Oeno Island Monitoring

A guide for ecotourists - May 2015

White tern on Henderson Island. © Tara Proud

Monitoring the population of Murphy's petrels on Oeno atoll: a census protocol

In July and August of 2013, funded by the Darwin Initiative, the RSPB mounted an expedition to Henderson Island. The expedition also included a two day field visit to Oeno Atoll. This was only the second ecological survey since the successful eradication of rats by Wildlife Management International in 1997.

In the 15 years since the eradication project, the recovery of the atoll appears to have been amazing and is evident to the eye long before you can see land. When approaching Oeno, the first thing our team noticed was the number of birds flying overhead. Censuses carried out in 2003 and 2013, suggest that the population of Murphy's petrel *Pterodroma ultima*, the atoll's most numerous seabird, is increasing at several percent per year.

Other seabirds found nesting during 2013 included the Kermadec petrel (*Pterodroma neglecta*), Masked Boobies (*Sula dactylatra*), Red-footed Boobies (*Sula sula*) and Greater Frigatebirds (*Fregata minor*). A colony of c.100 pairs of Sooty Tern (*Sterna fuscata*) was discovered in the southern part of the island, with eggs and small chicks.

Further monitoring of population changes on Oeno would be very welcome.

This short document describes the monitoring protocol. It is hoped that eco-tourists and passing scientists will be able to repeat the survey and share the results with us.

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DARWIN INITIATIVE

The new survey method

Timing

Murphy's petrel has a well-defined and fairly short laying period. Most eggs (> 90%) are laid 26 May – 20 June, with late eggs appearing up to about 9 July. Given a 50-day incubation period, the first chicks can be expected about 8 July. Thus the ideal census period is the first ten days of July, when virtually all pairs have laid, but very few eggs have hatched. However a week either side would be acceptable, meaning censuses should occur between **24 June and 16 July**.

This methodology is designed to be usable by a visitor who may be present on Oeno only for a few hours and who wishes to use those hours to generate some assessment of how Murphy's petrel populations may have changed. Even if time permits a census of only a fraction of the 19 census plots (see below), this will still provide welcome and useful information on population change. There is no priority order of plots; if you only do some of the 19, it does not matter which ones they are. However all 19 would be best.

Step by step guide

In 2013 19 census plots were established, each centred on a conspicuous local feature, usually a tree. The plot around that feature is circular and 8 m in radius, and therefore has an area of 201 m^2.

1. Using a GPS, locate the centre point for a plot (centre points given in Table 1)
2. Fix two lengths of rope each 8m long to the centre point (a 16m length of rope folded in half or tape measure can be used for this)
3. Pull one rope length tight (rope A) and mark the end (a rucksack can be used for this)
4. Pull the second length of rope (rope B) tight at a 45° angle from the first rope, marking out a 'pie segment' on the ground (see Figure 1)
5. One individual can now systematically search the 'pie segment' for Murphy Petrel nests keeping a note as they progress (a hand tally-counter can be used). The back of a hand should be used to gently lift a petrel to see if it is sitting on an egg or chick, this is to shield the egg from the petrel's beak. Only record ACTIVE nests either with an egg or chick. Make a separate note of other petrel species that also occasionally occur, particularly Kermadec *Pterodroma neglecta* and Herald petrels *P. heraldica*.
6. When all nests have been found in the segment, rope A is moved 45° clockwise of rope B (Figure 1, below) to create a second 'pie segment'. Nests are now found within this segment.
7. Step 6 is repeated until the whole circle has been searched, the final pie segment will have one rope at the start marker.

