Chatham Albatross
Thalassarche eremita

Albatros des Chatham
Albatros de Chatham

CRITICALLY ENDANGERED | ENDANGERED | **VULNERABLE** | NEAR THREATENED | LEAST CONCERN | NOT LISTED

Sometimes referred to as
Chatham Island Albatross
Chatham Island Mollymawk
Chatham Mollymawk

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TAXONOMY

Order Procellariiformes
Family Diomedeidae
Genus *Thalassarche*
Species *T. eremita*

Thalassarche eremita was previously considered to be a member of the polytypic species *Diomedea cauta* (Gould 1841). Following the transfer of *D. cauta* to the genus *Thalassarche* [1], *T. eremita* was elevated to specific status along with other taxa in the Shy group, *T. salvini* (Salvin's Albatross) and *T. cauta* (Shy Albatross), which was further split into *T. cauta and T. steadi* (White-capped Albatross) by Robertson and Nunn (1998) [2]. The recognition of *T. eremita* remains controversial [3] but this classification has been adopted by ACAP [4], BirdLife International [5], and several recent handbooks and field guides of Southern Ocean seabirds [6, 7, 8].

CONSERVATION LISTINGS AND PLANS

International

- Agreement on the Conservation of Albatrosses and Petrels – Annex 1 [4]
- 2010 IUCN Red List of Threatened Species – Vulnerable [9]
- Convention on Migratory Species - Appendix II (as *Diomedea cauta*) [10]

Australia

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC ACT*) [11]
  - Endangered
  - Migratory
  - Marine
- Recovery Plan for Albatrosses and Petrels (2001) [12]
- Threat Abatement Plan 2006 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations [13]

Chile

- National Plan of Action for reducing by-catch of seabirds in longline fisheries (PAN-AM/CHILE) 2007 [14]

New Zealand

- *Wildlife Act 1953* [15]
- New Zealand Threat Classification System List 2008 – Naturally Uncommon [16]
- Recovery plan for albatrosses in the Chatham Islands 2001-2011 [17]

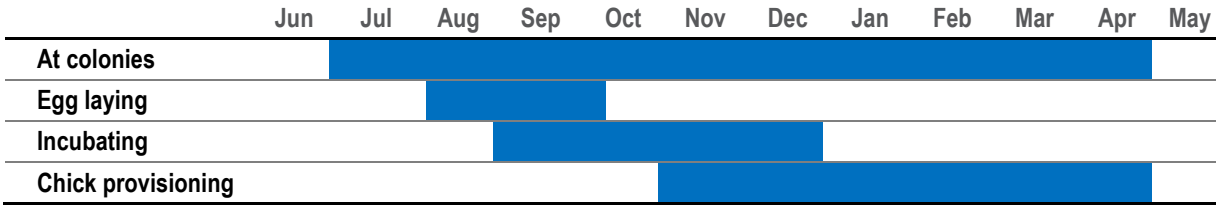
Peru

- Categorizacion de Especies Amenazadas de Fauna Silvestre, *Decreto Supremo Nº 034-2004-AG (22.09.04)* - Critically Endangered [18]

BREEDING BIOLOGY

Thalassarche eremita is a colonial, annual-breeding species. Eggs are laid September-October, hatching November-December and chicks fledge in March-April (Table 1). The youngest bird recorded returning to the island was four years of age and first breeding has been recorded at seven years [12].

Table 1. *Breeding cycle of* T. eremita.



BREEDING STATES

Table 2. *Distribution of the global* T. eremita *population among Parties to the Agreement.*

	New Zealand
Breeding pairs	100%

BREEDING SITES

Thalassarche eremita is a New Zealand breeding endemic (Table 2), breeding only on The Pyramid in the Chatham Islands to the east of New Zealand (Figure 1; Table 3). The total breeding population was estimated to be approximately 4,575 pairs in 2001 [19] (Table 3). In 1998, the total number of individuals was estimated to be between 18,000 and 20,000 [20].

