Stewart Island Dune Restoration

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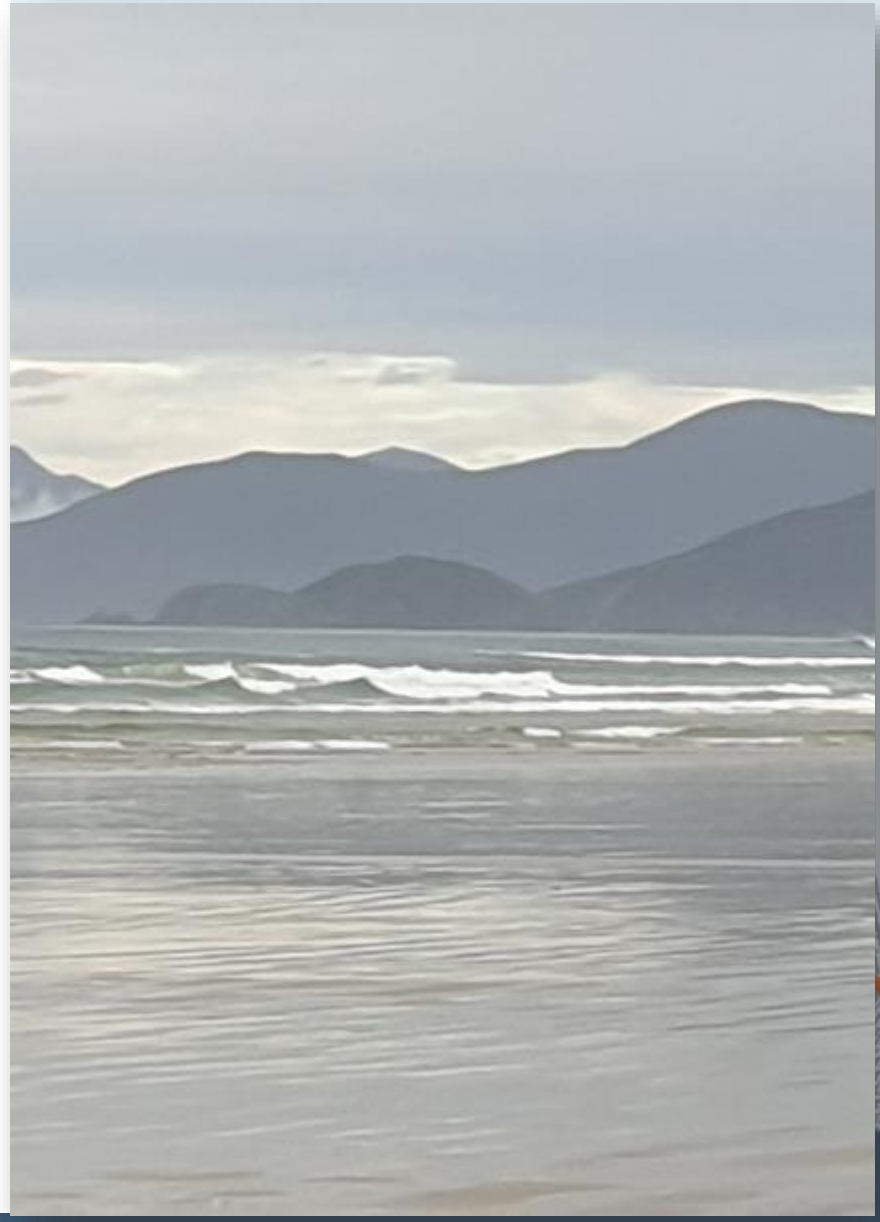
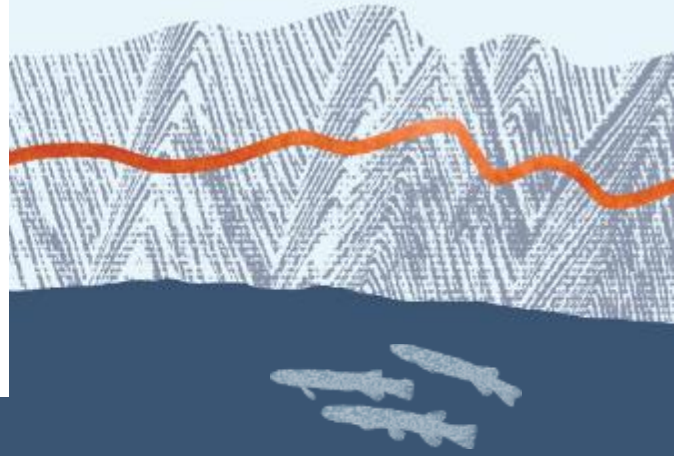
New Zealand Government



Objective

The Stewart Island Dune Restoration project's goal is to restore the dune systems to a natural active dynamic state. This will be achieved by removing exotic/invasive plant pest species from the dune systems to enable natural sand movement and deposition.