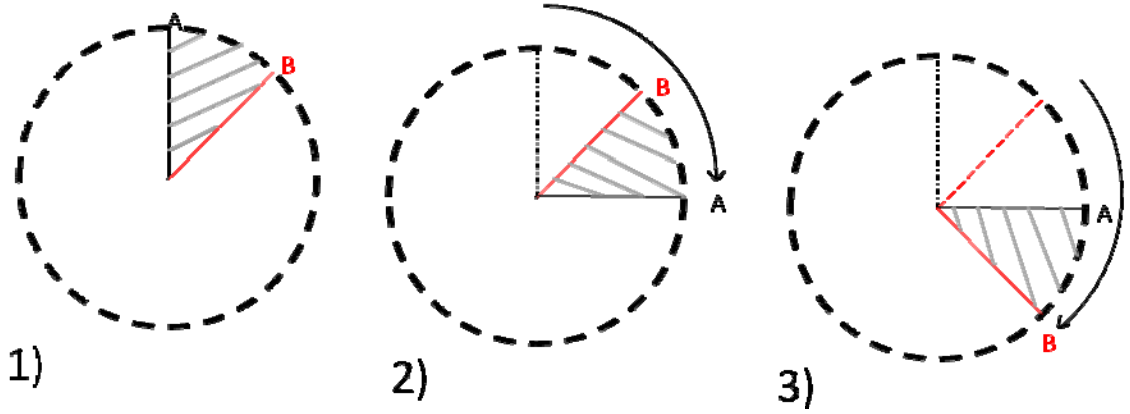

Figure 1. How to survey a circular plot using two ropes A and B. 1) First, create a segment on the ground with the two ropes, make sure you mark the end of rope A, and search the segment area for nests. 2) When ready move rope A clockwise to create a second segment. 3) When this segment has been searched move rope B to create the next segment. Continue moving alternate ropes clockwise around the circle until you reach your start marker.

Results

Having surveyed the plots and counted the number of active petrel nests in each one, complete the table below, as far as possible. A MS Word version of this table is also available on the following link

- http://www.rspb.org.uk/Images/oenomonitoringtable_tcm9-408965.doc

Please send your results to (ideally all three!):-

- **Michael Brooke**, Department of Zoology, University of Cambridge, UK
  E-mail: m.brooke@zoo.cam.ac.uk
- **Thomas Churchyard**, Royal Society for the Protection of Birds (RSPB), UK
  E-mail: Thomas.Churchyard@rspb.org.uk
- **John Kelly**, RSPB, UK E-mail: John.Kelly@rspb.org.uk

We undertake to let you know what population changes are suggested by your counts when compared to previous counts.

Thank you very much!

Survey undertaken by:		**E-mail:**		**Survey date**
Plot num-ber	**Central feature**	**Latitude (S) Longitude (W)**	**No. of Murphy's petrel nests (8 m radius)**	**No. of Kermadec / Herald petrel nests (8 m radius)**
1	*Pandanus* (screw-pine)	23:55:28.6 130:44:27.6		
17	*Cocos* (coconut)	23:55:28.6 130:44:24.3		
2	*Argusia* (cabbage tree)	23:55:32.9 130:44:30.1		
16	*Pandanus*	23:55:33.7 130:44:22.4		
3	*Pandanus*	23:55:36.3 130:44:32.3		
15	*Argusia* (horizontal)	23:55:37.7 130:44:19.4		
4	*Argusia*	23:55:40.0 130:44:32.4		
9	*Argusia*	23:55:41.2 130:44:20.3		
5	*Pandanus*	23:55:42.7 130:44:33.1		
8	*Pandanus*	23:55:43.5 130:44:24.5		
10	*Argusia* (dead)	23:55:45.0 130:44:54.5		
7	*Argusia*	23:55:46.3 130:44:28.0		
6	*Pandanus*	23:55:46.6 130:44:33.6		
11	*Pandanus*	23:55:46.8 130:44:53.1		
14	*Pandanus*	23:55:47.2 130:44:40.4		
12	*Pandanus*	23:55:47.8 130:44:49.3		
13	*Pandanus*	23:55:49.4 130:44:44.6		
18	*Pandanus*	23:55:54.5 130:44:50.3		






Contact

If you would like further information about the Henderson Island Restoration Project, please contact John Kelly, RSPB Globally Threatened Species Programme Manager, at:

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