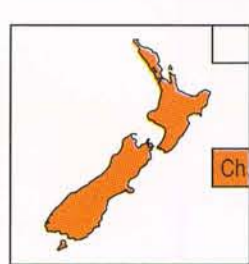


Aquatic birds with a small rounded head, short flattened bill, rounded body, short legs, webbed feet and a waddling gait on land. They fly strongly with neck outstretched. Sexes alike in swans and geese, but male ducks are usually more colourful than females. Lay large clutches. Chicks leave the nest within days but are guarded for several months until they can fly.

BLACK SWAN *Cygnus atratus*

Common Australian introduction

120 cm; ♂ 6 kg, ♀ 5 kg. *Very large black swan*. Bill crimson with white tip and bar near tip. Juvenile is ashy brown with a dull red bill. Takes off laboriously and noisily, running across the surface, wings striking on each downstroke. Flies with long neck extended and slow deep wingbeats, showing *prominent white wing tips*. Flocks fly in long skeins. *Voice a musical bugling*. Feeds mainly on vegetation by dabbling at the surface, upending to reach bottom plants, or grazing on nearby damp pasture. **Habitat:** Lakes, estuaries and parks; sometimes seen at sea or on pasture. **Breeding:** Jul–Feb. [Sp 122]



WATERFOWL

Anatidae

Swans, geese and ducks are found worldwide in freshwater and marine habitats. There are about 160 species, of which 14 (4 endemic, 4 native and 6 introduced) breed or have bred in the wild in the New Zealand region since 1920. A further endemic species (*Mergus australis*) became extinct in the early years of the 1900s, and another 6 species are vagrants to the region.

In New Zealand, most introduced and some native species of waterfowl are legally harvested during a strictly controlled shooting season. Each year, Fish and Game Councils determine the length and timing of the season and the allowable bag for each species, and monitor the licensing of hunters and annual hunting statistics. A voluntary organisation, Ducks Unlimited, works to create and protect wetland habitats suitable for waterfowl and is also involved in captive breeding programmes for some threatened and rare species.

All species have webbed feet for swimming in freshwater rivers and lakes, or in coastal waters. Their bill is modified for filter-feeding; water and food is sucked in at the tip of the bill and expelled through fine comb-like lamellae at the sides, which catch minute seeds and invertebrates. Although most feed in this way, some species mainly graze on aquatic or terrestrial vegetation and pick seeds (e.g. peas or wheat) off the ground, and the mergansers have serrated bills for catching fish.

Reading Frith, H.J. 1982. *Waterfowl in Australia*. Sydney: Angus & Robertson. Madge, S. & Burn, H. 1988. *Wildfowl: An Identification Guide to the Ducks, Geese and Swans of the World*. London: Christopher Helm. Johnsgard, P.A. 1978. *Ducks, Geese and Swans of the World*. Lincoln: Univ Nebraska Press. Williams, M. 1981. *The Duckshooter's Bag*. Wellington: Wetland Press.

122. BLACK SWAN *Cygnus atratus*

Plate 29

Size: 120 cm; males 6 kg, females 5 kg
Distribution: Native to southwestern and eastern Australia and to Tasmania. Although about 100 birds were introduced to New Zealand between 1864 and 1868, it is likely that some also arrived naturally in 1867, because the Black Swan population grew and spread very rapidly. By 1880, they were well established in the wild, and are now widespread and abundant throughout the main islands and on Chatham Island. Greatest numbers are on large lowland or coastal lakes and lagoons and on some estuaries, especially Kaipara Harbour, the lower Waikato valley, Hawke's Bay, Lake Wairarapa, Farewell Spit, Lake Ellesmere, coastal Otago and Southland, and Te Whanga Lagoon (Chatham Island). Good numbers are also found on some inland lakes such as those in the Rotorua district, Lake Taupo and Ashburton Lakes.

trends. Before numbers fell at Lake Ellesmere in the late 1960s, special culls of birds, commercial egg-collecting or egg-pricking were sometimes necessary to keep their numbers in check because they create a nuisance grazing and fouling pastures adjacent to some lakes.

Banding and neck-collar studies have shown that Black Swans in New Zealand are moderately sedentary and largely divided into 10 regional populations, each with a major nesting area and one or more coastal feeding and moulting areas. However, at Farewell Spit, the major moulting site in the country, about 10,000 birds from all around the mainland intermingle, although most come from the Wairarapa and Marlborough.

Breeding: Black Swans have a long breeding season, which varies according to local conditions and whether the pairs are solitary or in colonies. Solitary pairs breeding in small wetlands and large deep lakes usually nest in July–October, whereas colonial birds breeding near large shallow wetlands breed only when the lake level starts to drop, at any time from September to January. The nest is usually on land within 100 m of a lake. It is a huge mound of grass and leaves of raupo, flax and rushes, topped with a shallow bowl lined with a little down.

Population: In the early 1960s, well over 100,000 Black Swans were in New Zealand, with 70,000 on Lake Ellesmere alone; however, the April 1968 *Wahine* storm destroyed much feeding habitat at Lake Ellesmere and the population there crashed to fewer than 10,000 birds by 1978. In 1981, the national population was estimated to be 63,000 birds: 60,000 on the mainland and 3000 on Chatham Island.
Conservation: Partially protected introduced species. About 5000 birds are legally shot each year during the duck-shooting season; the number taken is strictly controlled with daily bag limits and seasons set independently for each region, depending on the population

The clutch is of 3–6–14 pale green eggs (104 x 67 mm, 250 g), but clutches of over 10 eggs are probably laid by more than one female. The first three eggs are laid c. 30 hours apart; thereafter daily. Both birds share incubation in spells of 3–4 hours through the day, but the female generally incubates at night. The incubation period is 32–36–43 days. The eggs hatch during less than 48 hours, and both parents lead the cygnets to water within a further day.

thousand birds. In solitary pairs, the male aggressively defends a large feeding territory around the nest. At a few sites, colonies of up to 5000 nests have been recorded, and only the nest site is defended. The Black Swan is quite vocal, with a musical and far-reaching bugle call given both in flight and on the water, especially at night.
Feeding: Diet is mainly leaves of submerged

Solitary pairs usually guard their brood on territory throughout their development, but sometimes shift to a large body of open water for safety; however, cygnets from colonies form large crèches of up to 40 birds, guarded by some of the adults. The cygnets are initially covered in light grey down, but they slowly develop the grey-brown juvenile plumage and fledge at 95–140 days old. Young birds start breeding when 2–4 years old. The oldest banded bird in New Zealand lived at least 29 years.
Behaviour: Non-breeding and moulting Black Swans form loose flocks of up to several

aquatic plants such as *Ruppia*, *Egeria* and *Zostera*, which they reach by up-ending, but they also graze on lakeside pasture grasses and clover.

Reading: Miers, K.H. & Williams, M. 1969. *Wildfowl* 20: 23–32. Williams, M. 1977. *Aust Wildl Res* 4: 289–299. Williams, M. 1979. *NZ J Ecol* 2: 34–41.