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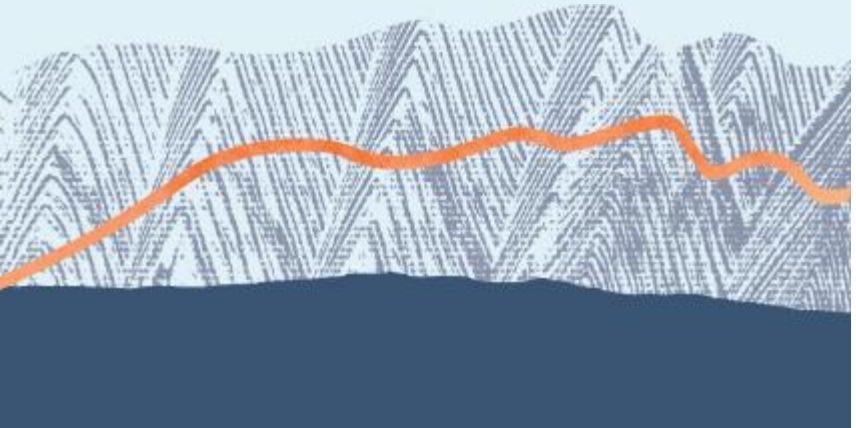
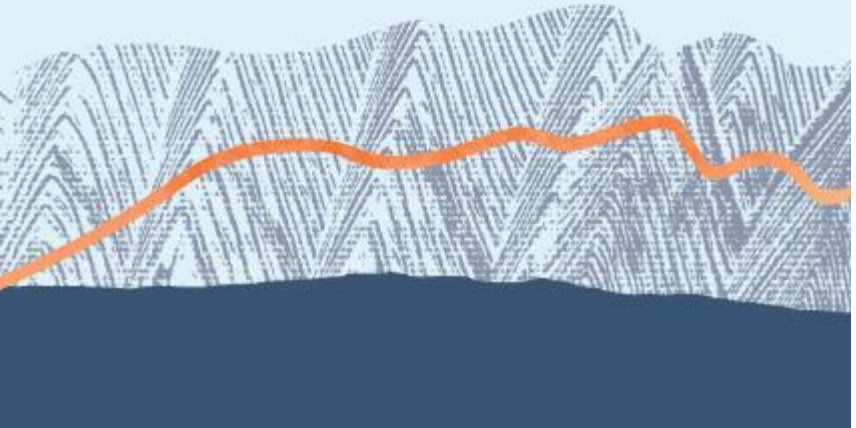
History



- **Codfish 1980s**
- **The work then began at Northern Beaches East and West Ruggedy, Big and Little Hellfire, Smokey Beach, Murray Beach and Maori Beach the work was ad hoc. In addition Port Adventure and other dunes are visited while on other work**
- **More formalized program began in 1999 with aerial operations starting at Doughboy**
- **Masons Bay Northern Dunes in 2000 then into the central dune system 2002**

Where we work

History



- **Masons Bay is the largest Dune System on Stewart Island and ranked highly in the Dune Inventory of New Zealand Dune Systems**
- **In addition one of New Zealands nationally most significant dune systems**
- **One of the most exposed beach in the country with westerly's that scream in from the Subantartics**
- **Mason Bay has many different ecosystems fore dune, parabolic dune arms, sand slopes, stonefields, dune slacks & wetlands, rock outcropping, dune margins, dune forest**

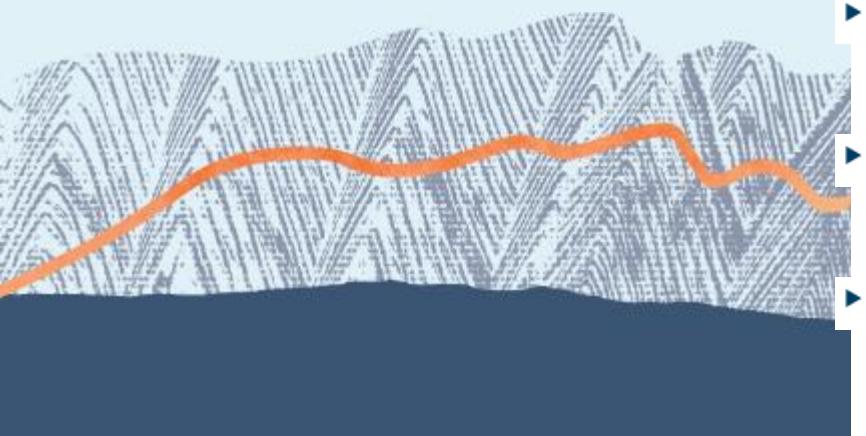
Mason Bay is a site of national significance

One of the largest strongholds for 31 nationally threatened and southern endemic plant species eg sand tussock, *Gunnera Hamiltonii* and pingao.

