



Maukahuka

PEST FREE AUCKLAND ISLAND

**The power of drones and imagery
on a sub-Antarctic Island**



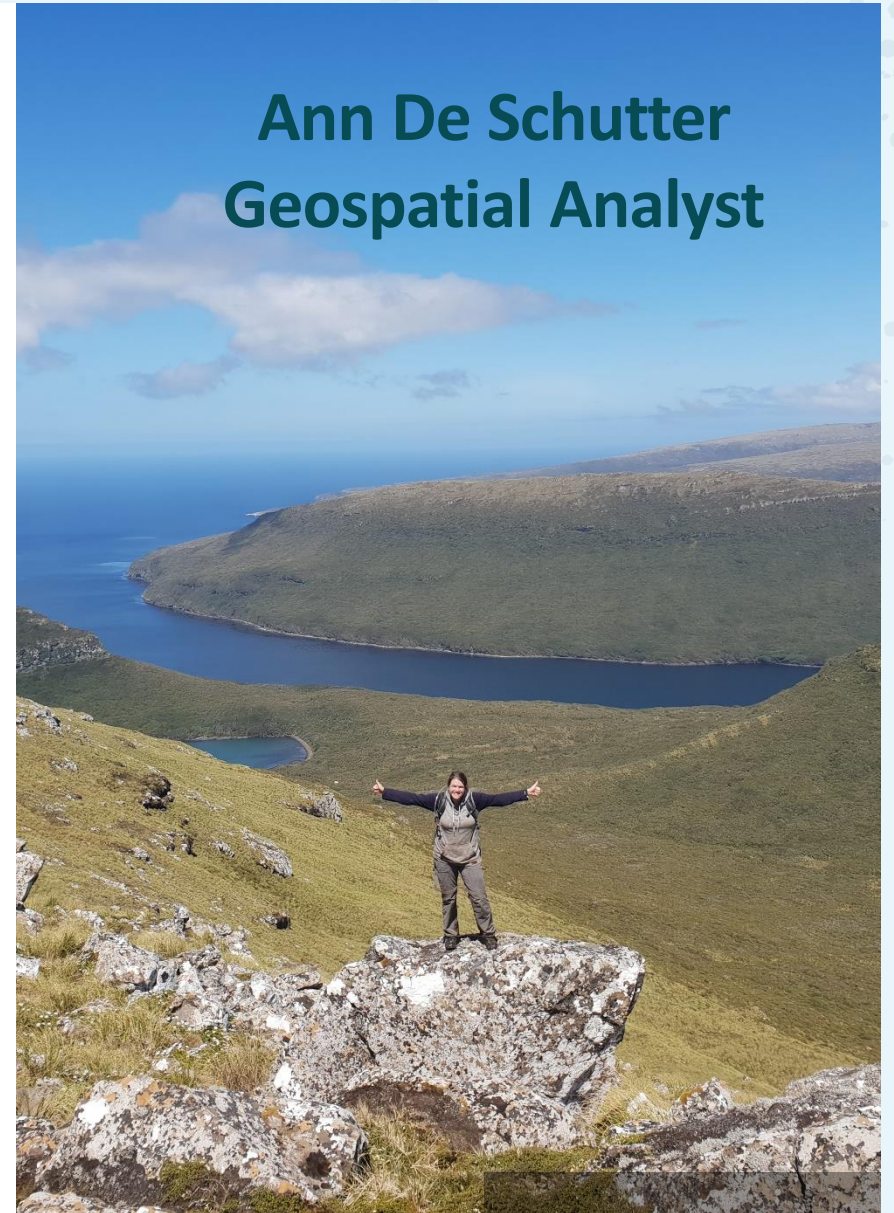
Department of
Conservation
Te Papa Atawhai



