



OUTCOME:

**The right
INFRASTRUCTURE**



Saving our island biodiversity from introduced pests

The Auckland Islands (57,000 ha), in the New Zealand Subantarctic Islands, are a Nature Reserve, World Heritage site, and home to some of the world's most extraordinary natural heritage. There are over 400 plant and animal species here that are restricted to the New Zealand subantarctic region and more than 100 species of endemic flora and fauna.

Auckland Island (46,000 ha) has populations of feral pigs, cats and mice that have inflicted severe ecological damage over the past 150–200 years. After more than 25 years of conservation effort, it is the last island in the New Zealand subantarctic region where mammalian pests remain.

Infrastructure on Auckland Island that can be used for the project is limited. The only accommodation is an old hut at Deas Head and two new huts and a shelter at Smith Harbour. Only one of the remnant historical buildings – the Ranui Cove Coastwatcher's hut – could be made fit for use.



What's the problem?

The project requires a large-scale infrastructure programme.

- ▶ Accommodation and support for teams of 25+ at a time.
- ▶ Tracks and small boats for access and egress.
- ▶ Fences (three management blocks for pigs).
- ▶ Hangars and fuel stores to support aerial operations.
- ▶ Boat sheds, moorings and pontoons for small boat support.
- ▶ Significant mainland support infrastructure (storage, biosecurity, workshop facilities).
- ▶ Communications infrastructure – internet and repeaters for VHF radio coverage.



Work already completed



Field base installed at Smith Harbour (5-bunk hut, 2-bunk hut and shelter).



Highspeed internet installed at Smith Harbour and Deas Head huts.



17.6 km of track cut in 35 days of effort, tested over the range of vegetation types.



Trialled standard electric fences at Falla Peninsula.



Site investigations for helipads, accommodation, storage facilities, fences and traps.



Research/review infrastructure used on other projects, e.g., hangars used on Antipodes, fences used on Santa Cruz.



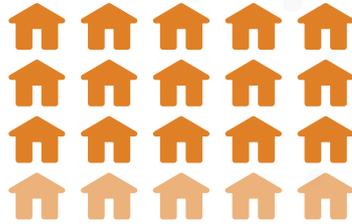
Key findings

Track cutting relatively easy (m/day):

