

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.

**MACARONI PENGUIN** *Eudyptes chrysolophus*

Rare subantarctic straggler

70 cm, 4.5 kg. Largest crested penguin. Upperparts black; sides of face, chin and throat black in Macaroni form, but grey or white in Royal form. Both have massive red-brown bill with fleshy gape; yellow, golden orange and black plumes starting from centre of forehead. Juvenile has smaller tuft-like plumes. **Habitat:** Breeds Antarctica and subantarctic of S Atlantic and Indian Oceans (Macaroni) and at Macquarie I (Royal). Occasionally reaches NZ sector of Antarctica, NZ subantarctic islands and, rarely, the NZ mainland.

[Sp 80]



**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

Penguins visit land to breed and moult, and some inshore species return to land on

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.

**Reading:** Davis, L.S. & Darby, J.T. (eds). 1990. *Penguin Biology*. San Diego: Academic Press.

Harrison, P. 1987. *Seabirds of the World: a photographic guide*. London: Christopher Helm. Harrison, P. 1988. *Seabirds: an identification guide*. London: Christopher Helm. Murphy, R.C. 1936. *Oceanic Birds of South America*. New York: MacMillan. Serventy, D.L. et al. 1971. *The Handbook of Australian Sea-birds*. Sydney: Reed. Stonehouse, B. (ed.). 1975. *The Biology of Penguins*. London: MacMillan.

**80. MACARONI PENGUIN** *Eudyptes chrysolophus*

Plate 20

**Other name:** Royal Penguin

**Size:** 70 cm, 4.5 kg

**Geographical variation:** Two subspecies: the Macaroni Penguin *chrysolophus* breeds on islands off Chile, in the South Atlantic and South Indian Oceans, and the Royal Penguin *schlegeli* breeds on Macquarie Island. Both have been recorded as vagrants to the New Zealand region.

**Distribution:** Circumpolar, breeding on many

subantarctic islands. Macaroni Penguins have been recorded from Cape Hallett and the Balleny Islands in the Ross Sea sector of Antarctica, at Campbell Island and The Snares. Royal Penguins are more regular vagrants, with records from Hawke's Bay, Wellington, Otago (three), The Snares (two), Auckland and Campbell Islands (regular visitors in summer and autumn).

**Feeding:** At Macquarie Island, the diet during

the breeding season is mainly krill, especially during incubation and moulting, but it is more varied, with more fish and squid, during chick-feeding.

Macaroni Penguins and normally have white or pale grey cheeks, chin and throat, but rarely black. Macaroni Penguins have jet-black cheeks, chin and throat, but rarely some are white, so positive identification to race is difficult.

**In the hand:** Adult males have longer and deeper bills than females, with little overlap at any single breeding site. Royal Penguins have larger bills than

**Reading:** Hindell, M.A. 1988. *Emu* 88: 219–226. Warham, J. 1971. *Notornis* 18: 91–115.