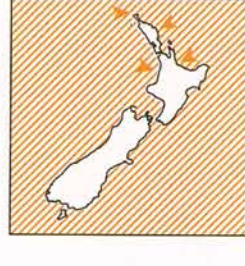


Medium to large seabirds with mostly short deep and heavily hooked bill, nostrils encased in a tube, joined at the base of the bill. Most are dark above and mainly white below. Sexes and ages alike; males slightly larger. Underwing patterns are often distinctive. In flight, long narrow wings held stiffly and appear graceful as they glide and wheel in huge arcs. Generally oceanic; rarely seen near land. Many species highly migratory. Many species give high-pitched repetitive calls over breeding grounds at night. Lay 1 large egg, usually deep in a burrow. Long incubation and fledging periods.

GREY-FACED PETREL (Oi) *Pterodroma macroptera*

Common native

41 cm, 550 g. Entire plumage blackish brown except pale grey forehead, sides of face, chin and throat. Bill stout (36 x 14 mm), black; legs and feet black. Long narrow wings. Flight strong and rapid, wheeling and swooping in big arcs. Aerial chases at dusk or after dark over breeding colonies often accompanied by 'o-hi' or 'o-hoe' calls. Many calls also from birds on ground or in burrows, especially a loud 'or-wik' and 'si-si-si'. **Habitat:** Breeds circumpolar subantarctic and southern temperate; in NZ, on many northern offshore islands and some mainland cliffs and headlands, within the triangle Cape Egmont to Three Kings Is to Gisborne. **Breeding:** Jun–Jan. [Sp 62]



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

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

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

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.

62. GREY-FACED PETREL *Pterodroma macroptera* Plate 15

Other names: Oi, Great-winged Petrel, Northern Muttonbird

Size: 41 cm, 550 g

Geographical variation: Two subspecies: *macroptera* breeds in subtropical and subantarctic islands in the Atlantic and Indian Oceans and off southwestern Australia; *gouldi* breeds around the northern North Island of New Zealand.

Distribution: Breed on Gough and Tristan da Cunha in the South Atlantic Ocean, Prince Edward, Crozet and Kerguelen Islands in the South Indian Ocean, on islands off southwestern Australia and around northern New Zealand. Colonies are scattered on mainland headlands and clifftops, and on offshore islands from the Three Kings to near New Plymouth on the west coast and to near Gisborne on the east coast. The main colonies are on the Three Kings, Mokohinau and Mercury groups, and on the Alderman, Whale (Moutohora) and White Islands, but small mainland colonies at Mt Maunganui and near New Plymouth are well known.

Grey-faced Petrels are moderately sedentary. New Zealand birds range between 30 and 48°S in the Tasman Sea and the South Pacific to about 130°W. They turn up off eastern Australia in February–March after breeding and remain common there until May. Grey-faced Petrels are commonly beach-wreached, especially in January and February when young have just fledged.

Population: c. 250,000 breeding pairs. The largest colony, with c. 95,000 pairs is on Whale Island (Moutohora).

Conservation: Protected native. Chicks are still legally harvested by Maori from colonies on privately owned islands, but this take has declined recently and so they may now be increasing. Many island populations have benefited from the recent eradication of rats, cats and rabbits. Mainland colonies are declining from predation by rats, cats, dogs, mustelids and humans, and some island populations have been ravaged by introduced predators or interference to breeding birds

by rabbits. The species remains secure, with many colonies protected on island reserves free of large mammalian predators, and continuing programmes to eradicate rabbits and rats from islands will improve breeding performance.

Breeding: Winter breeders. Adults return to New Zealand colonies in March to clean out their burrows and to court. They have a long pre-laying exodus of c. 60 days in females and c. 50 days in males. Laying is 21 June to 29 July, mostly 28 June to 9 July. Females return first from their exodus and lay 1 white egg (67 x 48 mm, 86 g) in a burrow 0.5–2 m long. Incubation is by the female for the first 0–4–14 days, but then in three long shifts of 8–16–23 days, two by the male.

Eggs hatch from mid-August to mid-September after 51–55–58 days, or after 5–14–5 days when the egg is left unattended during change-overs. The chick is continuously guarded for the first 1–1.7–3 days and then fed about every 4 nights. Chicks depart from about 7 December to late January,

with a peak at the end of December at 108–118–128 days old. Most chicks return to their natal colony and start breeding from 7 years old. The oldest Grey-faced Petrel recorded lived over 26 years.

Behaviour: At sea, they are usually seen alone or in small feeding or roosting flocks. They are noisy over their colonies and on the ground, the main flight call being 'o-hi', which gives rise to the Maori name.

Feeding: Diet is mainly squid, with some fish and crustaceans. Most prey is taken at night while sitting on the surface of the sea or dipping from the air.

In the hand: Grey-faced Petrels are all dark apart from the face and lack the prominent white patch at the base of the primaries found on similar species (Providence Petrel, and dark-phased Kermadec and Herald Petrels). Wing (295–318–330 mm) and bill (33–37–40.5 mm) measurements help to separate beach-wrecked specimens from similar species.

Reading: Harrison, M. 1992. *DoC Sci & Res Ser* No. 48. Imber, M.J. 1973. *J Anim Ecol* 42: 645–662. Imber, M.J. 1976. *Ibis* 118: 51–64. Johnstone, R.M. & Davis, L.S. 1990. *Ibis* 132: 14–19.