500 average
 ~**300** dense shrub
 ~**1000** easiest

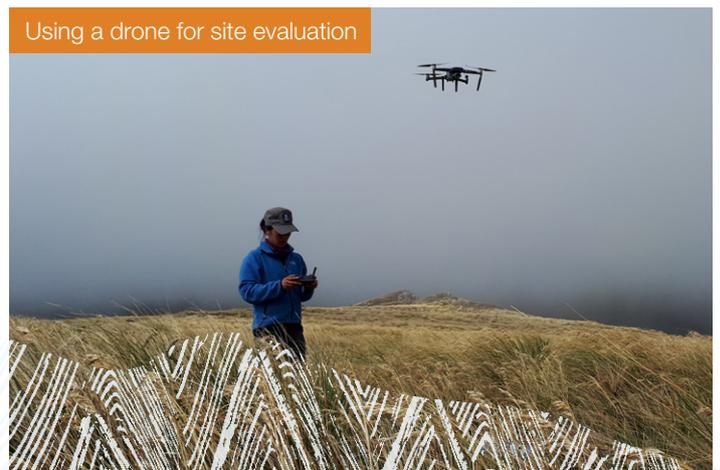
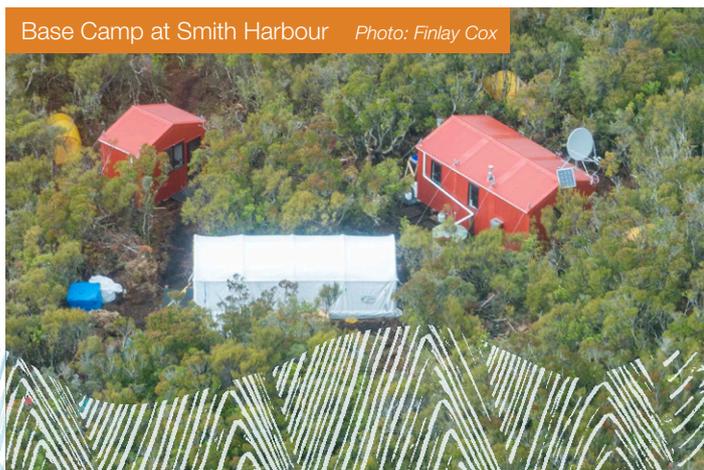
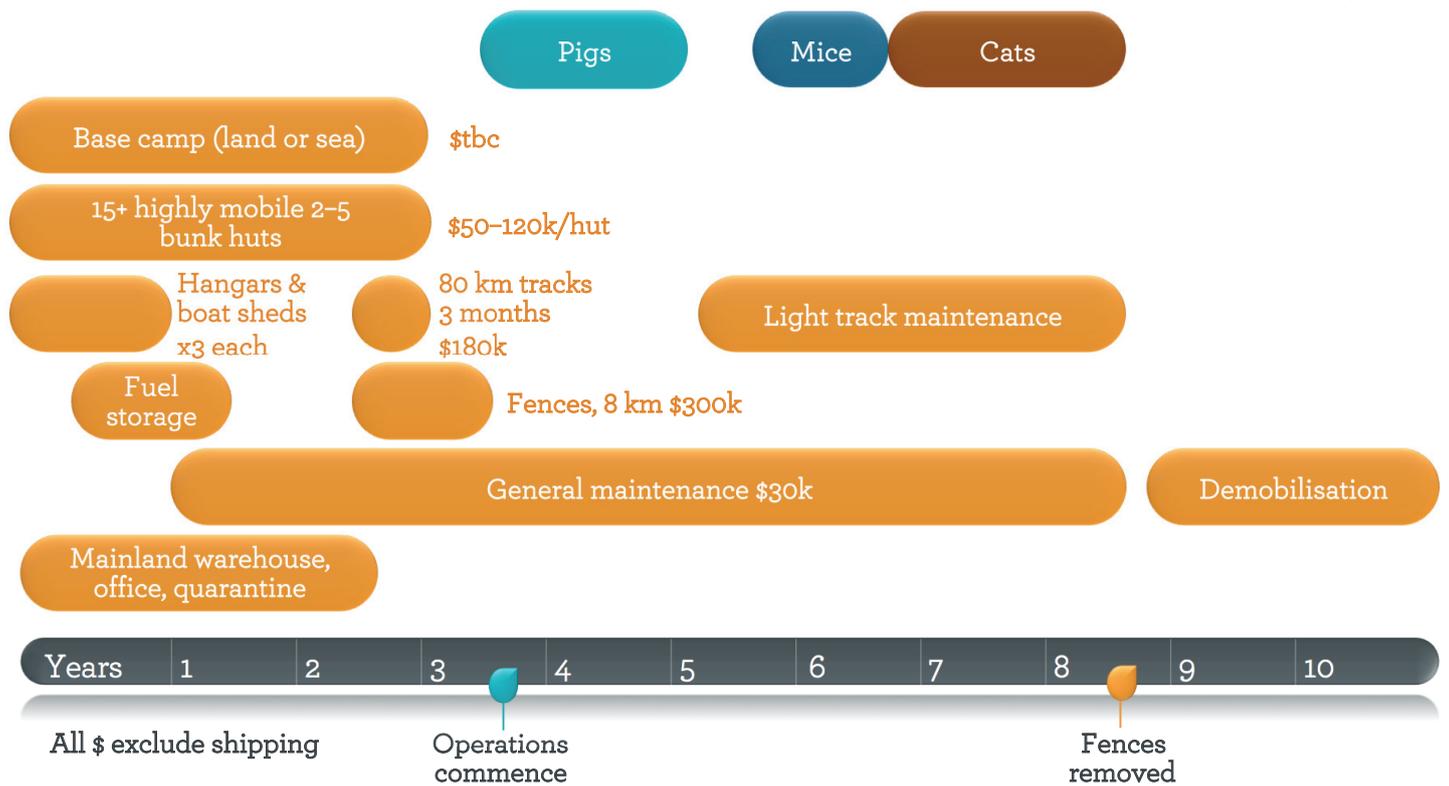
Minimal removal of larger vegetation required.

15–20 smaller field huts will be required for accommodation, and safety shelters in remote places:



- ▶ Standard electric fence effective for detection and deterrence of pigs, despite not being pig proof.
- ▶ High-resolution satellite imagery was accurate for route finding and routing tracks, reducing time taken in field.
- ▶ Covered storage area and drying facilities are essential as part of camp.
- ▶ Well used tracks around camp need hardening (e.g., double-plank boardwalk).
- ▶ Sites suitable for hangar identified.

Where to from here?



Challenges and risks

- ▶ Logistics of transporting and installing infrastructure.
- ▶ Access to cost effective shipping.
- ▶ Detailed design of fence ends at the western cliff and tidal flats of eastern coastline.
- ▶ Maximising usefulness of infrastructure across all potential operations. Design adaptable building solution (relocatable by helicopter) for stand-alone or modular assembly.
- ▶ Defining what tracks will need boardwalk added, e.g., around huts and key access locations.
- ▶ Timing and logistical operational challenges associated with implementing a track programme over such a geographical range.
- ▶ Procurement of goods and services.
- ▶ Timing of mainland construction, mainland storage staging site.
- ▶ Some of the best sites for infrastructure have historic significance.
- ▶ Ensuring a practical solution for fuel storage compliance.

Remaining uncertainties

- ▶ Terrestrial or marine based accommodation.
 - ▶ **OPTION 1:**
One base in a central location with smaller ‘clusters’ of field huts in the southern and northern harbours.
 - ▶ **OPTION 2:**
Two bases, one in each of the southern and northern harbours and smaller scale facilities at Smith Harbour in the middle of the island.
 - ▶ **OPTION 3:**
High level of maritime support (floating operational base) housing field staff, hosting helicopter operations including refuelling and small boat work.

Benefits



Support to enable extensive operations.



Re-useable mobile assets.



Logistical advantages of marine base.

- Reduction in double handling of supplies, waste management, and location for larger operations closer to field operations.
- During the mouse removal the ability to undertake toxin application operations from a vessel would be ground-breaking at this scale.
- Reduced infrastructure set up and demobilisation timeframes.
- Other operational efficiencies would be gained, such as the ability to mechanically load bait buckets.

Front Cover Map Supplied by:
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