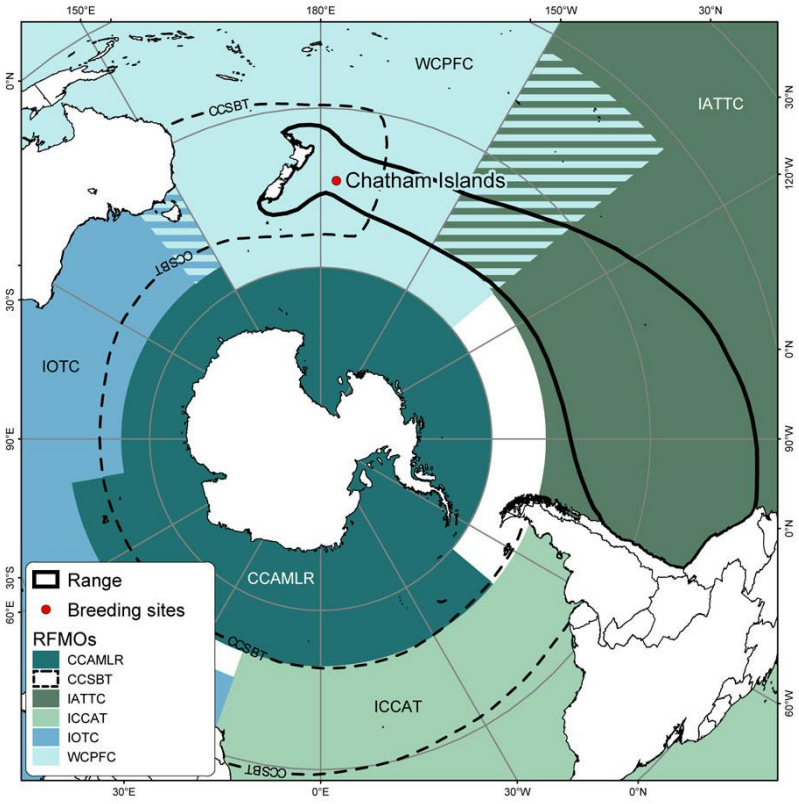


Figure 1. *The location of the single breeding site and approximate range of* T. eremita *with the boundaries of selected Regional Fisheries Management Organisations (RFMO) also shown. Records of adult* T. eremita *off eastern Australia, northwest Tasmania and South Africa also exist [21, 22].*

CCAMLR – Commission for the Conservation of Antarctic Marine Living Resources
CCSBT - Convention for the Conservation of Southern Bluefin Tuna
IATTC - Inter-American Tropical Tuna Commission
ICCAT - International Commission for the Conservation of Atlantic Tunas
IOTC - Indian Ocean Tuna Commission
WCPFC - Western and Central Pacific Fisheries Commission

Table 3. *Estimates of the population size (annual breeding pairs) for the single* T. eremita *breeding site. Table based on unpublished New Zealand Department of Conservation (DOC) data and published references as indicated.*

Breeding site location	Jurisdiction	Years monitored	Monitoring method	Monitoring accuracy	Annual breeding pairs (last census)
Chatham Islands					
44° 23'S, 176° 17'W					
The Pyramid	New Zealand	1999 - 2001	B & C	High	4,575 (2001) [19]

CONSERVATION LISTINGS AND PLANS FOR THE BREEDING SITES

International

- None (under private ownership)

New Zealand

- None (under private ownership)

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POPULATION TRENDS

Monitoring of the single population of *T. eremita* has not been repeated systematically and only three years of data are available to assess the population trend. In 1999, 2000 and 2001 the total numbers of nest sites were 5,333, 5,326 and 5,304 respectively [19]. These data were interpreted to indicate a population of *c.* 11,000 breeding individuals [5].

Prior to these studies the only data available are aerial photographs from 1973, 1974 and 1991. Comparisons of these photographs detected little variation in the distribution of the nests and together suggested between 3,200 and 4,200 pairs nested on the island [17, 19, 23]. Given these data, the population is thought to be stable [5, 19] but more data are required to make an assessment of the population trend (Table 4).

Table 4. *Summary of population trend data for* T. eremita.

