

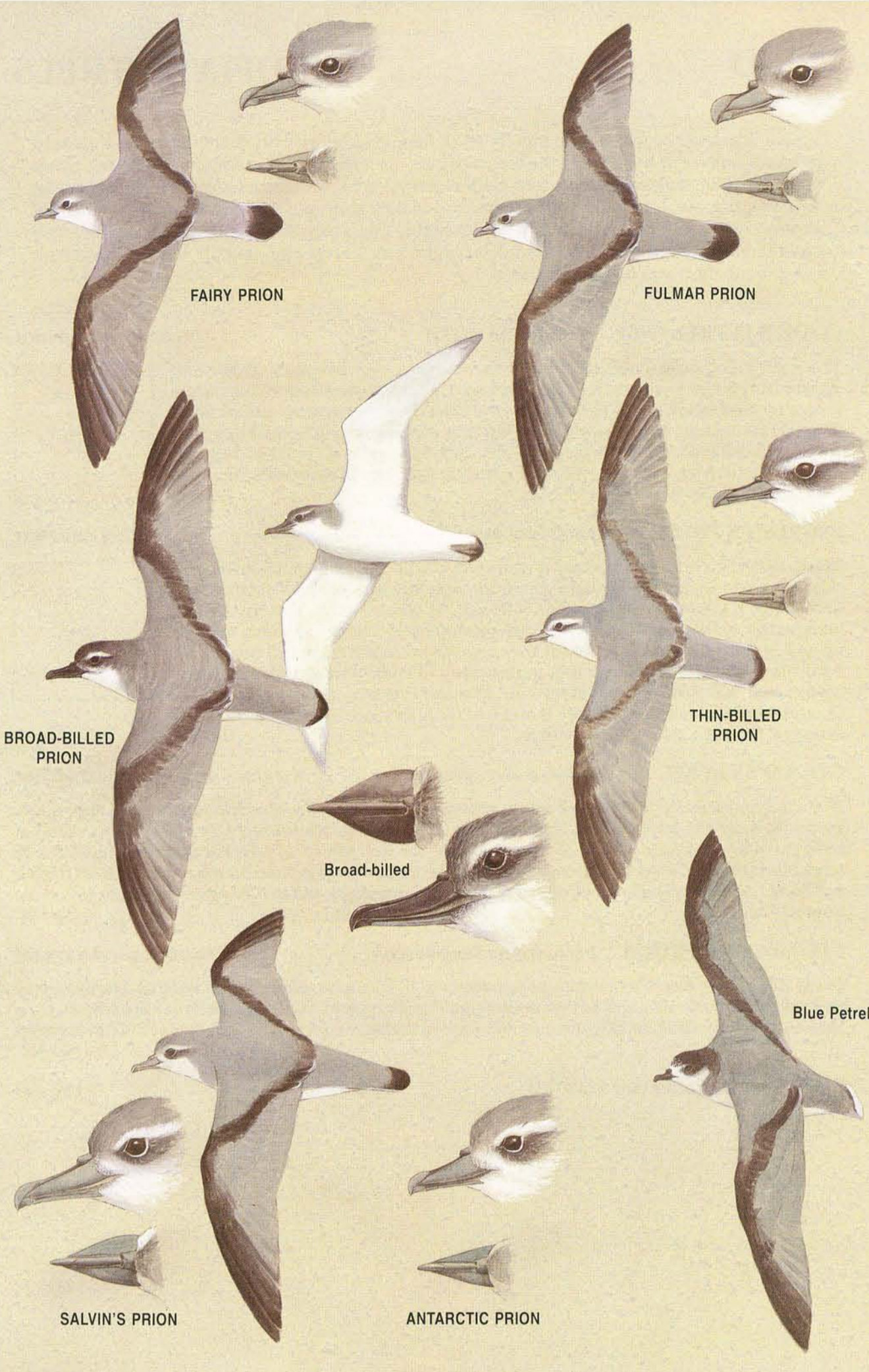
Small seabirds with blue-grey upperparts with black M across upperwings and lower back, white underparts, black-tipped tail, and blue legs and feet. Bill has comb-like lamellae on inside. Sexes and ages alike. Species separated by size, bill structure, face colours and extent of black on tail. Flight fast, buoyant and erratic; usually stay close to the surface. Feed near surface by plunging or dipping. Generally oceanic. Do not follow ships or fishing boats. Noisy at night at breeding colonies, with harsh cooing and cackling calls in air or on ground.

