

# Gibson's Antipodean Albatross

*Diomedea antipodensis gibsoni*

## The Auckland Islands' traveller



Group of courting Gibson's Antipodean albatross.  
DOC

### Quickfacts

Endemic to the Subantarctic Auckland Islands Archipelago.

Pelagic foragers, taking long trips at sea, away from breeding grounds.

At risk from changes to their ocean fishing grounds

In the past, the explorers, sealers and whalers that dared venture south into the unforgiving Subantarctic seas below New Zealand may have found themselves on the rugged shores of the Auckland Islands. The first known visitors, in 1806, the whalers on the ship 'Ocean', found an isolated and uninhabited archipelago of islands, brimming with a plethora of many different plants, invertebrates, land and seabirds, and marine mammals. The Auckland Islands are a collection of islands carved by glaciers from two ancient volcanoes. The two larger islands and two smaller islands are surrounded by several islets, all enclosed within a 12 nautical mile Marine Mammal Sanctuary and Marine Reserve. The islands themselves are a Nature Reserve and a World Heritage site due to their rich biodiversity. The largest of the islands, Auckland Island, gives the group its name, and covers approximately 510 km<sup>2</sup>. South of Auckland Island lies Adams Island, considerably smaller at only 10,000 ha, but still larger than Enderby Island (600 ha) and Disappointment Island (330 ha), lying, respectively, north and west of the main Auckland Island. The terrain on these islands is rough, and they are covered by dense vegetation. The earliest account of the birds on Adams Island dates to 1890 and



1891, when explorers raided the nests, collecting hundreds of eggs.

Since the first known landing, whalers, sealers and explorers periodically inhabited the islands, and burnt the forests on the main Auckland Island to establish pasture land and introducing cattle (*Bos taurus*), pigs (*Sus scrofa*), and goats (*Capra hircus*) as food for castaways. Mice (*Mus musculus*), cats (*Felis catus*), and dogs (*Canis familiaris*) arrived on the islands at about this time. These animals quickly became feral and caused considerable habitat degradation and damage to the island's wildlife and plantlife. One species particularly affected was the Gibson's antipodean albatross (*Diomedea antipodensis gibsoni*). The island's many pigs, dogs and cats ate all the Gibson's antipodean albatross inhabiting the main Auckland Island, with no sightings by made castaways on the island in 1864. In 1944 a team of ornithologists found a few Gibson's antipodean albatross on Auckland Island, and a large nesting colony found on Adams Island. The goats were eradicated from Ocean Island in 1943 and Auckland Island in 1991, cattle, mice and rabbits from Enderby Island in 1993, and rabbits from Rose Island in 1994 (pigs have also been eradicated from this island, but the date when this was done is not known). Plans are underway to eradicate the pigs and cats from Auckland Island, but this work is likely to cost \$22 million. The islands are now visited only by scientists and hardy tourists under a strict permit system.

A government expedition in 1972/73 undertook the earliest count of nesting Gibson's wandering albatross, recording 7000 nests on Adams Island, 200 on Disappointment Island and 50 on Auckland Island. These counts likely severely underestimated the actual number of nests and contradict the numbers seen today. In 1991, 24 years after this first survey, numbers had dropped below 5000, but then appeared to recover as annual counts of nesting Gibson's Antipodean albatross, together with mark-recapture analysis of bands placed on the bird's legs, estimated that the number of breeding pairs slowly increased until 2005. After 2005, numbers of breeding pairs started dropping and have continued on a downward trend of around 5.7% per year. The total population was estimated at 5,817 in a 2015/16 survey. This decline in the number of breeding pairs is thought to have been caused by rapid drops in the bird's nesting success, survivorship and recruitment.

