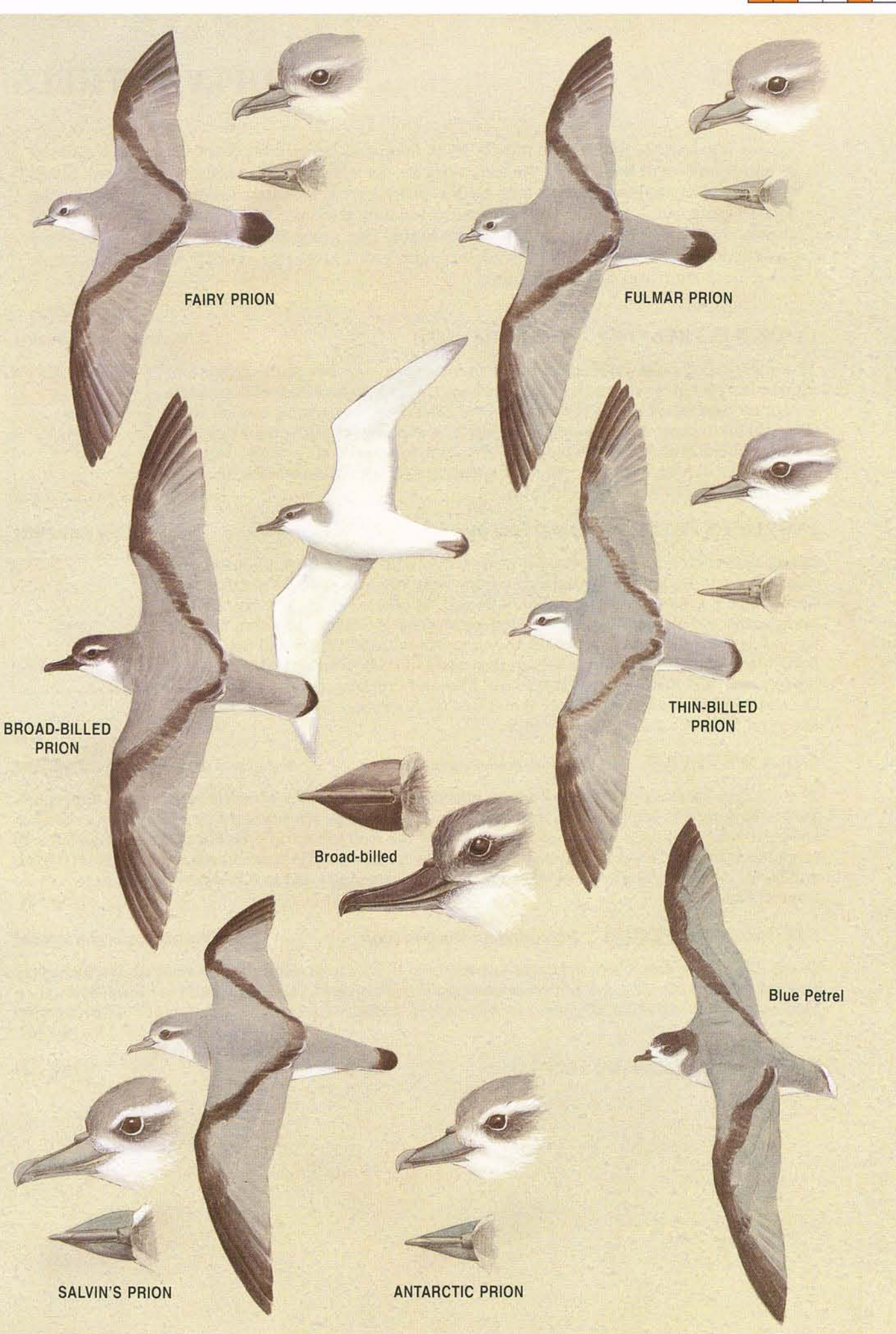
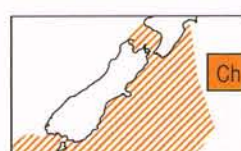


Small seabirds with blue-grey upperparts with black M across upperwings and lower back, white underparts, black-tipped tail, and blue legs and feet. Bill has comb-like lamellae on inside. Sexes and ages alike. Species separated by size, bill structure, face colours and extent of black on tail. Flight 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.

FULMAR PRION *Pachyptila crassirostris*

Locally common native

26 cm, 140 g. Like Fairy Prion but slightly larger and paler. Bill (23 x 11 mm) deeper and with very large nail. **Habitat:** Breeds subantarctic at Heard I (S Indian Ocean), Chathams (Pyramid, Forty Fours), Bounty, The Snares and Auckland Is. Probably mainly sedentary but occasionally reaches NZ coast. **Breeding:** Nov–Feb. [Sp 44]



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.

44. FULMAR PRION *Pachyptila crassirostris*

Plate 12

Size: 26 cm, 140 g
Geographical variation: Three subspecies: *crassirostris* breeds at the Bounty Islands and The Snares, *pyramidalis* breeds at the Chathams, and *flemingi* breeds at the Auckland Islands and Heard Island (South Indian Ocean).
Distribution: Breed at the Chathams (Motuhara [Forty Fours] and The Pyramid), Bounty Islands, The Snares (Western Chain), Auckland (Rose, Ewing and Ocean) and Heard Islands. They are apparently quite sedentary, but some are storm-drifted to mainland New Zealand coasts in winter and spring.
Population: Uncommon; probably fewer than 40,000 pairs, of which c. 30,000 nest on the Bounty Islands, 1000–5000 on the Chathams, 1000 on the Auckland Islands and 400–600 on the Western Chain of The Snares.
Conservation: Protected native. No information is available about historical changes in numbers or breeding distribution.
Breeding: No detailed studies. As eggs hatch on The Snares in mid-December, they are probably laid in late October. They lay 1 white egg (46 x 33 mm) in a shallow scrape, sometimes lined with feathers, under rock-falls, in caves or in crevices. Chicks have fledged from The Snares by 11 February.

Behaviour: Nest in colonies. The birds nesting on the Bounty Islands and The Snares are unusual among prions in visiting their nests in daylight and in courting and calling by day and not at night. On the Bounty Islands, flocks of about 100 prions mob any gulls or skuas venturing over the islands in daylight. They are very vocal at their colonies, both in the air and on the ground, with males apparently giving a clear four-note call and females responding with a slurred three-note call.
Feeding: Diet is mainly crustaceans and juvenile barnacles picked from the sea surface.

In the hand: Fulmar Prions are quite similar to Fairy Prions, but Fulmar Prions have a slightly narrower tail band and generally longer wing (175–188–203 mm, but this varies considerably from colony to colony), and the bill is flattened and the hook is smaller. The race *pyramidalis* is the largest, with long wings (182–193–203 mm) and wide bill (12–13 mm), *crassirostris* is intermediate (175–183–193 mm and 10–12 mm respectively), and *flemingi* is the smallest (174–179–187 mm and 9.5–11 mm respectively).

Reading: Harper, P.C. 1980. *Notornis* 27: 235–286. Harper, P.C. 1987. *Notornis* 34: 169–192. Miskelly, C.M. 1984. *Notornis* 31: 209–223. Robertson, C.J.R. & van Tets, G.F. 1982. *Notornis* 29: 311–336. Sagar, P.M. 1977. *Notornis* 24: 178–183.