Te Rūnanga o **NGĀI TAHU**

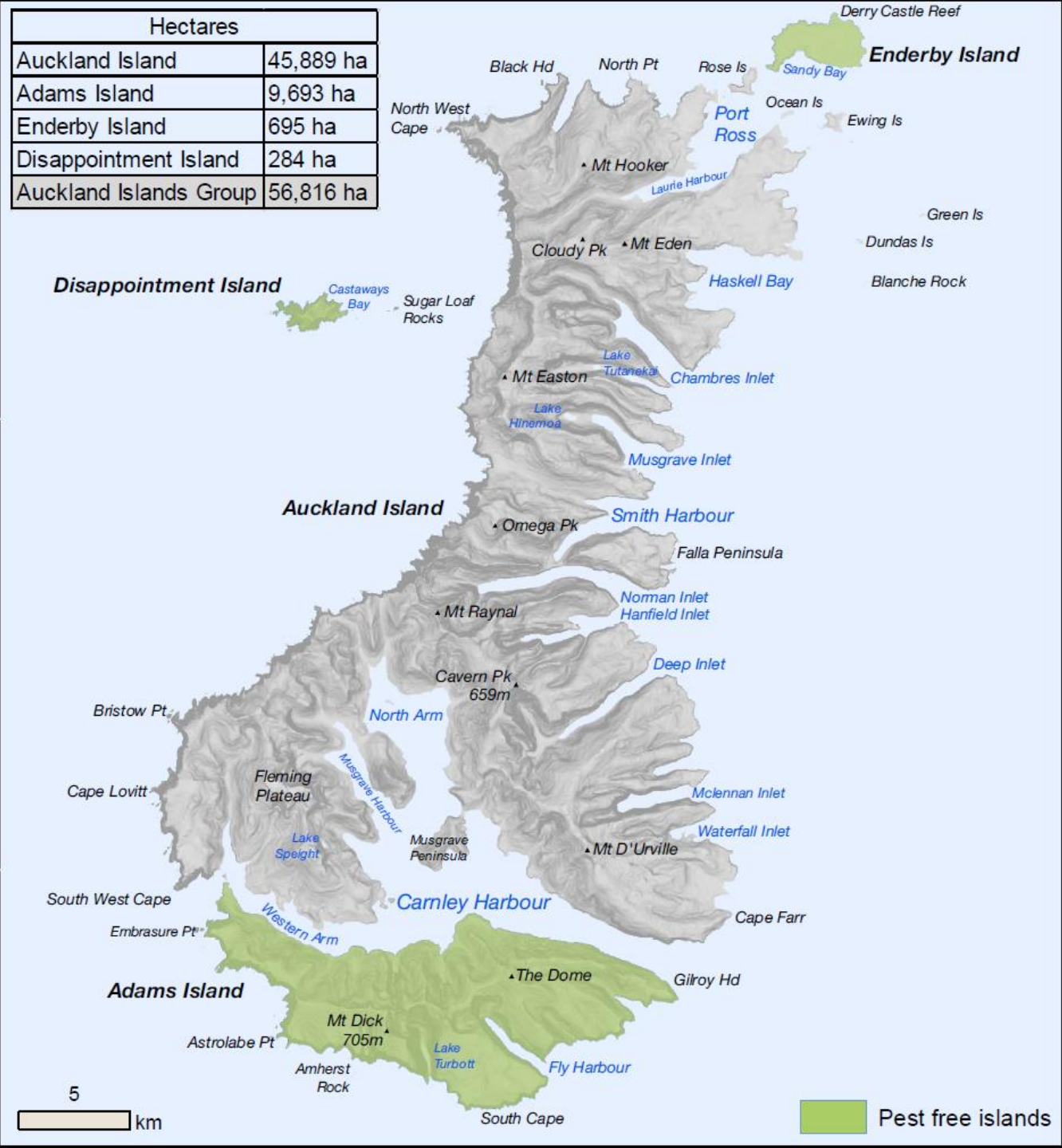
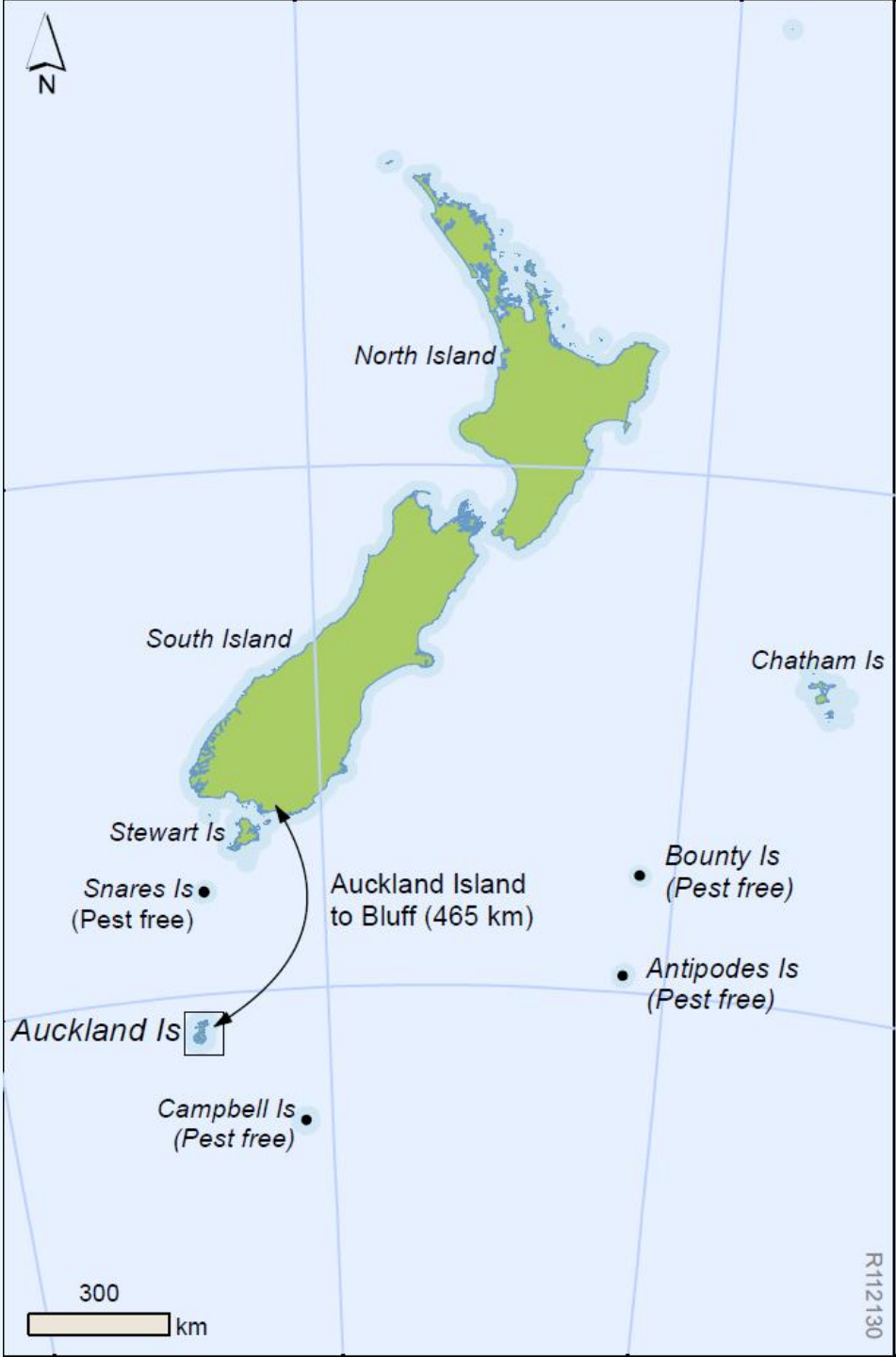
New Zealand Government