ANTARCTIC PRION *Pachyptila desolata*

Locally common native

26 cm, 150 g. Like Salvin's Prion, but in the hand, bill smaller (27 x 14 mm) and lamellae not visible at the base of the closed bill. **Habitat:** Breeds widely in subantarctic and antarctic zones; in NZ region, many breed at Auckland Is and a few nest at Scott Is, Ross Sea. Regular visitor to seas off NZ mainland, mainly in winter and spring. **Breeding:** Dec-Mar.

[Sp 46]



SHEARWATERS, FULMARS, PRIONS and PETRELS

Procellariidae

The Procellariidae is the largest and most diverse family of seabirds, with about 72 species. In the New Zealand region, 49 species have been recorded, including 11 endemic species and 23 other breeding species.

The Procellariidae includes a wide variety of seabirds from the giant petrels to the diving petrels. All have distinctive external nostrils encased in a tube on the top or sides of the bill. They have 11 primaries. The 11th (outermost) is minute, but the 10th is at least as long as the 9th, giving the wing a pointed tip. All seabirds have webbed feet with three forward-pointing toes of about the same length.

Most species nest in burrows or crevices, normally clumped into colonies. Birds return

to their colony months before egg-laying to claim their nest sites (usually the same site is used year after year) and to court. After copulation, females leave the colony for one to six weeks on a 'pre-laying exodus' to form the egg. Males also leave but often make occasional visits to the nest site.

All species lay one white egg, which is very large relative to the female's size. The few instances of two eggs in a nest are from two females using the same site. A long incubation period is typically split up into several incubation stints lasting from several days to several weeks between changeovers. Occasionally the changeovers do not coincide and the egg is left unattended for several days; however, eggs have hatched successfully after

being chilled for six days. Incubation stints shorten as incubation proceeds, and when the egg hatches the downy chick is brooded and guarded for only a few days in hole-nesting species, but for several weeks in surface-nesting species, until it is able to maintain body temperature.

Throughout its development, the chick is fed large meals at irregular intervals. It gains weight rapidly, becoming much heavier than its parents, but this declines towards adult weight before it fledges. Chicks normally spend some time on the surface exercising their wings before they eventually leave the colony. Once they have flown, they are completely independent of their parents. Young birds usually return to their home colony at 2-7 years old, and spend several years visiting the colony, especially when breeders are incubating or feeding chicks, before attempting to breed. The Procellariidae are typically long-lived, with several species known to live over 25 years.

Most species now breed only on offshore and outlying islands because mainland colonies have been ravaged by introduced mammalian predators. They generally return to their colonies at night, and once on land they are clumsy and unable to take flight rapidly; their only defence is by biting or by spitting stomach oil. The nestling is particularly vulnerable to predators because it is often left unattended for long periods while the parents feed at sea and it emerges from the nest at night to exercise its wings in the week or two before it can fly.

The Procellariidae feed on a wide variety of sea life, ranging from some of the prions, which sieve zooplankton on comb-like lamellae along the edge of their bills, to the giant petrels, which scavenge on dead marine mammals and occasionally kill small seabirds. Most species feed within a few metres of the sea surface, but some shearwaters dive to at least 20 m. These seabirds have well-developed nasal glands for extracting salt from their blood and exuding it out of the prominent nostrils.

The shearwaters (*Calonectris*, *Puffinus*) include about 15 medium to large species with long slender bills and flat nasal tubes. They

are usually brown to black above and white or brown below. Some have large sternums and dive well for fish and squid, using their wings for propulsion, while others have small sternums and feed on, or close to, the surface.

The four species of diving petrel (*Pelecanoides*) are small, stocky black and white seabirds with short wings adapted for propulsion under water. They have a fast, direct, whirring flight and readily dive for small krill and copepods.

The four species of *Procellaria* are large stocky seabirds with large, heavily hooked pale bills with dark markings and prominent nostrils. They feed mainly at night on bioluminescent squid but also now take offal discarded from fishing boats.

The three species of *Pseudobulweria* are medium-sized seabirds with exceptionally large feet and a notch on the cutting edge of the upper bill caused by the latericorns having blunt ends.

