

Chatham Shag

Leucocarbo onslowi (Forbes, 1893)

The thief



Chatham Shag in breeding plumage. DOC

Quickfacts

Endemic to the Chatham Islands

Reasons for drop in number of nesting birds are poorly understood

The mysterious Chatham thieves

The first human arrivals to the isolated shores of the Chatham Islands were Maori wanderers, reaching the island on three or four waka (canoes). Upon their arrival in the 1400's, they claimed and settled the land, unable to return to their birthplace as there were no suitable trees growing on the island to build sea-faring waka for the return journey. The people became stranded for 400 years, adapting to the land, adopting the Moriori name with a lifestyle, culture and language distinct from their mainland New Zealand Maori relatives. Many of the plant foods they had brought with them failed, but they successfully introduced the kopi tree (karaka *Corynocarpus laevigatus*), providing an important source of carbohydrates in their diet. With the poorly cultivated land (much is acidic peat soils), the Moriori people looked to the islands and to the sea ifor food and clothing. Rafts were made, enabling them to cross the rough seas between the islands of the Chathams. Food from the sea contributed greatly to their diet as most terrestrial birds were quickly eaten out of existence. The sea provided a rich and diverse assemblage of fish, as well as pua (abalone), crayfish, seabirds, albatross, New Zealand fur seals and Chatham sealions. As well as providing a nutrient-rich food source,



fur seals were also harvested for the skins to make clothing.

The Chatham Islands are the only part of the Chatham Rise, a submerged portion of the Zealandia continent, that is above water. They have never been physically connected to mainland New Zealand, and lack a range of flora and fauna commonly found on the New Zealand mainland. Trees such as beech (Fagaceae), podocarps, manuka (*Leptospermum scoparium*) and kanuka (*Kunzea*) are absent, as are frogs, bats, geckos, sand flies, moa and kiwi. However, parts of the islands have been exposed and parts submerged and eroded over their long geological history, creating a unique and diverse collection of endemic species.

European arrival in the late 1700's and early 1800's, brought sealers and whalers to the islands, decimating the local seal and whale populations. The land became increasingly modified as more people arrived. Fires were set to clear forests for pasture to feed sheep and cattle. Rats (*Rattus* spp.), mice (*Mus musculus*) and cats (*Felis catus*) were also brought to the islands, and ate much of the naïve native wildlife. Fortunately, successful eradications of mammals on Mangere and Rangatira Islands, now Nature Reserves, offer some sanctuary to the species living there. However, the pest mammals and the weka (*Gallirallus australis*, a New Zealand rail introduced to the islands) are present on the larger Chatham and Pitt islands, and threaten their seabird inhabitants.

The main Chatham Island's southern plateau is flanked by high cliffs, while the centre of the island is occupied by a large semi-tidal lagoon, and the north by low peatlands and sandy beaches with scattered volcanic cones. The cliff faces and cliff tops provide habitat for many seabird species. Little is known about many of these species, and much of their biology is still a mystery to researchers. The Chatham Island shag is one such poorly known species. It is endemic to the Chatham Islands group and nests on rocky outcrops, on headlands, or offshore rock stacks at several sites around the Chatham coast. Nests are closely-spaced, some only 50 cm apart, and built of stacks of seaweed and Chatham Island ice plant combined with bird poo. The large nests require lots of effort and plant material to construct, and the cramped space promotes thievery between neighbours - nest materials are constantly stolen and incorporated into the thief's nest, probably later being stolen by another neighbour, or stolen back by the original owners.

Even though nests are usually occupied year round, some birds appear to become dissatisfied with their nest site, perhaps because of constant thievery, and move to a different nesting colony. Sometimes entire nesting sites have been abandoned, and new nesting colonies are formed. The high density of Chatham Island shag nests allows nesting sites to be easily found; however, movement patterns of the birds themselves are largely unknown. Nest counts are conducted over the breeding season, ideally during incubation over October (though some colonies nest earlier and need earlier visits). Nest counts involve counting the number of unoccupied nests, nests with eggs or chicks, as well as the number of birds building nests or courting. Coloured plastic

bands are placed on the legs of a selection of birds to allow researchers to identify individual birds (all shags look alike to human eyes) and to follow their fate. Counting nests in aerial photographs, paired with nest counts, may be more efficient than nest counts conducted from boats (the current method), but this requires investigation. Unfortunately, there are few nesting colonies within protected reserves.

Three population censuses of Chatham Island shag have detected an alarming decline in the number of nests. At Okawa Point and Cape Frontier on Chatham Island, two sites, heavily occupied in the 1997/98 census with more than 100 nests, had dropped to below 60 nests in 2011. At the Star Keys, a group of rocky islets to the south of Chatham Island, there were above 300 nests in the 1997/98 census, but below 100 in the 2011 census.

