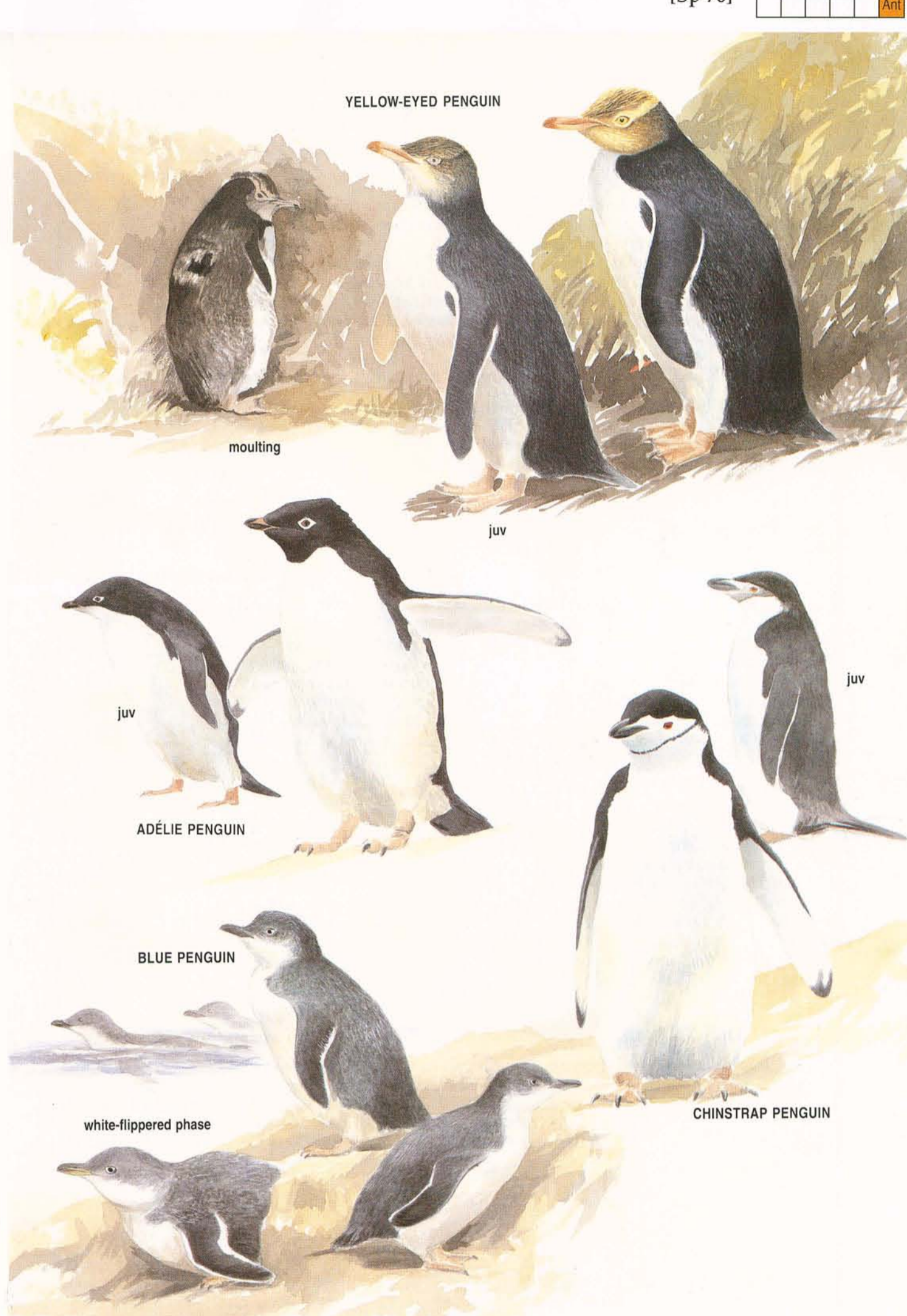
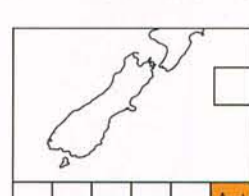


Flightless stocky seabirds with dark upperparts and white underparts. Wings modified into flippers. Robust bill. Short stout legs with webbed feet. Dense short and flattened feathers in adults; thick down in chicks. Swim low in the water, with head and upper back (occasionally tail) visible; some porpoise 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.