**Ann De Schutter
Geospatial Analyst**





Vision – Pest-free New Zealand Subantarctic
Goal – Eradication of pigs, cats and mice





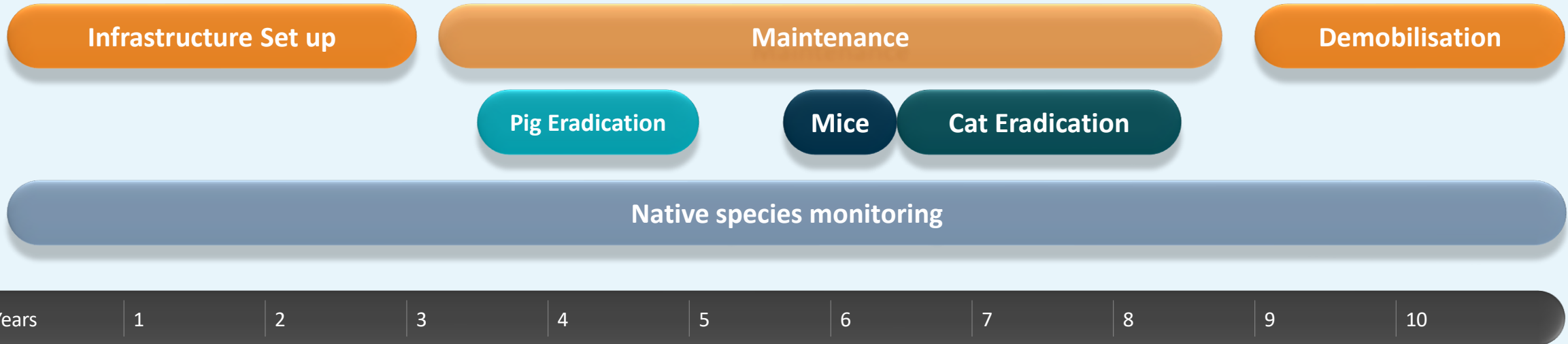
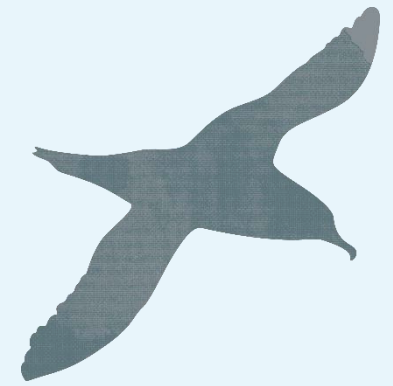
All ground nesting
birds are vulnerable.