The reasons behind the dramatic drops in the number of breeding pairs, from 842 nesting pairs in 1997/98 to 355 nesting pairs in 2011, is largely unknown. Cattle and sheep are known to disturb birds and trample nests, and the eggs and chicks can be eaten by one of several predators (mainly exotic species). New Zealand fur seals (*Arctocephalus forsteri*) are also a suspect – the shags are easily startled by the very common fur seals, and will trample their own nests, crushing eggs in their panic to escape seals. The shags also panic if people get too close to their nests. These disturbances also provide opportunities for black-backed gull (*Larus dominicanus*) or the similar skua (*Catharacta antarctica*) to snatch an egg or chick. There are concerns that Chatham Island shags are being drowned in rock lobster pots and fishing traps. The impact of fisheries on these birds requires further investigation, as are the impacts of climate change. There are also accounts of birds being illegally shot, despite their being protected by law.

The Chatham Island shag

Unlike the other *Leucocarbo* shag species which can have either a black and white (pied) or bronze plumage, the Chatham Island shag only has a pied colour form. The adults have black heads, nape and back, with white on the chin, throat, breast and under wing. Patches of white feathers on the folded wings appear as white bars. When breeding, the caruncles (fleshy, unfeathered outgrowths around the top of the beak and eye) become orange-red. In the non-breeding season this colour fades. Juveniles can be identified by their lack of caruncles and also adults have dark purple facial skin, while juveniles have pale purple facial skin. The Chatham Island Shag is the only shag on the Chatham Islands with pink feet.

Clutches range from 1-4 eggs with an average of 2-3. Pale blue and chalky white coated eggs are laid from September – December.

Recent molecular and morphological data suggests there are three lineages of the *Leucocarbo* shag, not two, and the Chatham Island shags are well differentiated from the other two (newly separated) species in its lineage – the Otago (*Leucocarbo chalconotus*) and Foveaux (*Leucocarbo stewarti*) shags. This research suggests the Chatham Island shag originated from the South Island from *Leucocarbo chalconotus* stock, before evolving into *Leucocarbo onslowi* in the isolation of the Chatham Islands. Chatham Island shags are on average smaller than both the Otago and Foveaux shag species.

What next?

The threats to the survival of the Chatham Island shag are:

1. Predation.
2. Disturbance by stock, humans and fur seals
2. Lack of information on impacts of fisheries and climate change on individuals and their diet
3. Poor understanding of demographic parameters and movement patterns

Successfully protecting the Chatham Island shag from these threats must be achieved in order for the conservation programme to succeed. Ideally, this should be done by:

1. Research into the vulnerable times in their lifecycle.

The reasons why the number of nesting Chatham Island shags is decreasing are unknown. A research project looking at annual survival of adult birds, survival of fledglings, and nesting success would help identify the period(s) of their lifecycle when they are most vulnerable. Together with knowledge on their ecology, this information could identify the likely factors contributing to their decline.

2. Protect nesting colonies from disturbance.

Colonies are prone to panic if disturbed. Temporarily fencing stock from colonies would reduce the frequency of disturbance.

3. Protect nest colonies from cats and weka.

Cats and weka are common in coastal areas of the Chathams and both are capable of attacking and eating shag eggs and nestlings (and cats can eat adult shags). A trapping programme for these species during the nesting period would reduce the loss of eggs or chicks.

4. Promote the use of shag-safe crayfish pots.

Modifying existing crayfish pots by using snifter bait holding frames, narrower entrance neck widths and smaller mesh size would minimise the capture and drowning of shags possibly without affecting the number of crayfish caught. A study comparing the usefulness of shag-safe versus traditional cray pots is needed before promoting the use of shag-safe pots to local fishers.

More information

Website: NZ Birds Online – Chatham Island shag. [Link](#)

Website: Wikipedia – Chatham Islands. [Link](#)

Website: The Encyclopaedia of New Zealand – Story: Chatham Islands. [Link](#)

Website: DOC – Chatham Islands habitats and protected areas. [Link](#)

Scientific paper: Genetic and morphological evidence for two species of *Leucocarbo* shag (Aves, Pelecaniformes, Phalacrocoracidae) from southern South Island of New Zealand. By Nicolas J. Rawlence, R. Paul Scofield, Hamish G. Spencer, Chris Lalas, Luke J. Easton, Alan J D Tennyson, Mark Adams, Eric Pasquet, Cody Fraser, Jonathan M. Waters, Martyn Kennedy. Zoological Journal of the Linnean Society. No. 117, 2016. [PDF](#)

Report: Chatham Island and Pitt Island shag census 2011. By Igor Debski, Mike Bell, Dan Palmer. MCSPOP2010-02: DRAFT REPORT, Wellington, 2012. [PDF](#)

Report: Recovery plan for Chatham Island shag and Pitt Island shag. By Department of Conservation. Threatened Species Recovery Plan 43, Wellington, 2001. [PDF](#)

Report: Shag interactions with commercial rock lobster pots in the Chatham Islands. By M. Bell. Wildlife Management International Limited for the Department of Conservation, Marlborough, 2012. [PDF](#)

Photos



Nesting colony of Chatham Shags. DOC

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