



Figure A1.6. Potential trap-line on the east coast of Pitt Island—trapping in 2005–2007 occurred on the southern half only (south of Kahuitara Point).

Appendix 2

FORMS USED WHEN MONITORING CHATHAM ISLAND OYSTERCATCHERS (*Haematopus chathamensis*)

A2.1 Daily trapping sheet

Wharekauri Daily Trapping Sheet. Date: Observer:							
Weather:				Sea:			
Trap ID + type	Trap result	Reset	comment	Trap ID + type	Trap result	Reset	comment
WK1				WK23			
WK2				WK24			
WK3				WK25			
WK4				WK26			
WK5				WK27			
WK6				WK38			
WK7				WK29			
WK8				WK30			
WK9				WK31			
WK10				WK32			
WK11				WK33			
WK12				WK34			
WK13				WK35			
WK14				WK36			
WK15				WK37			
WK16				WK38			
WK17				WK39			
WK18				WK40			
WK19				WK41			
WK20				WK42			
WK21				WK43			
WK22				WK44			
Trap state	Code	Shooting	Code	No.			
Missed	0	Cat	C				
OK	1	Weka	W				
OK/bait gone	2						
Sprung	3						
Sprung/bait gone	4	Dog kills	Code	No.			
Targets		Cat	C				
Cat	C	Weka	W				
Ship rat	SR						
Norway rat	NR						
Hedgehog	H	Resetting details	Code	Trap		Code	
Possum	P	Sprung	0	Gin		A	
Weka	W	Left set	1	Cage	wood	B	
Weka -released	Wr	Reset & bait	2	Cage	metal	C	
Non Targets		Moved and set	3	Victor		D	
Other mammals	M			Other		O	
SBB Gull	SG						
RB Gull	RG	Target status	Code	Bait		Code	
Aust. Harrier	AH	Female	F	Fish frame		FF	
LB Penguin	LP	Male	M	Fish meat		FM	
WF Heron	WH	Adult	Ad	Smoked salmon		SS	
Other bird	B	Juvenile	Juv	Other		O	

A2.3 Nest summary

Chatham Island Oystercatcher Breeding Form - Nest summary									
Island:					Area:				
Territory:					Terr. Code:				
	band	band combination							
Adult 1									
Adult 2									
Nest Attempt No.:					Grid ref:				
	date laid	date lost	how?						
Egg 1									
Egg 2									
Egg 3									
total									
Comment									
	date hatch	date lost	how?		date fledge		band	band combination	
Chick 1									
Chick 2									
Chick 3									
total									
Comment									
Management									
	Put out	Nested in							
Tyre	Date	distance	Date	distance	Date	distance	Date	distance	total
Nest moved									
	Date on	Date off							
Elec. Fence									
	Date on	Date off							
Video									
Other									
General comments									

Appendix 3

CHATHAM ISLAND OYSTERCATCHER (*Haematopus chathamensis*) CENSUS INSTRUCTIONS

(Modified from those used in 1999–2004.)

A3.1 Introduction

The census of Chatham Island oystercatchers in mid-December aims to repeat the census of the highest priority areas that are the minimum coverage each year (Table A3.1; Moore et al. 2001; Moore 2008).

Priorities are based on Frances Schmechel's assessment from the 1998 census, but are modified based on the spreading of breeding pairs to other areas in the early 2000s (Fig. 1). Consequently, 11 core census areas were surveyed every year in 1999–2006 (Table A3.1; Moore 2008).

The need to get as complete coverage as possible increased with the population increase and expansion. Hence, the usual aim is to cover all Priority A areas and

TABLE A3.1. CENSUS ZONES.

CENSUS AREA	PRIORITY	LENGTH OF COAST (km)	USUAL METHOD OF SURVEY
Core census areas			
Northwest coast	A	23.9	Quad bike
Cape Young	B	5.3	Quad bike
Northeast coast	A	34.5	Quad bike
Okawa	B	9.3	Quad bike
Owenga	A	9.0	Quad bike
Southwest coast	A	17.5	Walking and quad bike
Waitangi	B	20.5	Walking
Paritu	A	14.5	Walking
Mangere	A	6.5	Walking
Pitt Island—east	A	18.5	Walking
Rangatira	A	7.5	Walking
Total km coast		167.0	
Other census areas			
Point Munning	C	13.0	Walking
Hanson Bay N	C	23.7	Quad bike
North Lagoon	B	63.0	Walking and quad bike
South Lagoon	C	58.0	Walking and viewing from a boat
Hanson Bay S	C	9.5	Quad bike
Southern Cliffs	B	36.5	Viewing from a boat
Long Beach	C	12.5	Quad bike
Point Somes	B	41.0	Walking
Pitt Island—west	B	35.0	Walking, telescope or from a boat
Total km coast		292.2	

as much of the Priority B and C areas as possible. The rarely surveyed sections, such as Southern Cliffs, need to be surveyed at least once every 3 years when carrying out an annual census.

