

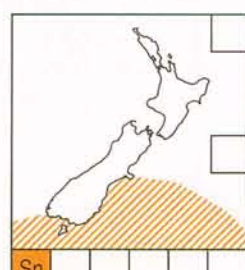
Flightless stocky seabirds with dark upperparts and white underparts. Wings modified into flippers. Robust bill. Short stout legs with webbed feet. Dense short and flattened feathers in adults; thick down in chicks. Swim low in the water, with head and upper back (occasionally tail) visible; some porpoise when swimming fast. Feed at sea by diving. On land, walk upright with waddling gait or short hops with flippers used to maintain balance. Toboggan on ice and mud. Visit land to breed and to moult. During the 2–6-week moult, birds look ragged while all feathers are replaced rapidly; birds fast and are unable to swim. Breed solitarily in burrows or under vegetation, or in large dense colonies on the surface. Lay 1–2 white eggs.

SNARES CRESTED PENGUIN *Eudyptes robustus*

Locally common endemic

60 cm, 3 kg. Head, throat and upperparts dark blue-black; underparts white. *Thin bright yellow eyebrow stripe forms bushy drooping crest behind eye. Prominent pink skin at base of heavy reddish-brown bill. Solid black tip to underflipper. Juvenile has smaller and creamy crest, darker bill and mottled whitish throat.* **Habitat:** Breeds only at The Snares. Straggles to other subantarctic islands and mainland NZ. **Breeding:** Sep–Feb.

[Sp 82]



PENGUINS

Spheniscidae

16 species confined to the Southern Hemisphere: 13 in the New Zealand region, including 4 endemic and 5 other breeding species.

most nights to roost. They have ritualised displays, and most give a variety of brays, trumpets and growls. Colonial breeders often engage in fights with neighbouring birds.

Penguins are a clearly defined group of flightless, stocky seabirds standing up to a metre high. They are a primitive group dating back to the late Eocene, about 45 million years ago; fossils of three species have been found in the South Island from this era.

They usually lay a clutch of 1–2 whitish eggs each year; a few failed pairs attempt to re-lay. Nests vary from burrows for Little Blue Penguins and some Fiordland Crested Penguins to simple scrapes for most species. The King and Emperor Penguins build no nest and incubate the egg between the top of their feet and their body.

Penguins are covered with a waterproof coat of dense, short and flattened feathers; the wings are modified into flippers, and the tail is short and stiff. They have a large head and a powerful, short, stout bill. Their legs are short and stout, with webs linking the three forward-pointing toes. On land, they walk upright with an ungainly waddling gait, and hop over obstacles, using their flippers to maintain balance. On ice, they sometimes toboggan. In the water, they can swim rapidly, being propelled by their flippers only. Some species porpoise when travelling fast.

Penguins vary from solitary to colonial, some colonies being of millions of pairs. Eggs are small in relation to their body size, and have a long incubation period of 33–65 days depending on the species. Usually both sexes incubate, except that in the Emperor Penguin only the male incubates. Chicks hatch covered in thick down and are fed irregularly by both parents. In colonial species, chicks group together in crèches from about three weeks old until they have their natal moult into full feathers and leave the colony at 2–6 months old.

Penguins dive to catch food. The extreme example is the Emperor Penguin, which has been recorded diving to 450 m and staying submerged for 11 minutes. They feed on fish, crustaceans (especially krill), squid and a wide range of other marine invertebrates.

During the moult of 2–5 weeks in summer or autumn, birds look ragged and 'sick', as almost all the feathers are replaced simultaneously. During this time, the bird fasts and is unable to swim without getting waterlogged. If you find birds moulting, leave them alone, and do not return them to sea; contact

the Department of Conservation if a moulting penguin is in danger from dogs or other predators. Many records of unusual species visiting the New Zealand region are of wandering birds forced to come ashore in autumn to moult.

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82. SNARES CRESTED PENGUIN *Eudyptes robustus* **Plate 20**

Size: 60 cm, 3 kg
Distribution: Breed only on The Snares. Most are on Main and Broughton Islands, but a few nest on Toru and Rima islets of the Western Chain. While breeding, adults stay in continental shelf close to their nesting colonies, and they return to their colonies to moult before dispersing in winter. Some immatures moult away from the breeding grounds and are occasionally recorded beach-wrecked or moulting around the coast of Stewart Island and the South Island in summer and early autumn. Vagrants have been recorded in Hawke's Bay, on the Wellington coast, at the Chatham, Antipodes, Campbell and Macquarie Islands, southern Australia and Tasmania.

or in the open. Incubation starts when the second egg is laid, and it usually hatches first, after 31–33–37 days. Both sexes incubate. For the first few days the pair take short incubation spells, but then the male leaves the female to incubate for a fortnight and then returns to incubate until the chicks hatch. The first egg is sometimes displaced from the nest and is often more accessible to Brown Skuas while being incubated. Many pairs hatch both eggs, but the chick from the smaller egg often starves and it is extremely rare that both chicks are reared successfully.

Population: c. 23,000 pairs: Main Island 19,000 pairs, Broughton Island 3500 pairs, Toru 300 pairs, Rima 200 pairs.

Chicks are brooded initially and guarded almost continuously by the male (which fasts) and are fed by the female during daily visits until c. 3 weeks old. Thereafter, chicks form small crèches (6–12 birds) and are fed only by their parents. Chicks leave in January–February at c. 10–11 weeks old, and are independent after they have left the colony. First breeding is probably from 4 years old. The oldest banded bird recorded lived over 20 years.

Conservation: Protected locally common endemic, little influenced by humans or introduced predators.

Behaviour: Gregarious, breeding in small to large, dense colonies of 5 to 2000 pairs, and they are sometimes seen in small groups at sea. Adults moult at their breeding site for 24–30 days in March–May, c. 3 months after their chicks have fledged.

Breeding: Laying is in September–October on Main and Broughton Islands, but c. 3–6 weeks later on the Western Chain. They lay 2 white eggs, the first (68 x 52 mm, 100 g) smaller than the second (73 x 56 mm, 130 g), which is laid 4–5 days later. The nest is a shallow lined cup often raised slightly. They breed in small dense colonies of 50–200 pairs, mostly in clearings under *Olearia* or *Brachyglottis* forest, but sometimes among boulders

Feeding: While breeding, they eat mainly krill, small fish and squid, obtained at depths down to 20–80 m.

In the hand: Adult males have longer, deeper and wider bills than females, with a product (in mm) of over 17,800 being a male, and under 13,320 being a female.

Reading: Miskelly, C.M. 1984. *Notornis* 31: 209–223. Warham, J. 1972. *Auk* 89: 86–105. Warham, J. 1974. *J Roy Soc NZ* 4: 63–108. Warham, J. 1975. In *The Biology of Penguins*. London: MacMillan.