Critically endangered fauna such as New Zealand Dotterel, New Zealand Sea Lion, Southern brown kiwi, moths, insects and lizards utilise the dune system

Control

- Northern beaches controlled annually. Now every second year. Marram down to very low levels
- Doughboy controlled annually . The first large scale area where methodology was developed to be used at Mason Bay
- The current extent of the dune system at Mason Bay is an estimated 840ha and existing marram control covers less than half of this area at approximately 378ha.
- Divided into management units.
- Masons Bay Dense infestations Aerial control then argo then knapsack
- Masons Bay Moderate infestations argo then knapsack
- Masons Bay Low infestations knapsack

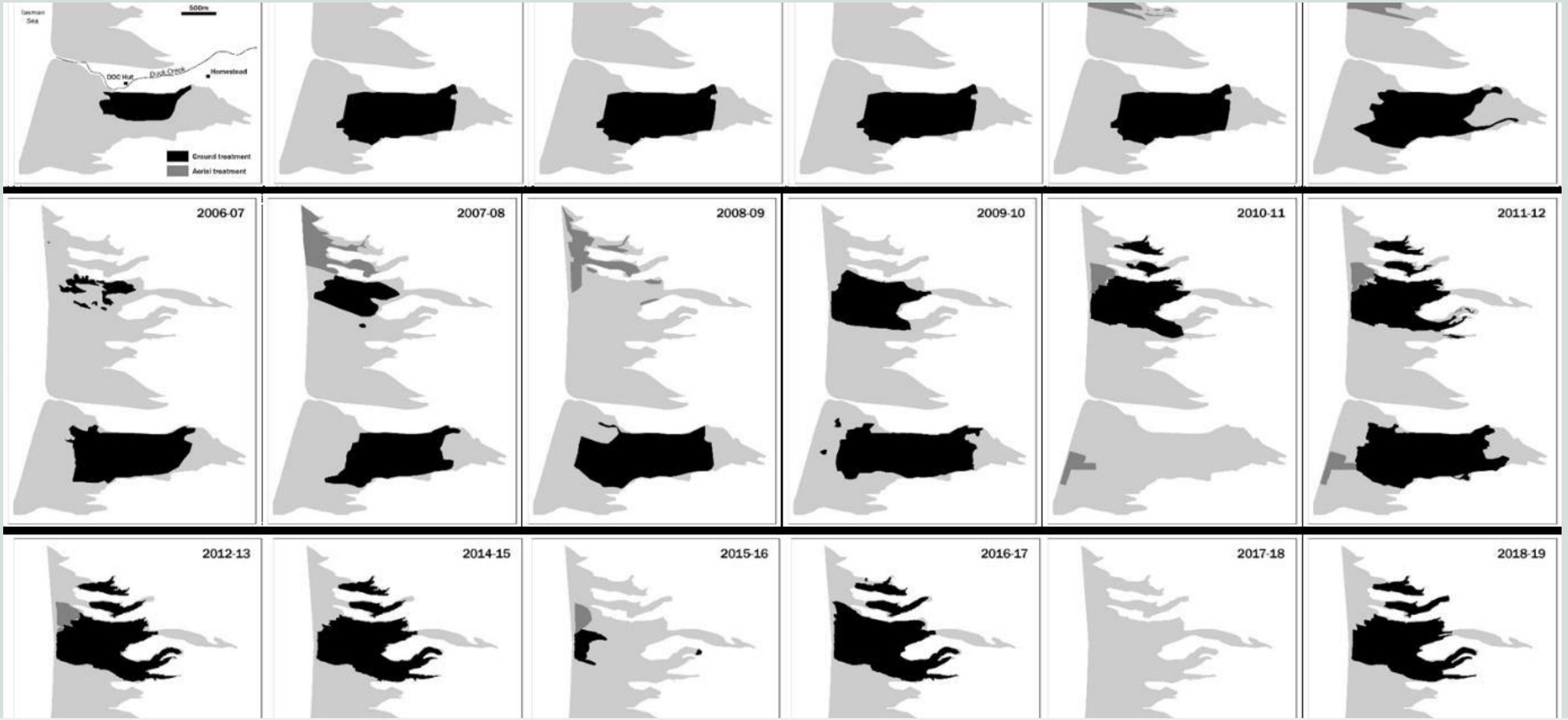


Control Methodology

- Helicopter dense areas then Argo (vehicle with motorised pump sprayer) then knapsack
- Moderate infestations ARGO (vehicle with motorised pump sprayer) then knapsack
- Ground control work in areas of lower marram density or where there is a risk of spraying sensitive non-target species - back packer sprayer
- In areas of lower density walk shoulder to shoulder to ensure all areas are covered
- Everything is GPS’ed Downloaded at night any gaps redone next day

Herbicides

- In **the beginning Gallant Ultra**
- **Now use Hurricane**
- **Set up a dam fill with a helicopter**



Progressive expansion of operations between 2000 and 2019, Central Dunes and Northern Dunes, Mason Bay. The light grey shading indicates the extent of the central and northern dune systems; the black shading indicates ground operations and the dark grey helicopter operations.

Other weeds of concern

- Doughboy and Codfish *Hieracium pilosella* (mouse ear hawk weed)

Other weeds of concern

- Mason Bay *Ulex europaeus* (Gorse) occasional plants , larger infestations at Kilbride . Controlled using knapsacks and helicopter with Tordon

Other weeds of concern

- Masons Bay *Lupinus arboreus* Lupin scattered throughout dune system

- Densities 1 plant to several square meters Knapsacks using Tordon and hand puling

Questions

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