

# **Light-mantled sooty albatross – Auckland Islands aerial survey**

**2014**



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# LMSA background

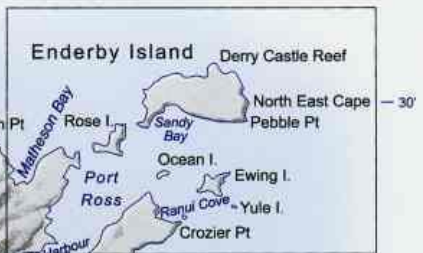
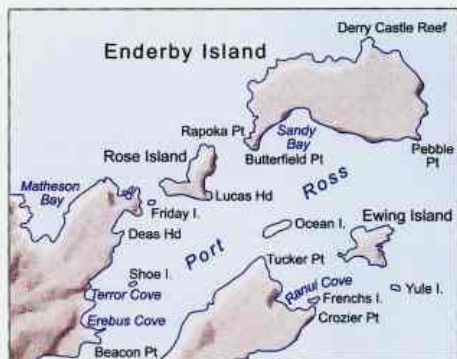
- Poorly studied, circumpolar distribution
- nest solitarily or in small colonies, nesting along cliff edges in remote locations
- monitoring challenging, with few accurate population estimates
- global popn 21,600 pairs
  - Auckland Is 5,000 pairs – 25%
- ACAP species of interest