Breeding site	Current monitoring	Trend Years	% average change per year	Trend	% of population for which trend calculated
Chatham Islands					
The Pyramid	Yes	1999-2001	-	Stable? [5, 19]	100%

Breeding success and juvenile survival have not been studied in this species (Table 5). Average annual adult survival has been estimated at 86.8% [19], with sporadic banding of chicks and adults commencing in the 1970s. This level of survivorship would be very low for an albatross (see Appendix 2 in Véran *et al*. 2007 [24]), and would strongly suggest a declining rather than a stable population (*cf*. the nest sites census data). Continued monitoring of a larger sample size of banded birds is needed to confirm that this estimate indeed reflects adult survival in the wider population.

Table 5. *Demographic data for the single* T. eremita *breeding site*.

Breeding site	Mean breeding success	Mean juvenile survival	Mean adult survival ±SE
Chatham Islands			
The Pyramid	No data	No data	86.8% ±1.3% (1970s-2001) [19]

BREEDING SITES: THREATS

The extremely restricted breeding area of this species, limited to one breeding site with problematic access, significantly increases the vulnerability of this species to all threats. The islet is privately owned [17] and legal protection for the single breeding site is urgently required.

Table 6. *Summary of known threats at the single breeding site of* T. eremita. *This table is based on unpublished DOC data submitted to the ACAP Breeding Sites Working Group in 2008.*

Breeding site	Human disturbanc	Human take	Natural disaster	Parasite or pathogen	Habitat loss or alteration	Predation (alien species)	Contamination
Chatham Islands							
The Pyramid	No [a]	No [a]	No[b]	No	No	No	No

[a] There is a history of significant harvesting of fledgling *T. eremita* by Moriori and by other settlers on the Chatham Islands [25]. Annual harvesting of chicks may still occur, although this is likely to be limited in extent.

[b] The major threat to this species at the single breeding site could be habitat degradation on the island as a result of severe storms and changed climatic conditions, such as the 1985 storm event [17]. The loss of soil and nesting material on nearby The Sisters resulted in poor quality nests and egg losses for Northern Royal Albatross, *Diomedea sanfordi* [26], and this could also be true for *T. eremita* on the Pyramid [17].

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FORAGING ECOLOGY AND DIET

The foraging ecology and diet of *T. eremita* have not been well studied. However, the diet is likely to include cephalopod, fish and euphausiid species and the feeding habits are likely to be similar to those of *T. cauta.* Foraging schedules would indicate that these birds are largely diurnal feeders [21].

MARINE DISTRIBUTION

Adult *T. eremita* can be easily identified at sea so their distribution is relatively well understood. Records are most common around the Chatham Islands and east to the coast of South America (Figure 1) [27]. Satellite tracking of breeding birds show they forage close to their breeding site (Figure 2), while non-breeding birds and juveniles traverse the Pacific to the coasts of Chile and Peru (Figure 3) [28]. Juvenile *T. eremita* are not easily distinguished from other juvenile *Thalassarche* albatrosses so their distribution at sea is less well understood. There are a number of records of vagrant *T. eremita* off eastern Australia and Tasmania and recently there have been sightings of these birds off southern Africa [7, 21, 22].