Pieces of the puzzle

Indicative operational timeline





Infrastructure

- Design dependent on method for cats
- 1 to 3 main bases
- Boat sheds
- Helicopter hangars
- Fuel storage





Helicopter hangar



Physical Constraints

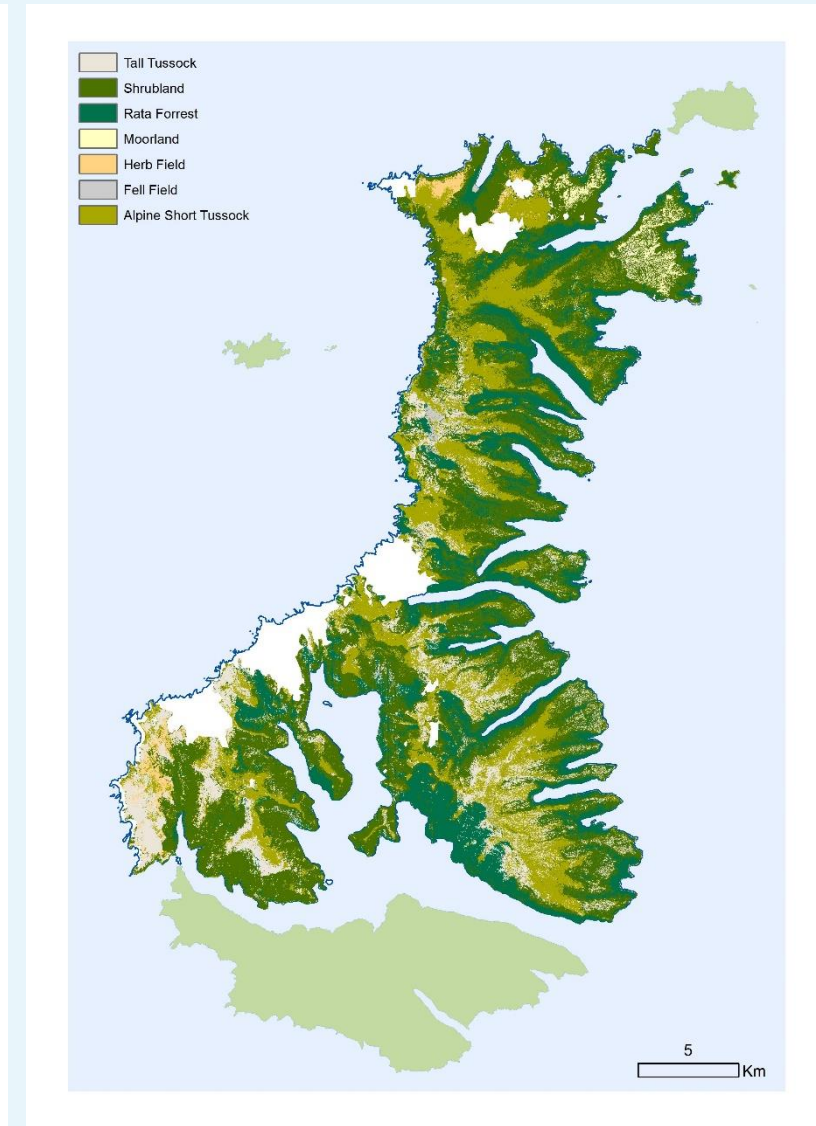


Preferred site = Homogenous vegetation + relatively flat + close to the coast

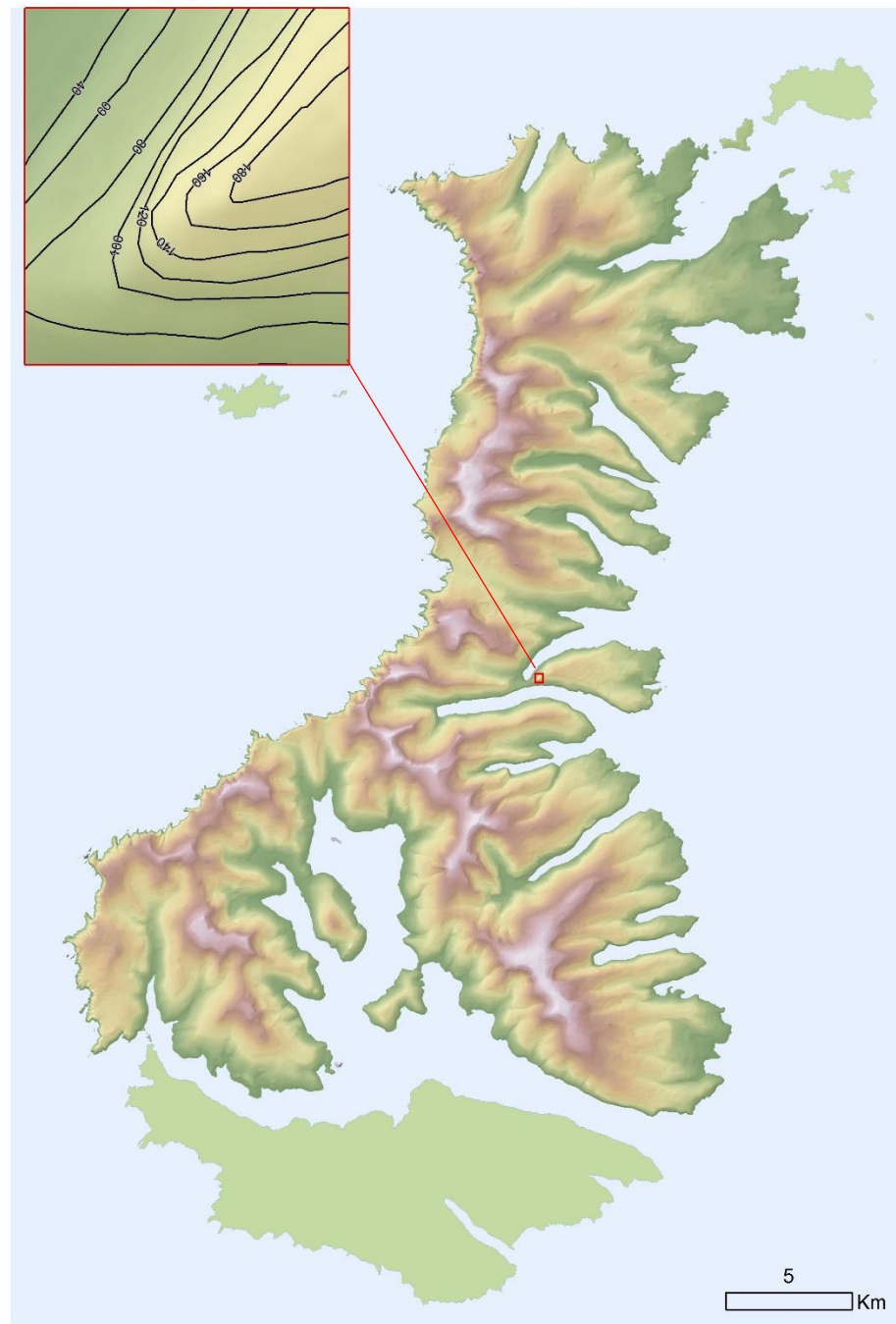
Data to use for infrastructure site investigations



