Crow, noted that the cost saving by removing these infestations before they spread more than covered the cost of the survey work.
- Discovery of previously unknown infestations that council has been able to send out weed teams to deal with before they spread, including royal fern at Whangapoua.
- Discovery of previously un-recorded species on the Island, and their control, potentially eliminating risk of a new pest, e.g. the large-leaved invasive buttercup, *Hydrocotyle umbellata* which, since its discovery by the weed survey team, has been added to an educational booklet highlighting pest species on the island. Other newly discovered species on the island include stinging nettle, an invasive tree fern, a sedge previously unknown to exist in New Zealand, and a fern known previously from only a few sites in Auckland.
- Location of populations of 13 total control/GBI removal plant species.

## 2. Community education and support

- A very valuable benefit of the survey is the greatly increased community awareness of the range of plant pest species, including species commonly found in gardens that have the potential to threaten the unique biodiversity of the island. As mentioned above, the survey results have contributed important material in a 2017 local board sponsored publication on GBI pests.

- Several landowners immediately voluntarily removed some pest species after discussing the results of the survey with the weed survey team, others pledged to deal with plants they had not been aware of as pests.
- Other landowners appreciated the opportunity to discuss pest control methods with the team and seek their advice on priority weeds. This is a good public relations exercise for the council and the local board.
- The team collected an extensive set of good quality photographs that council is free to use for education and promotional material.

### **3. Research**

- The team have produced a very comprehensive dataset with over 9000 records of a wide range of species of potential concern, including 5 region-wide total control species, 8 GBI total control species, 74 surveillance/community initiative species, and 20 research species (status based on Regional Pest Management Strategy 2007-2012) .
- The data includes GPS location, number of plants or size of infestation, whether the plant was seeding or not, and habitat type for species that are either listed in the RPMS or that have weedy potential.
- The dataset can be used to:
  - Immediately identify location of the highest priority weed species (total control) for removal
  - exonerate some species of potential concern, those that showed no sign of spreading or producing seeds
  - prioritise weed programmes, focussing on those that are manageable,
  - identifying species such as Mexican Devil which have proven (from the survey work) to be one of the most ecologically damaging species on the island, invading almost every wetland and seepage, but for which council may need to consider research into biological control (as has been done for the related mistflower)
  - Instantly creating maps to show the distribution of different species on the island, allowing for targeted local community action and education.
- The dataset is also an invaluable tool to allow council to monitor change in weed distribution/ infestation levels, and accurately demonstrate the outcomes/benefits of their biosecurity programme. These results will contribute greatly to the council's obligations to monitor and report on the State of the Environment, a requirement of the RMA. It provides baseline data on species distribution and degree of infestation, with very specific location details, enabling comparison over time.
- Because the team collected data on a wide range of potential concern species (around 400), information may be readily available on the distribution of newly listed plant pest species on the updated Regional Pest Management Strategy.

### **4. Contribution to wider weed initiatives**

- The weed survey team developed a methodology for the island that has become a standard for other weed surveys, incorporated for instance, into the WETMAK (community Wetland Monitoring and Assessment Kit) and taught to communities around NZ via the New Zealand Landcare Trust WETMAK training events.

- The method has become part of the community training events run by Auckland Council for wetlands and incorporated into a new publication to assist community groups monitor biodiversity region-wide.
- The team also collected voucher specimens of species not previously collected on the Island (and for one species a first collection in New Zealand) for the Auckland Herbarium, greatly contributing to our understanding of New Zealand botany, species distributions and pest potential. Preparing samples for the Herbarium was done in the weed team staff's own time during the evenings.

The project has assessed land from Motairaha down to Medlands, and has also collected some information from selected properties around the Tryphena area (where previously unrecorded giant rhubarb and stinging nettle were found).

It is hoped that council will continue to support the survey to allow full island-wide completion of the project, including remaining un-surveyed properties on the Tryphena Hill, the wider Tryphena area, Rosalie Bay and Cape Barrier, to maintain the "Treasured Island" status of Great Barrier Island.