Counts are conducted over as short a period as possible, depending on the availability of experienced personnel and support. Supplementary information from the monitoring of breeding territories will later be added to the census data (e.g. breeding status and birds not seen on the census day). It is best to concentrate on oystercatchers only rather than trying to combine this with a census of other species.

A3.2 Checklist

- Binoculars
- Map
- Photocopy of map to mark records
- Census form
- Notebook
- Pencil and spares

A3.3 Census form and map

- Use the form provided (the data sheet can be found in Appendix 2, section A2.1) or transcribe later onto the form from your notebook. NB: make sure you record all the necessary information in your notebook for each bird. The form is a slight modification on the band sighting form, so that copies can be placed with the band sightings folder.
- Mark each bird and its band combination on photocopied A3 maps of each census zone (master copies are held at Wellington Hawke's Bay Conservancy and Chatham Area Office). Also indicate the start time and direction taken, highlight the total section of coastline covered, and outline which methods were used for each part (e.g. if binocular views were used for some parts).
- On a summary map of the Chatham Islands (e.g. Fig. 1), highlight which census zones and parts of the coastline were surveyed.

A3.4 Heading entries

- Census zone—One of the 16 sectors of Chatham Island (Table A3.1 and summary map, e.g. Fig. 1), or offshore islands
- Start and finish point—Start and finish points and times are noted on the form and on the photocopy map
- Time of high tide
- Weather conditions

A3.5 Entry for each bird on the census form and map

- Date: Census date.
- Obs.: Initials of observer.
- Band: b (banded bird), nb (unbanded bird).
- Band combination: Left leg – right leg combination—see codes and examples on census form (Appendix 2, section A2.5). Take particular care not to mix up the legs or scramble the combination. Write it down then double-check. ***This is very important, as a mis-read combination can mean a bird is assumed alive when it is not.***

- Status: The status of each bird should be recorded as follows:
 - B (breeding bird)—nest found or chick seen, or breeding status already determined by nest monitoring. If you suspect there is a nest, spend some time hunting for eggs or chicks in the area where you first saw the adults, taking care where you put your feet.
 - SB (suspected breeder)—nest or chicks not found. Furtive behaviour in nesting area, hiding behind objects or attempts to draw you away may indicate a nest with eggs. More aggressive, piping calls that get louder in a certain area, or dive-bombing by one of the adults may indicate that chicks are present. Not all birds behave in the same way (e.g. some non-breeders are noisy, birds of a pair can behave very differently and some birds with chicks can be very quiet), so these behaviours can only be used as indicators of breeding activity.
 - T (territorial bird)—member of a pair of birds occupying a territory but not breeding. Look for piping displays and fights between neighbouring birds. Also, if you regularly monitor this section of coast and the pair is always present (not just occasionally) and is not known to have attempted to breed, they can be considered to be territorial.
 - U (unknown status)—single bird, or member of pair or group where there is no indication from behaviour that they fit into the above categories. This includes birds flying by and ‘floaters’ that do not have territories. Take care not to count birds twice if they move along the coast.

Although this is an important entry for each bird, the total number of birds is the main object of the exercise, so if in any doubt about which category to use, record the status as ‘unknown’. If you already have prior knowledge about a bird’s status from the year’s breeding monitoring, use that code. Otherwise, use the behaviour patterns of the birds to suggest breeding status. If possible, observe birds from a hidden vantage point using binoculars, or return to the area on another day to re-check the area. Otherwise, scan down the beach with binoculars to see birds before they see you or to see them departing from their nests. Record the actual behaviour in the comments column. Mark a bracket between the lines on the recording form to indicate which birds are paired together. For map entries, mark the numbers of birds with the status for the group; e.g. 2B (a breeding pair) or 3U (group of 3 birds of unknown status).

- Age: Try to determine age based on leg, bill and eye colour:
 - J (juvenile)—< 1 year old with brown bill tip, brown eyes, pale legs
 - Y (young bird)—if you can distinguish ages, separate out the J (juveniles < 1 year old with brown bill tip, brown eyes, pale legs) from the 1-2 year olds (more orange bill tips, brownish eyes, pale legs)
 - A (adult)—orange/red bill, scarlet eyes, reddish legs
 - U (unknown age)—bird was too far away, flying, silhouetted, colours seemed ambiguous

Most, but not all, chicks have been colour banded in recent years, and many adults were also marked. However, during band maintenance, many colour bands have been removed, and chicks can come from unmonitored areas, so assessing the age of unmarked birds is still necessary. Note the presence of this year’s chicks in the comments column—they do not count for the census.