Infrastructure team Nov-Dec 2018

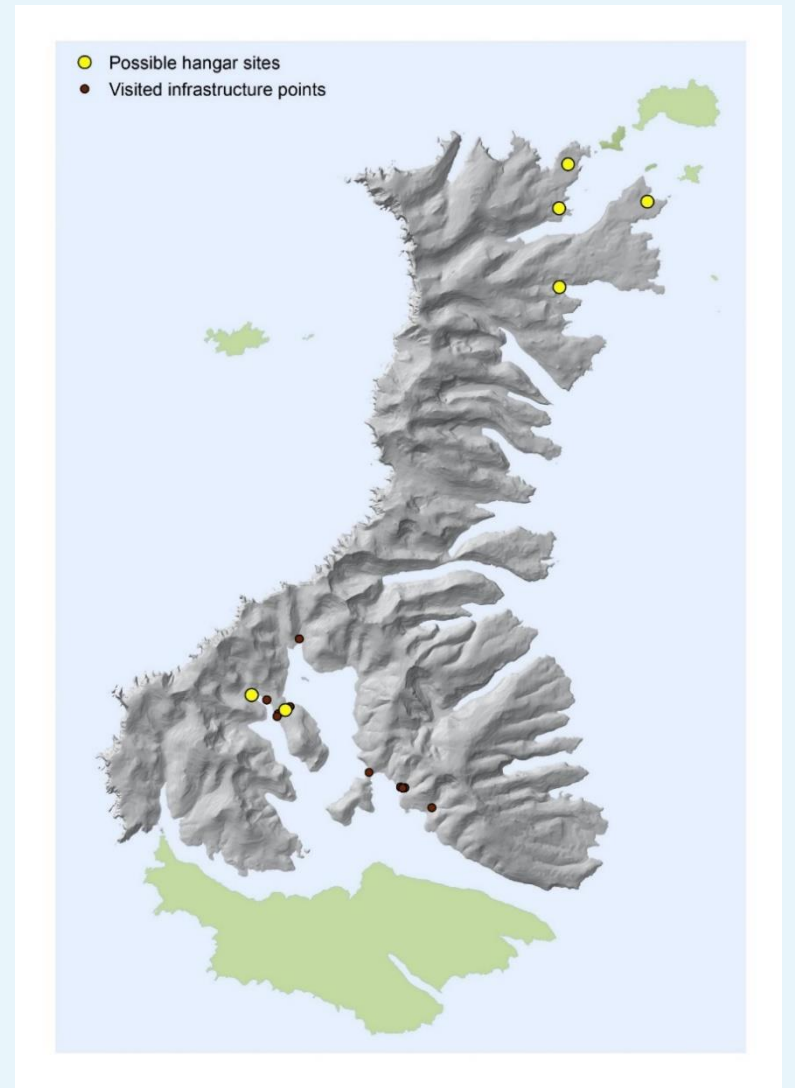


Data to use for infrastructure site investigations



Proposed infrastructure sites for scoping





Site investigations



4G+ 31% 4:23 PM

✕ Add Placemark ✓

Aspect
N

Heli
Suitable

Location_to_other_proposed_assets
Not set

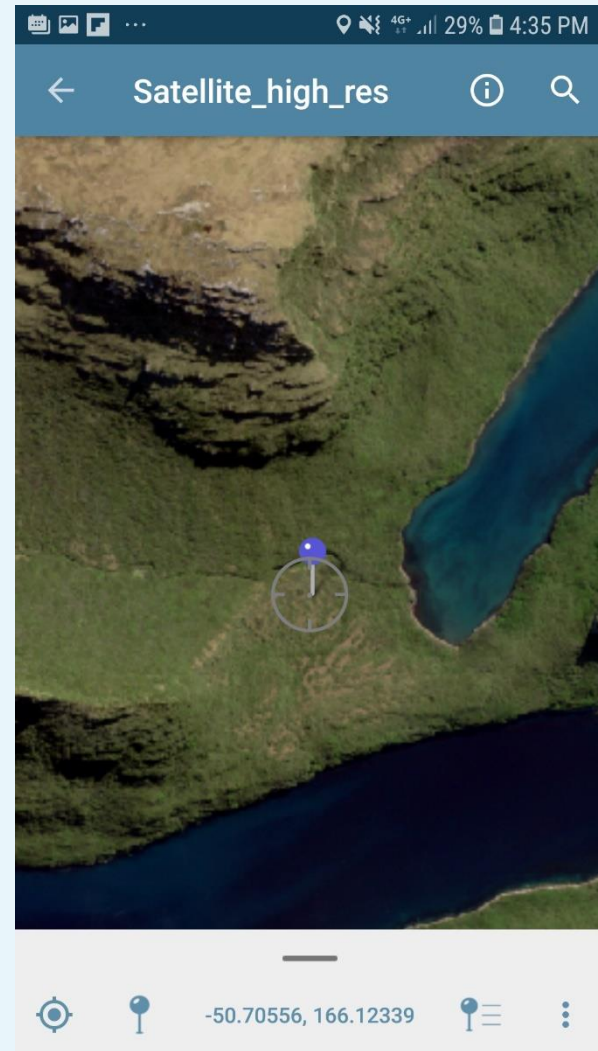