Fortunately, Adams Island remained free of the feral mammals and a large selection of megaherb plants and large bird colonies occur on the island. This pristine nesting habitat offers the Gibson's antipodean albatross some respite from the challenges they face at sea. Nests are among tussock grasslands on ridges, terraces and plateaus, and are exposed to the harsh sea winds - perfect for taking-off for a long journey. The recent declines in numbers of breeding Gibson's antipodean albatross are likely a result of changes occurring in the seas offshore as even the populations on near-pristine Adams Island are decreasing. Outside the relative safety of Adams Island, the Gibson's antipodean albatross forages on the wing, travelling great distances aided by their low-energy gliding flight. Their diet is poorly understood, but meals of squid and fish are often scavenged from the discards off fishing boats. It is possible that their prey

species have declined or moved as a result of fishing and/or climate change.

While most of their time at sea is spent inside the New Zealand or Australian Exclusive Economic Zones, nearly half of the birds venture further away into international waters. When a selection of birds were tracked between 1994 and 2003 using satellite transmitters, most of their time was spent travelling the continental shelf edge and the deeper waters of the Tasman sea, with some birds ranging far afield into the Southern and Pacific Oceans. These foraging trips often overlapped with the reported voyages of long-line fishing boats, which are known to catch seabirds when deploying their baited lines. In New Zealand and Australian waters, between 2.9% and 12% of the birds accidentally caught on long-lines were wandering albatross (which includes Gibson's antipodean albatross). The number of albatross caught by fisheries in international waters is unknown.

When a bird dies at sea, either through natural causes or being accidentally killed, their chick or egg will also be lost, and their partner will need time finding a new mate as courtship lasts several years. Worryingly, it is mostly female birds that are dying at sea, and this is causing the sex ratio to become skewed and making it more difficult for the surviving male albatross to find mates. The Gibson's antipodean albatross is a long-lived species, breeding later in life between the ages of 9 and 16, and if they successfully fledge a chick, will not attempt to breed in the next year's breeding season. If breeding was not successful, however, paired birds often nest again the next breeding season.

Following the adoption of seabird-safe fishing techniques the numbers of albatross being caught has been reduced. However, the loss of even a few individuals may not be sustainable in a long-lived species such as Gibson's antipodean albatross, and this is especially so now that they are so rare.

At colonies, population size is estimated by combining nest counts and mark-recapture analysis. Until 2011, researchers would walk at the same pace, counting nests in parallel rows, arranging who counts the nests on boundaries between people. After 2011, GPS technology is used to increase accuracy and counts are made of the nests within defined areas. Nest locations are recorded using GPS units, allowing a distribution map of the nest sites on an island to be created. To estimate population size, a mark-recapture technique is now utilised, and since 1991 every nesting bird has had a numbered metal band attached to its leg, and since 1994 every chick has also been banded, to help with this study. Each band has a unique number allowing scientists to calculate population size based on the ratio of banded versus un-banded birds they count each year, as well as allowing the breeding history of each bird to be followed. Banding birds is a messy business as chicks often vomit on banders as a defence mechanism against these invaders.

In 2014, counting nests in a colony on Disappointment Island visible on aerial

photographs was trialled, and this technique may be an even more accurate method of counting birds over such a large rugged area. By taking photographs of the island from the air, nests, nesting birds and loafers (non-nesting birds) can be clearly seen and counted in the photographs. The efficacy of aerial photography for counting the Gibson's antipodean albatross still needs further development to ensure it is as accurate as possible.

## Gibson's antipodean albatross biology

The taxonomy (names) of the great albatross species has changed, with species names changing as a result of new genetic research. Gibson's antipodean albatross are currently named as a subspecies of the antipodean albatross *Diomedea antipodensis* to reflect their distinct breeding grounds separate from the wandering albatross. Previously they were classed as a subspecies of the wandering albatross *Diomedea exulans*. In 2004, analysis of mitochondrial DNA was used in an effort to clarify the taxonomy of the wandering and antipodean albatross complex. Three distinct groups were identified: *Diomedea exulans*, *Diomedea dabbenena* (the Tristan albatross) and a group that included both *Diomedea antipodensis antipodensis* and *Diomedea antipodensis gibsoni*. It was concluded that there was a difference between these last two subspecies, however, the low degree of genetic difference was not great enough to support their being named as two full species.

The Gibson's antipodean albatross is larger and paler than its Antipodes Island counterpart *Diomedea antipodensis antipodensis*. Their plumage ranges from a brown to predominantly white. They have white faces and underwings with black upper wings. Males are generally lighter than females and plumage becomes paler with age.