- Partner?: Note the band combination of partner.
- Group size: Bracket the pair or group of birds in this column and note the number of birds in the group; i.e. there should be one entry of 2 for a pair, 3 or more for a group, 1 for a single, etc., so that when you add up the numbers in this column it gives you the total for the census zone.
- Island: See codes on census form (Appendix 2, section A2.5).
- Area: Local name of bay or coast, e.g. Wharekauri.
- Territory: Name used in breeding monitoring for territory, e.g. Washout West.
- Terr code: Territory code number if applicable, e.g. T02.
- Grid ref.: Map grid reference for sighting.
- Comment: Useful comments on bird behaviour and other notes.

Depending on the weather, most core areas can be covered by four people in 3 days and the lower priority areas in another 3 days.

Requirements

- Quad bikes ×2
- Trailers ×2
- Vehicles ×2
- Hire fishing boat for inaccessible coast

A3.6 Individual census zones (notes made for 2004 census)

NB: check with Area Office for names of current landowners and leaseholders.

1. Northwest Coast

Waitangi West, Maunganui, Tioriori to Lake Waikauia

Survey carried out on quad bike over 1 day as part of the normal trapping round, extended around Cape Pattison. Would be good to survey the shore of Lake Waikauia as well, but this needs separate permissions from the normal run along the beach.

2. Cape Young

Mairangi Bay is normally visited by bike as part of the Wharekauri trapping round. The rocky coast has not been checked, as habitat is unlikely and access has not been arranged.

3. Northeast Coast

Wharekauri, Taupeka, Ocean Mail, Matarakau to Kaingaroa

Survey normally carried out by quad bike over 1-2 days as an extension of Wharekauri trapping line and the regular visit to Matarakau to visit the unmanaged territories. Route taken is either along the beach in both directions, or along the beach then back along the road. Most of the landowners will already have been contacted for regular monitoring.

4. Point Munning

Difficult to survey by quad bike, so probably more suitable on foot as a round trip from Kaingaroa or added on to a trip to Okawa.

5. Okawa

Normally surveyed by quad bike as an extension to the regular monitoring check of the breeding pairs.

6. Hanson Bay N

May not require permission to drive the beach by quad bike (except for entry points). Route taken is either there and back from Okawa, or coming down the east side of the lagoon and up from the lagoon mouth. The survey is best done close to low tide, as the sea sweeps up the beach at high tide.

7. North Lagoon

Airport to Waitaha Creek (Wharekauri Quarry)

Surveyed on foot by one person (21 km, 6 hours) or by two people dropped off in the middle at the scenic reserve. Might be worth extending this section around Mihitoroa Point where the lagoon is close to the road again. Non-breeders regularly use the lagoon shore and some may try to nest there as the population increases.

Waitaha Creek to lagoon mouth

At low water levels, the section can be surveyed by quad bike—in normal wind conditions this is fine on the north part, but can still be a bit tricky around the swampy section near Kahupiri Point, as you have to drive in the water to get around some points. Ideally, the survey should be carried out by two bikes, or if only one bike, with a radio schedule at key times.

Survey of the eastern section has been attempted by inflatable boat but it was too shallow for the most part, so required hopping out and wading closer to shore.

Alternatively, this whole section can be surveyed on foot. There are various drop-off and pick-up places.

8. South Lagoon

Airport to lagoon mouth

This area can be adequately covered by boat at high water levels. Alternatively, these sections can be surveyed on foot by drop-off and pick-up (the western side can be divided in half or thirds, and the eastern side by walking down and back from the lagoon mouth). The island and channels at the lagoon mouth need to be searched on foot—this is probably some of the most suitable habitat in the whole lagoon.

Other lakes, lagoons and streams

It would be worth trying to check as many lakes and lagoons as possible during the census, especially if canoes are available.

Birds are known to also use stream edges, but few of these have been surveyed except those right on the coast.

9. *Hanson Bay S*

Easily surveyed by bike from Gillespie Creek to the lagoon mouth and back; however, surveying has to be carried out at low tide or there is a risk of being cut off by the waves. Checks should be made further round into the lagoon as there are edges and shallows where birds have regularly been seen in the past. Can be combined with the Owenga section.

10. *Owenga*

Gillespie Creek, Owenga, Manakau Point, Cape Fournier

Can be surveyed on foot by one person, with a drop-off from the person doing Hanson Bay S; or by two people, with one person going from Gillespie to the gate at Manakau and the second person walking round the Manakau Point to Cape Fournier and back to the vehicle.