Slope
<45 degrees

Soil_depth
1

Soil_type
peat

Suitable
Yes

Tidal_consideration
rocky shoreline



Site investigations

Drones for site investigations



CAPTURE

PROCESS

ANALYZE

SHARE



**GRID
MISSION**

Best for 2D maps



**DOUBLE GRID
MISSION**

Best for 3D models



**CIRCULAR
MISSION**

Best for single 3D models



**FREE FLIGHT
MISSION**

For advanced users



Drones for site investigations



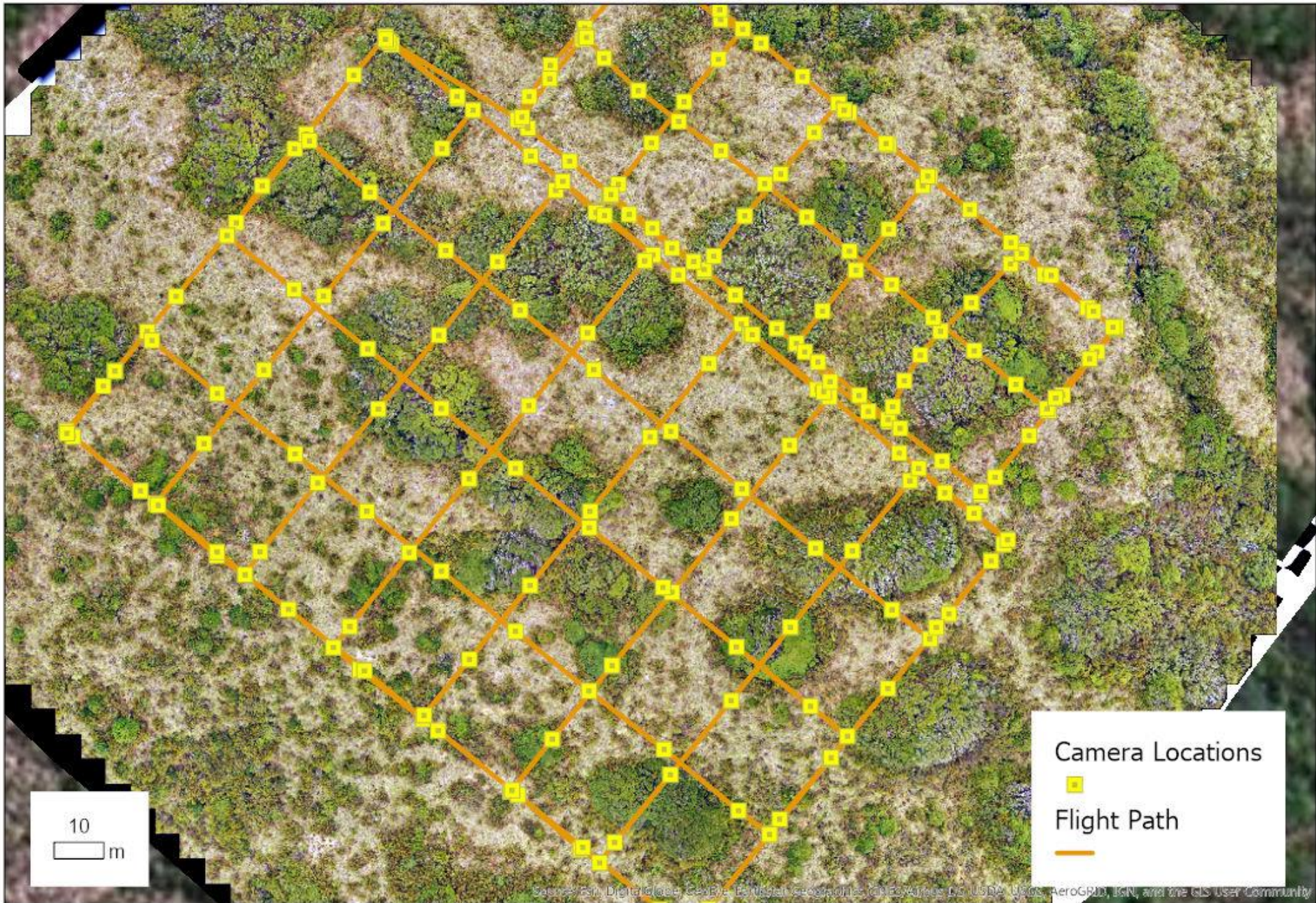
22.6 GPS 91% 9:20 AM 91%
WAY POINT
22.6 GPS 91% 9:20 AM 91%
88% 1.5
70 1.5
158.270 m
16min:00s

ABORT

MAVIC PRO

In mission

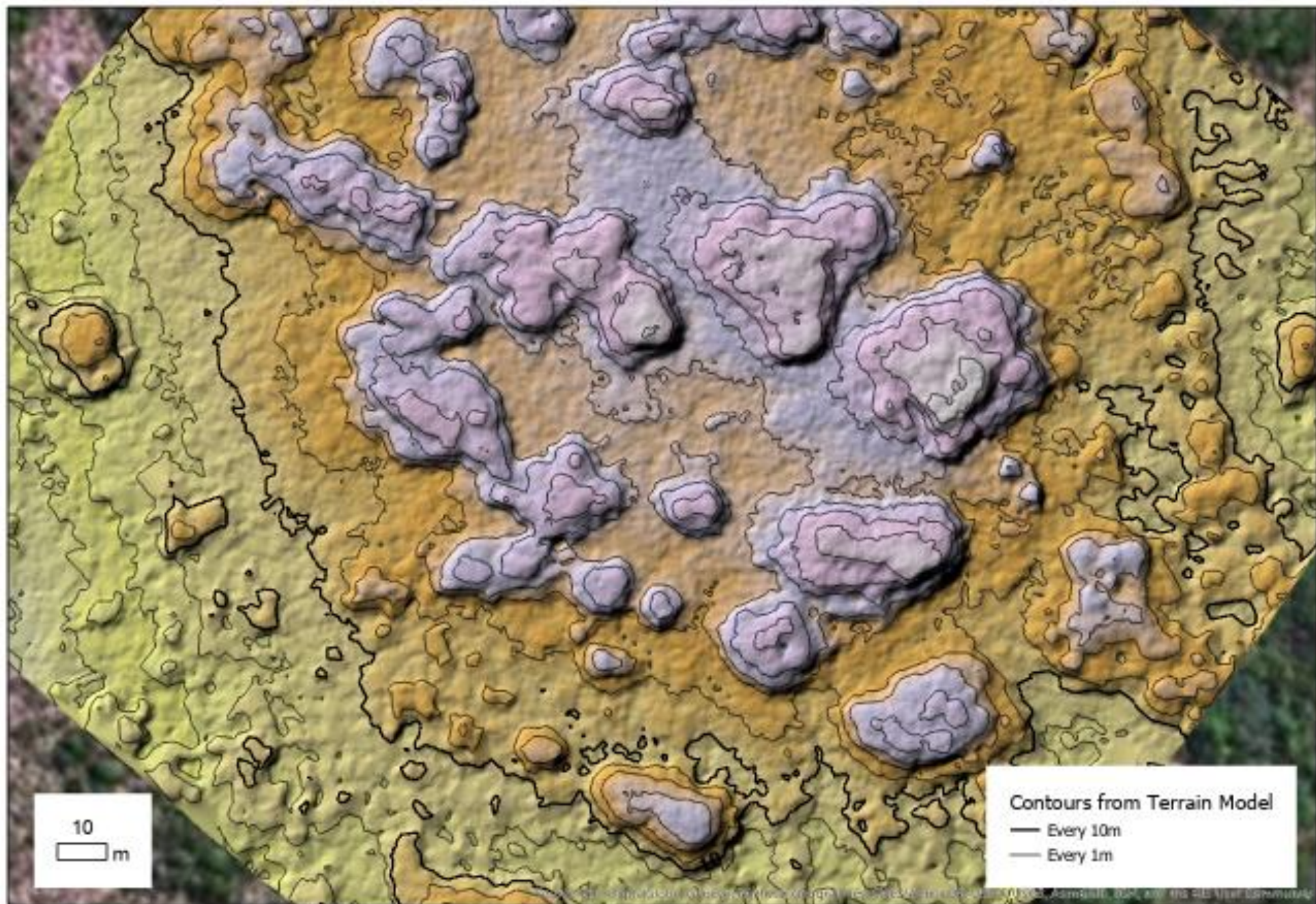
Speed: 6.20 m/s
Altitude: 69.80 m
115.09 m away



