

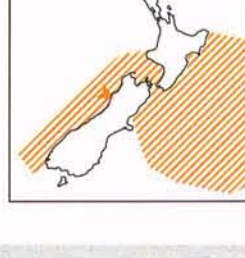
Large heavy-bodied seabirds with robust pale and well-hooked bill; prominent nostrils encased in a tube. Sexes and ages alike. In flight, long glides on stiffly held wings with occasional wingbeats. When windy, soar and wheel in huge arcs. Dive into sea and swim underwater with wings. Generally oceanic; rarely seen near land. Most follow ships and fishing boats. Clumsy on ground; legs and webbed feet set well back. Generally silent over breeding grounds at night, but loud calls and clacks from ground and burrows. Lay 1 large white egg, usually deep in a burrow. Long incubation and fledging periods.

**WESTLAND PETREL** *Procellaria westlandica*

Uncommon endemic

48 cm, 1100 g. Entirely dark blackish brown. Bill (49 x 20 mm) yellowish horn with dark tip and black between the plates; legs and feet black. Like Black Petrel but larger. Often follows ships and fishing boats. **Habitat:** Breeds in the forested coastal foothills of the Paparoa Range between Barrytown and Punakaiki, West Coast. In breeding season, seen mainly off east coast from East Cape to Banks Peninsula, Cook Strait and off west coast from Fiordland to Taranaki, but ranges west to Australia. Migrates to central or eastern S Pacific, Dec–Mar. **Breeding:** May–Dec.

[Sp 33]



Flesh-footed Shearwater



WHITE-CHINNED PETREL

WESTLAND PETREL

BLACK PETREL

GREY PETREL

**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 nostrils 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.

**33. WESTLAND PETREL** *Procellaria westlandica*

Plate 10

**Other name:** Westland Black Petrel

**Size:** 48 cm, 1100 g

**Distribution:** Breed only in New Zealand, the Paparoa Range, Westland. Most nest below 200 m asl between the Punakaiki River and Lawsons Creek. During the winter breeding season, they range mainly over continental-shelf waters between Cape Egmont and Fiordland and through Cook Strait to between East Cape and Banks Peninsula, and into pelagic waters of the Tasman Sea and Pacific about and just north of the subtropical convergence. A few adults and recently fledged chicks are beach-wrecked around Cook Strait in November–January. In late summer, Westland Petrels disperse more widely, mainly to the east of New Zealand beyond the Chathams, and also regularly to both coasts of South America, where two banded subadults have been found. In summer, a few visit coastal waters of southeastern Australia.

**Population:** c. 20,000 birds, including c. 2000 breeding pairs.

**Conservation:** Protected threatened endemic. Maori and early European settlers used to harvest chicks from colonies. Commercial trawling for hoki within 200 km of the colony since the 1960s has made much extra food (fish scraps) available, and the population has more than trebled from the 3000–6000 birds in 1958; however, the population stabilised in the 1980s, and may now be declining because a few birds, mainly adult females, have been killed accidentally on tuna long-lines. The sites where Westland Petrels breed is legally protected, and feral cats are killed around the colonies.

**Breeding:** Westland Petrels are winter breeders. They return to their colonies on the steep sides of forested valleys from mid-February to mid-March to court and clean out burrows. Males make frequent visits to the burrow and often stay there during the

day, whereas females make only occasional visits. Although there is no clear pre-laying exodus, with females making occasional visits in the weeks before laying, one female with a forming egg was caught over 400 km southwest of the colony.

Eggs are laid over 3 weeks from 12 May, with a peak c. 23 May. They lay 1 white egg (81 x 56 mm) in a burrow 1–2 m long. Eggs hatch in late July after c. 64 days incubation. The chick is rarely left unattended during the first 2 weeks and is fed by each parent about every third night, but less frequently close to fledging. Chicks fledge from 5 November to 26 December at c. 125 days old. Young birds have been recorded back at the colonies at 5 years old, but minimum age recorded for first breeding is 12 years old. The oldest bird recorded lived at least 22 years.

**Behaviour:** Breed in colonies. At sea, they are often seen alone but join large mixed flocks feeding on scraps from fishing boats. At the colony, they are normally silent in the air, apart from occasional 'quack' calls, but on the ground they are noisy and produce a wide range of sounds. The two main calls are a succession of duck-like quacks, often given in duets, and males give a barrage of pulse-like notes, reminiscent of the call of a Kookaburra.

**Feeding:** Nowadays, Westland Petrels take mostly fish offal during the breeding season, but their natural diet is mainly squid, fish and planktonic crustacea, taken on the surface or from shallow dives.

**Reading:** Baker, A.J. & Coleman, J.D. 1977. *Notornis* 24: 211–231. Bartle, A.J. 1990. *Notornis* 37: 146–150. Freeman, A.N.D. 1998. *Emu* 98: 36–43. Freeman, A.N.D. & Wilson, K-J. 1997. *DoC CAS Notes* No. 160. Imber, M.J. 1976. *NZ J Mar Fresh Res* 10: 119–130. Murray, T.E. et al. 1993. *Bird Cons Int* 3: 181–210. Powlesland, R.G. 1989. *Notornis* 36: 299–310. Warham, J. 1988. *Notornis* 35: 169–183.