11. *Southern Cliffs*

Cape Fournier to Otawae Point

Normally not surveyed, but it is a priority to complete this section this year [2004]. Access overland is difficult because the area is remote and landowner permission has not been granted. Drop-off by boat also requires permission. Although a few birds have previously been counted from a boat offshore, success is dependent on having very calm weather to get close enough to the rocks. Birds are harder to see from a boat and they do not react in the same way as to people on foot. Therefore, as much of the census as possible should be conducted on foot or from vantage points, as this is the most accurate method.

Pairs and singles have been seen in a number of spots previously, although pairs have been seen most frequently at three particular spots. Pairs (or groups of two birds) have been seen at Opuriri (1985), 2 km northeast of Ko Oreao Point (1986, 1991, 2000), at or inshore of Houruakopara Island (1986, 1987, 1991, 2001—just northeast of the point 400 m east of the gorge creek, nesting on a large rock promontory cut off at high tide) and Cascade Gorge (1987, 1991). Additional single records were at the bay south of Karore (1986), the bay east of Green Point (1987), and Green Point (1987).

12. *Southwest Coast*

From the bay east of Otawae Point to Awamata Stream

Surveys can be carried out on foot for the northern part and with quad bike access to the coast and then on foot for the southern part. Combine data with knowledge gained by the daily predator trapping/monitoring run if that is occurring.

13. *Waitangi*

Awamata Stream to Red Bluffs

Waitangi township to Red Bluffs can be surveyed by quad bike.

Waitangi township to Point Webb can be surveyed on foot. Drop off a person at the end of the road above Point Webb so they can walk southwest along the cliff tops before cutting down and along the coast past Heaphy Shoal. A second person can park on the Waitangi Tuku road near Heaphy Shoal, walk

across the farmland to the coast and walk the next section to Awamata Stream, where they are picked up by the first person. Total distance from Point Webb to Awamata Stream is 12 km.

14. Long Beach

Red Bluffs to Paritu

Survey can be done on foot from Paritu to Te One. If walking over Red Bluff, permission will be needed. This is a long walk on a featureless beach, so it is easier to do by quad bike. Access to the beach for a bike is best from the property east of Paritu.

15. Paritu

Paritu to Port Hutt Bay

Survey can be carried out on foot from Paritu to Port Hutt Bay, checking all the known pairs and searching for floaters (15 km, 5 hours).

16. Point Somes

Port Hutt to Waitangi West

Survey can be carried out on foot (two people) and quad bike (one person). The bike comes to Point Somes lighthouse from Waitangi West and that person walks the coast back again (15 km, 5–6 hours). Meanwhile, a boat drops off two people at the western point of Ocean Bay, one of whom walks back to Port Hutt (13 km, 5–6 hours), and the other walks to Point Somes (9 km, 3 hours), collects the bike and proceeds back to Waitangi West—they can then help to finish the last section by leap-frogging the person on foot. Care is required for biking to and from Point Somes, as the routes are not all that obvious and bracken can hide ruts and holes.

Another option with a good early start is to drop two people off at Te Koparuparu Bay, one of whom goes on foot north to Waitangi West and the other goes east to Port Hutt (c. 8 hours).

In 2003, one person walked from Port Hutt to Ocean Bay, two people took a bike to Ocean Bay and walked around to Point Somes, and one person walked from Waitangi West to Point Somes. The first person picked up the bike at Ocean Bay, returned to Waitangi West and rode towards Point Somes to shuttle the walkers home.

Pitt Island

The east side can be surveyed on foot, bike or horse (has occurred on one occasion), and the west and south side can be surveyed on foot—using telescope/binoculars from vantage points on cliffs, and walking down to the easier access bays.

Mangere/Rangatira

Whenever staff are present, they will monitor pairs and record colour bands of non-breeders, to provide an inventory of birds that can be used for the census.

How to manage Chatham Island oystercatcher populations

The Chatham Island oystercatcher (Haematopus chathamensis) has been ranked as 'Nationally Critical' by the Department of Conservation, making it a very high priority for conservation management. Predation poses the biggest threat to this species, but eggs and chicks can also be crushed by stock, and nests are susceptible to being washed away by the sea. This report outlines how productivity can be improved using a three-pronged attack: predator control, stock exclusion, and movement or raising of nests away from high tide.

Moore, P.J. 2009: Chatham Island oystercatcher (*Haematopus chathamensis*) management techniques: guidelines for protecting nests and increasing their productivity. *Department of Conservation Technical Series 35*. 50 p.