Egg laying occurs between 29 December and 5 February and can occur weeks later than other *Diomedes* species. A single egg is laid in a nest of built up soil and plant material. Both males and females incubate the egg and brood chicks.



## What next?

The threats to the survival of the species are:

1. Climate change
2. Fisheries bycatch

Successfully protecting the Gibson's antipodean albatross from these threats must be achieved in order for the conservation programme to succeed. Ideally, this should be done by:

1. Assessing the effect of climate change on Gibson's antipodean albatross populations.

Effects of increased temperatures, altered ocean currents and wind patterns on both the birds and their prey species is required to determine the effect climate change is having on the population. Increased stress, energy expenditure and difficulty finding food during foraging trips during the breeding season are likely to have disastrous flow-on effects on the number of chicks that survive.

2. Continuing assessment of fisheries bycatch and use of bycatch mitigation devices. Continuing existing fishing best-practices to reduce the impact on seabirds is critical. Increased observation during fisheries operations can provide a more accurate representation of the number of birds affected by fisheries bycatch and will help in determined the effectiveness of mitigation devices.

3. Keeping the Auckland Islands pest free.

So far the isolation of the Auckland Islands has prevented the introduction of many mammalian pests that threaten mainland species and many of the pests that were present on the islands have now been eradicated. While the islands are a Nature Reserve and are surrounded by a Marine Reserve, landing is permitted if visitors obtain a permit. Pests can arrive to island as stowaways on boats or in stores during these visits or scientific expeditions. The risk of inadvertently introducing pests to remote islands can be mitigated by ensuring visiting expeditions adhere to strict island biosecurity measures.

4. Continued population monitoring.

Continued population monitoring must be undertaken to detect changes in productivity, nest success and adult and chick survival. The influence the uneven sex ratio is having on the population needs to be further investigated. Population monitoring has been vital in determining the impact of fisheries and climate change on Gibson's antipodean albatross populations in the past and needs to continue into the future.

## More information

Website: DOC – Auckland Islands. [Link](#)

Website: Wikipedia - Auckland Islands. [Link](#), Gibson's Albatross. [Link](#)

Website: New Zealand Birds Online – Antipodean albatross. [Link](#)

Website: Southern Seabird Solutions. [Link](#)

Report: Gibson's antipodean albatross census and population study 2015/16. By Graeme Elliott, Kath Walker, Graham Parker, Kalinka Rexer-Huber. Draft report on CSP Project 4655. Department of Conservation, Wellington, 2016. [PDF](#)

Report: Fisheries risks to the population viability of Gibson's antipodean albatross *Diomedea gibsoni*. By R.I.C.C. Francis, G. Elliott, K. Walker. New Zealand Aquatic Environment and Biodiversity Report No. 152. Ministry for Primary Industries, Wellington, 2015. [PDF](#)

Report: Gibson's albatross at Disappointment Island – analysis of aerial photographs. By G. Barry Baker and Katrina Jenz. Latitude 42 Report. Department of Conservation, Wellington, 2014. [PDF](#)

Scientific paper: Time spent in exclusive economic zones of Southern Oceans by non-breeding wandering albatrosses (*Diomedea* spp.): Implications for national responsibilities for conservation. By D.G. Nicholls, M.D. Murray, E.C. Butcher, P.J. Moors. Emu, No. 100. CSIRO Publishing, 2000. [Link](#)

Scientific paper: Population changes and biology of the Wandering Albatross *Diomedea exulans gibsoni* at the Auckland Islands. By Kath Walker and Graeme Elliott. Emu, No. 99. CSIRO Publishing, 1999. [Link](#)



## Photos



Checking Gibson's antipodean albatross nest. DOC

**This webpage represents the views of the Endangered Species Foundation of New Zealand and not necessarily those of other individuals or organisations involved in the conservation of this species.**

**Have a comment on this page? Send it to us [info@endangeredspecies.org.nz](mailto:info@endangeredspecies.org.nz)**