**ADÉLIE PENGUIN** *Pygoscelis adeliae*

Locally common native

70 cm, 5 kg. Black head, face, chin and upperparts, except conspicuous *white eye-ring*; underparts white; *no crest*. Juvenile similar but has white chin and sides to face to just below the eye. **Habitat:** Breeds circumpolar in large colonies in Antarctica, including Ross Dependency. Rare vagrants reach NZ mainland. **Breeding:** Nov–Feb. [Sp 76]



**PENGUINS**

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

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.

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 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.

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

**Spheniscidae**

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.

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 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.

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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**76. ADÉLIE PENGUIN** *Pygoscelis adeliae*

Plate 19

**Size:** 70 cm; 5 kg

**Distribution:** Circumpolar, breeding in large colonies on ice-free coasts and islands of Antarctica and on South Shetland, South Orkney, South Sandwich and Bouvet Islands. In the Ross Sea sector of Antarctica there are 34 colonies, with the largest (>50,000 pairs) being at Cape Adare, Possession Island, Cape Hallett, Cape Cotter, Franklin Island, Cape Bird and Cape Crozier. Movements are poorly known, but few are recorded north of 60°S. Two have been recorded from the New Zealand mainland: one dead on the Marlborough coast (December 1962) and one alive at Kaikoura (December 1992).

**Population:** c. 1,082,000 pairs in the Ross Sea sector, which is over 40% of the total world breeding population of c. 2.6 million pairs. The largest colony in the world is at Cape Adare with 282,000 pairs.

**Conservation:** Protected abundant native. The number of birds seems to be stable, but individual colonies seem to decline after human disturbance. Counts of Adélie Penguins are being used to monitor changes to the Antarctic environment by counting birds in aerial photographs of the main colonies in the Ross Sea sector.

**Breeding:** Laying is during November and early December, mostly about the middle of November, c. 1–2 weeks after the birds return to the colony. They lay 1–2–3 pale green eggs (69 x 55 mm, 120 g) 2–3–4 days apart. If the first egg is lost shortly after laying, a third egg is often laid, bringing the clutch back to two, but this egg is much smaller than usual (66 x 51 mm, 101 g). The nest is a scrape surrounded by rounded stones. Colonies are on flat or gently sloping surfaces free of snow, up to 100 km from open water when birds first arrive, but the sea-ice quickly breaks up, letting birds reach open water easily. Incubation starts with the first egg but may be only partial until the second egg is laid. The

female usually returns to sea while the male takes the first spell of about a fortnight; thereafter, incubation is shared roughly evenly, with the length of incubation spells positively related to the distance to open water. The eggs hatch 1–2 days apart, after 30–33–38 days.

Chicks are guarded by their parents for the first 17–22–32 days, during which time they develop a thick layer of secondary down, and then start to shed this as feathers appear. The parents swap duties every couple of days and feed their chicks soon after they arrive back. The chicks join crèches, but their parents are still able to pick them out in the crowd of chicks. Chicks fledge after 41–51–56 days in late January and February, at c. 56% of adult weight. They are independent of their parents after they leave the colony. First breeding is at 3–4–6+ years in females, 4–7–8+ years in males. Birds are monogamous and usually retain their partners from year to year; most divorces are in pairs that were poorly synchronised arriving back at the colony. The oldest Adélie Penguin recorded lived at least 16 years.

**Behaviour:** Gregarious, with some colonies of 250,000+ pairs. At sea, they are often seen in small groups roosting on ice floes or feeding in open water.

**Feeding:** During the breeding season, they eat mainly krill, especially *Euphausia superba* and *E. crystallorophias*, but they also take a few fish, squid and a variety of marine invertebrates. They feed close to the surface or at moderate depths (10–100 m) but are capable of diving to 175 m.

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