The fulmarine petrels (*Lugensa*, *Pagodroma*, *Daption*, *Thalassoica*, *Fulmarus* and *Macronectes*) are a diverse group of 8 species, all of which have robust bills with prominent joined nasal tubes, rising from the base.

The six species of prion (*Pachyptila*) are small seabirds pale blue above and white below with a prominent M-shaped mark across the upperwings and a dark-tipped tail. Comb-like lamellae on the inside of the bill are used to filter zooplankton.

The single *Halobaena* species looks like the prions but has a white-tipped tail and the upper bill has small tooth-like serrations at the base.

The gadfly petrels (*Pterodroma*) consist of 29 species of highly agile seabirds with long wings and short, laterally compressed black bills with a strongly hooked nail. They feed mainly on squid and small fish.

**Reading:** Harrison, P. 1987. *Seabirds of the World: a photographic guide*. London: Christopher Helm. Harrison, P. 1988. *Seabirds: an identification guide*. London: Christopher Helm. Imber, M.J. 1985. *Ibis* 127: 197-229. Murphy, R.C. 1936. *Oceanic Birds of South America*. New York: MacMillan. Serventy, D.L. et al. 1971. *The Handbook of Australian Seabirds*. Sydney: Reed. Warham, J. 1990. *The Petrels: their ecology and breeding systems*. London: Academic Press.

46. ANTARCTIC PRION *Pachyptila desolata*

Plate 12

**Size:** 26 cm, 150 g

**Geographical variation:** Two subspecies: *desolata* breeds at the Kerguelen and Crozet Islands in the central South Indian Ocean, and *banksi* breeds in the South Atlantic Ocean, on Heard Island, on Macquarie Island and in the New Zealand region.

**Distribution:** Circumpolar, breeding on many subantarctic and antarctic islands, including the Auckland Islands, Scott Island in the Ross Dependency, and possibly on islets off Campbell Island. Vagrants reach the Chatham, and one may have been prospecting on Houruakopara Island. Most remain close to their breeding colonies during summer, but they disperse widely through southern oceans to about 35°S in winter, and some straggle into subtropical waters to reach the Kermadec Islands and Vanuatu. A few *desolata* reach the west coast of New Zealand, but *banksi* regularly appears in small numbers in New Zealand waters in winter. About 50 Antarctic Prions are found beach-wrecked on west coast beaches each year in May-October, but they are occasionally wrecked in large numbers in June-August (e.g. 3200 in 1974, and 1000 in 1986).

**Population:** Abundant, with huge numbers breeding on South Georgia (22 million pairs) and Kerguelen Island (2-3 million pairs). In the New Zealand region, between 100,000 and 1 million pairs breed on the Auckland Islands, and fewer than 200 pairs breed on Scott Island.

**Conservation:** Protected native. Introduced

cats and pigs have exterminated many colonies on Auckland Island, but they remain common on offshore islands. Occasional large wrecks of mainly subadults probably have little effect on the species.

**Breeding:** Not studied in New Zealand, but probably like other colonies, where adults return in October and lay in December. They lay 1 white egg (47 x 35 mm, 33 g) in a burrow or rock crevice. Eggs hatch in late January to early February after c. 45 days and young fledge from mid-March to early April at c. 50 days old.

**Behaviour:** At sea, they are often seen in flocks as they feed, roost or stream back to their colonies at dusk. They are silent at sea but very vocal at their colonies, both in the air and on the ground.

**Feeding:** Diet is mainly crustaceans and other planktonic invertebrates, but some small fish and squid are eaten. Most are taken while the bird is swimming, by sieving minute prey on to the comb-like lamellae inside the upper bill.

**In the hand:** Antarctic Prions have a wider bill (11-15.5 mm) than Fairy Prions (9-12.5 mm). They are similar to Salvin's Prions, except that the bill is usually narrower (cf. 13.5-17.5 mm) and when the closed bill is viewed from the side the lamellae are not visible at the base.

**Reading:** Harper, P.C. 1972. *Notornis* 19: 140-175. Harper, P.C. 1980. *Notornis* 27: 235-286. Harper, P.C. 1987. *Notornis* 34: 169-192. Powlesland, R.G. 1989. *Notornis* 36: 125-140. Tickell, W.L.N. 1962. *Falkland Is Dep Surv Sci Rep* 33: 1-55.