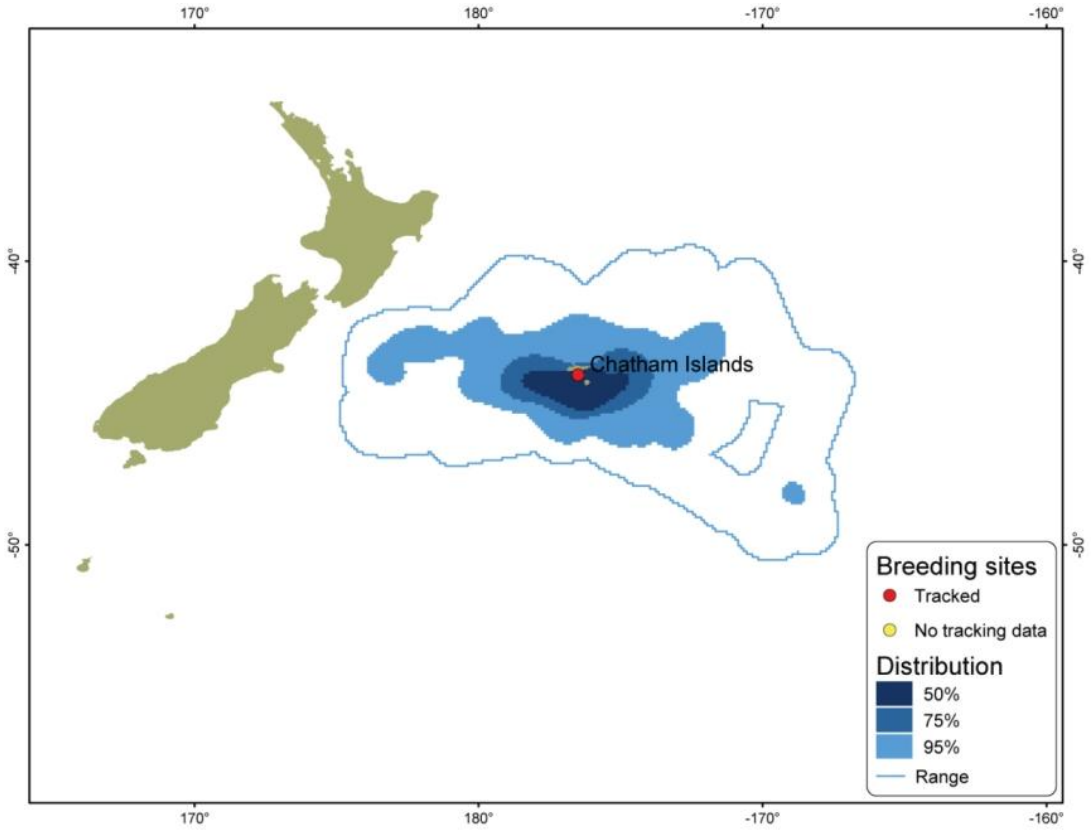

Figure 2. *Satellite-tracking data of breeding adult* T. eremita *albatrosses (Number of tracks = 3 GPS + 16 PTT). Map based on data contributed to BirdLife Global Procellariiform Tracking Database* [28] .