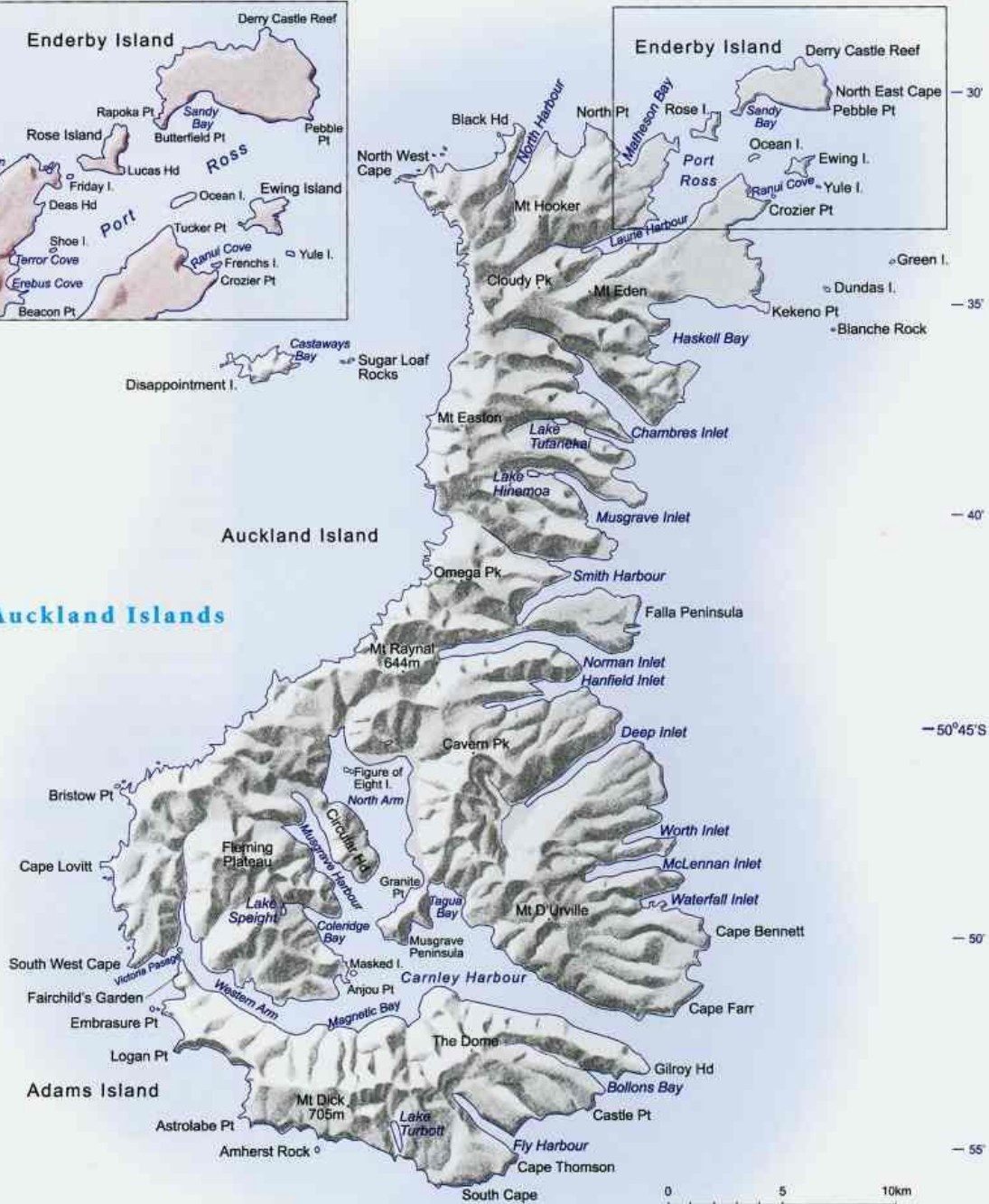
# background

- Auckland Islands LMSA known to breed on Adams, Disappointment, Auckland, Enderby, Rose Islands
- no detailed breeding studies undertaken in Aucklands but breeding phenology appears similar to other sites:
  - adults return to mid-September / early October
  - lay eggs in late October / early November
  - hatch late December / early January
  - chicks brooded for 19-21 days, fledge 140-157 days





### Auckland Islands





## project aims

- 1. Undertake, analyse & report on aerial photographic survey work on LMSAs at Auckland Islands January 2014.
- 2. Provide recommendations regarding potential for aerial survey methods for monitoring population trends.



- Aerial survey undertaken 18-20 January 2014 between 1000-1600 hrs
- early-late brood guard
- single-engine Squirrel AS350B3
- All cliffs of Enderby, Ewing & Rose Islands, & southern cliffs of Adams Island, were searched for light-mantled sooty albatross (LMSA) colonies
- All nesting sites identified were photographed & GPS used to record coordinates
- Disappointment Is assessed from WCA photo





# aerial photography protocol

- Nikon cameras and lenses
- photos taken as fine-scale jpeg or raw files
- lenses:
  - 70 – 200 mm zoom
  - 300 mm telephoto
- photos assessed using Adobe Photoshop software
- paintbrush tool used to mark off counted birds
- Each bird assumed to represent a breeding pair.

# results

- although LMSAs are dark birds, generally nesting against dark substrates, the light mantle provides contrast with backgrounds
- few nesting birds located on any of the 4 islands

Island	Nesting pairs	Survey
Enderby	14	Complete
Rose	4	Complete
Ewing	0	Complete
Disappointment	79	complete
Adams	32	SW cliffs only
Totals	129	



## Adams Island results

- Adams Island only c.15 km of southern cliffs searched, with occupancy low - c. 2 pairs per km
- search was not complete, but doubt this section of cliffs contains more than another 30-40 pairs
- cliffs exceed 600 m in height, birds nesting on 2 terraces
- most nesting birds brooding small chicks, about 4% of nests contained unbrooded chicks
- unbrooded chicks may have been missed?



Enderby Island





Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image © 2014 TerraMetrics  
Image © 2014 DigitalGlobe

Google™ earth





Adams Island

1. aerial survey using helicopters is an appropriate method for counting LMSAs in the Auckland Islands
2. probably the most cost-effective technique for rapidly assessing population status in the Auckland Island
3. our work so far has established a set of 41 sites which had 129 breeding birds (pairs) present in 2014. These sites could form a foundation of an annual monitoring program, as GPS waypoints recorded & the sites can be quickly and easily re-surveyed
4. We recommend further sites be added as time and resources permit, such that in each year c.300 nesting pairs are monitored
5. Estimated cost  
helicopter on site: 4 hours max  
analysis & report preparation: 5 days

6. Careful consideration needed for photography of birds nesting on high cliffs of Adams Island, where suitable breeding habitat exists on an upper and mid-level terrace.
7. Attempting to photograph both terraces from one elevation point may not lead to production of high quality images that are desirable for detecting & counting LMSA against dark substrates.
8. In some situations this would be best done by photographing each terrace with the helicopter positioned at an optimal elevation, which should be noted along with the GPS waypoints. This should form part of a monitoring prescription for each site for future surveys.



9. Deviation from a defined optimal elevation for photography could lead to reduced precision in future counts, although there would probably be an acceptable tolerance of  $\pm 50$  m.

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