10
m

Camera Locations
Flight Path

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community





Case Study: Smith Harbour Field Camp







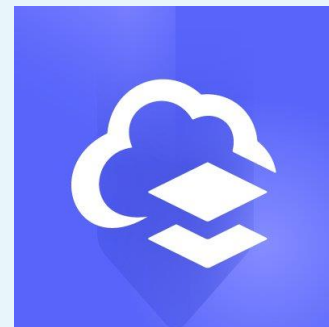
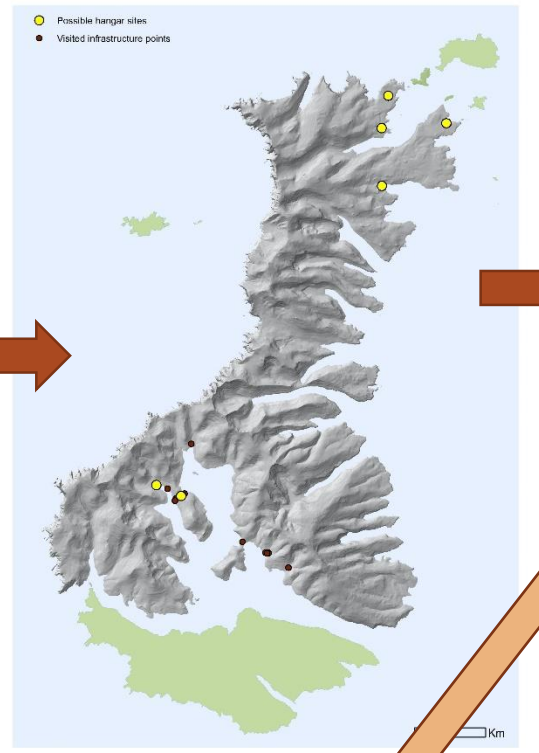
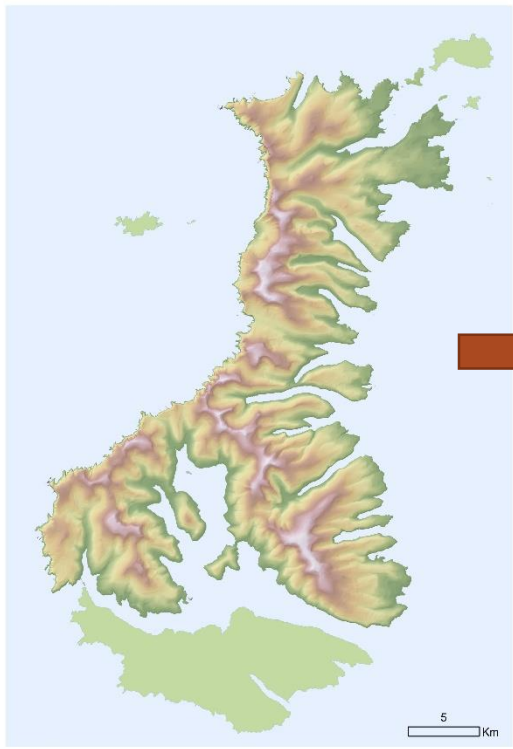




3,522,189.137 4,373,541.219 Meters

6km





Enderby Island (pest-free)



Thank you!



<https://www.doc.govt.nz/our-work/maukahuka-pest-free-auckland-island/>

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Thanks to William Bannister