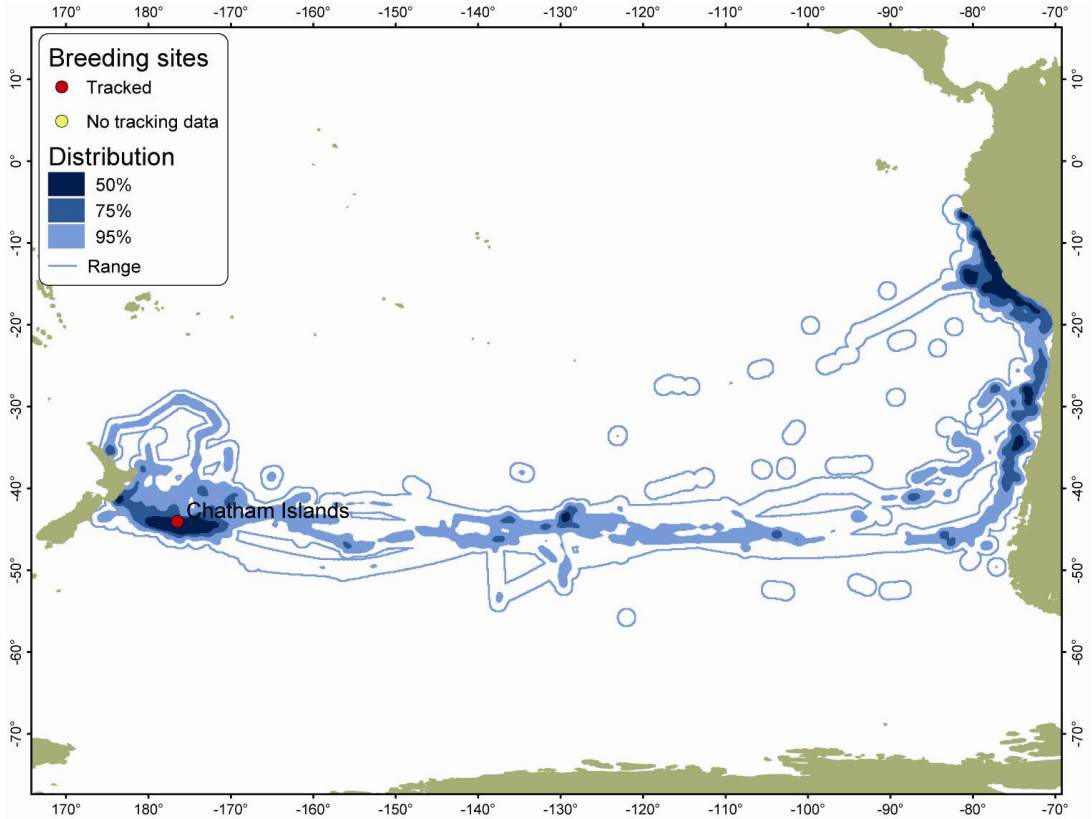

Figure 3. *Satellite-tracking data of juvenile and non-breeding adult* T. eremita *albatrosses (Number of tracks = 19). Map based on data contributed to BirdLife Global Procellariiform Tracking Database* [28].

Satellite-tracking data indicate that *T. eremita* overlap with four Regional Fisheries Management Organisations, principally the WCPFC, CCSBT and IATTC (Figure 1; Table 7). These birds may occasionally occur in the IOTC. Consultations are also currently underway to establish the South Pacific Regional Fisheries Management Organisation (SPRFMO) that would cover both pelagic and demersal fisheries in the region (predominantly discrete high seas stocks and those stocks which straddle the high seas and the EEZs of coastal states). New Zealand, Chile and Peru are the principal Range States for *T. eremita* (Figure 2; Table 7).

Table 7. *Summary of the known ACAP Range States, non-ACAP Exclusive Economic Zones and Regional Fisheries Management Organisations that overlap with the marine distribution of* T. eremita.

	Breeding and feeding range	**Foraging range only**	**Few records - outside core foraging range**
Known ACAP Range States	New Zealand	Chile Peru	Australia South Africa
Non-ACAP Exclusive Economic Zones	-	-	-
Regional Fisheries Management Organisations[1]	WCPFC CCSBT SPRFMO [2]	IATTC	IOTC

[1]See Figure 1 and text for list of acronyms
[2] Not yet in force

MARINE THREATS

Few records exist that document the threats this species faces at sea. Limited information indicates that *T. eremita* interact and are killed by longline fishing vessels operating off the coasts of Chile and Peru [29] with most birds seen off South America being adults [20]. *Thalassarche eremita* have also been killed by both pelagic and demersal longliners in New Zealand waters [30]. This species is also recorded as attending trawlers operating in New Zealand waters and longline vessels operating off Tasmania [22].

KEY GAPS IN SPECIES ASSESSMENT

This is one of the least common albatrosses of the Southern Ocean and the species is relatively little studied. The monitoring of the population trends and demographic parameters of Chatham albatross should be continued in order to determine breeding frequency, breeding success, and rates of adult and juvenile survival.

Further information on the distribution of birds of different age classes and at different stages of the annual cycle is also required to better assess overlap with fishing operations. A greater understanding of the fishing operations and incidental capture of seabirds off Chile and Peru is urgently required.

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RECOMMENDED CITATION

Agreement on the Conservation of Albatrosses and Petrels. 2010. Species assessments: Chatham Albatross *Thalassarche eremita*. Downloaded from http://www.acap.aq on 17 September 2010.

GLOSSARY AND NOTES

(i) **Years**.
The "split-year" system is used. Any count (whether breeding pairs or fledglings) made in the austral summer (e.g. of 1993/94) is reported as the second half of this split year (i.e. 1994).

The only species which present potential problems in this respect are *Diomedea* albatrosses, which lay in December-January, but whose fledglings do not depart until the following October-December. In order to keep records of each breeding season together, breeding counts from e.g. December 1993-January 1994 and productivity counts (of chicks/fledglings) of October-December 1994 are reported as 1994.

If a range of years is presented, it should be assumed that the monitoring was continuous during that time. If the years of monitoring are discontinuous, the actual years in which monitoring occurred are indicated.

(ii) Methods Rating Matrix (based on NZ rating system)

METHOD
A Counts of nesting adults (Errors here are detection errors (the probability of not detecting a bird despite its being present during a survey), the "nest-failure error" (the probability of not counting a nesting bird because the nest had failed prior to the survey, or had not laid at the time of the survey) and sampling error).
B Counts of chicks (Errors here are detection error, sampling and nest-failure error. The latter is probably harder to estimate later in the breeding season than during the incubation period, due to the tendency for egg- and chick-failures to show high interannual variability compared with breeding frequency within a species).
C Counts of nest sites (Errors here are detection error, sampling error and "occupancy error" (probability of counting a site or burrow as active despite it's not being used for nesting by birds during the season).
D Aerial-photo (Errors here are detection errors, nest-failure error, occupancy error and sampling error (error associated with counting sites from photographs).
E Ship- or ground- based photo (Errors here are detection error, nest-failure error, occupancy error, sampling error and "visual obstruction bias" (the obstruction of nest sites from view from low-angle photos, always underestimating numbers)
F Unknown
G Count of eggs in subsample population
H Count of chicks in subsample population and extrapolation (chicks x breeding success - no count of eggs)

RELIABILITY
1 Census with errors estimated
2 Distance-sampling of representative portions of colonies/sites with errors estimated
3 Survey of quadrats or transects of representative portions of colonies/sites with errors estimated
4 Survey of quadrats or transects without representative sampling but with errors estimated
5 Survey of quadrats or transects without representative sampling nor errors estimated
6 Unknown

(iii) Population Survey Accuracy
High Within 10% of stated figure;
Medium Within 50% of stated figure;
Low Within 100% of stated figure (eg coarsely assessed via area of occupancy and assumed density)
Unknown

(iv) Population Trend
Trend analyses were run in TRIM software using the linear trend model with stepwise selection of change points (missing values removed) with serial correlation taken into account but not overdispersion.

(v) Productivity (Breeding Success)
Defined as proportion of eggs that survive to chicks at/near time of fledging unless indicated otherwise

(vi) Juvenile Survival

defined as:

1 Survival to first return/resight;
2 Survival to x age (x specified), or
3 Survival to recruitment into breeding population
4 Other
5 Unknown

(vii) Threats

A combination of scope (proportion of population) and severity (intensity) provide a level or magnitude of threat. Both scope and severity assess not only current threat impacts but also the anticipated threat impacts over the next decade or so, assuming the continuation of current conditions and trends.

		Scope (% population affected)			
		Very High (71-100%)	High (31-70%)	Medium (11-30%)	Low (1-10%)
Severity (likely % reduction of affected population within ten years)	Very High (71-100%)	**Very High**	**High**	**Medium**	**Low**
	High (31-70%)	**High**	**High**	**Medium**	**Low**
	Medium (11-30%)	**Medium**	**Medium**	**Medium**	**Low**
	Low (1-10%)	**Low**	**Low**	**Low**	**Low**

(viii) Maps

The satellite-tracking maps shown were created from platform terminal transmitter (PTT) and global-positioning system (GPS) loggers. The tracks were sampled at hourly intervals and then used to produce kernel density distributions, which have been simplified in the maps to show the 50%, 75% and 95% utilisation distributions (i.e. where the birds spend x% of their time). The full range (i.e. 100% utilisation distribution) is also shown. Note that the smoothing parameter used to create the kernel grids was 1 degree, so the full range will show the area within 1 degree of a track. In some cases the PTTs were duty-cycled: if the off cycle was more than 24 hours it was not assumed that the bird flew in a straight line between successive on cycles, resulting in isolated 'blobs' on the distribution maps. It is important to realise that these maps can only show where tracked birds were, and blank areas on the maps do not necessarily indicate an absence of the particular species.