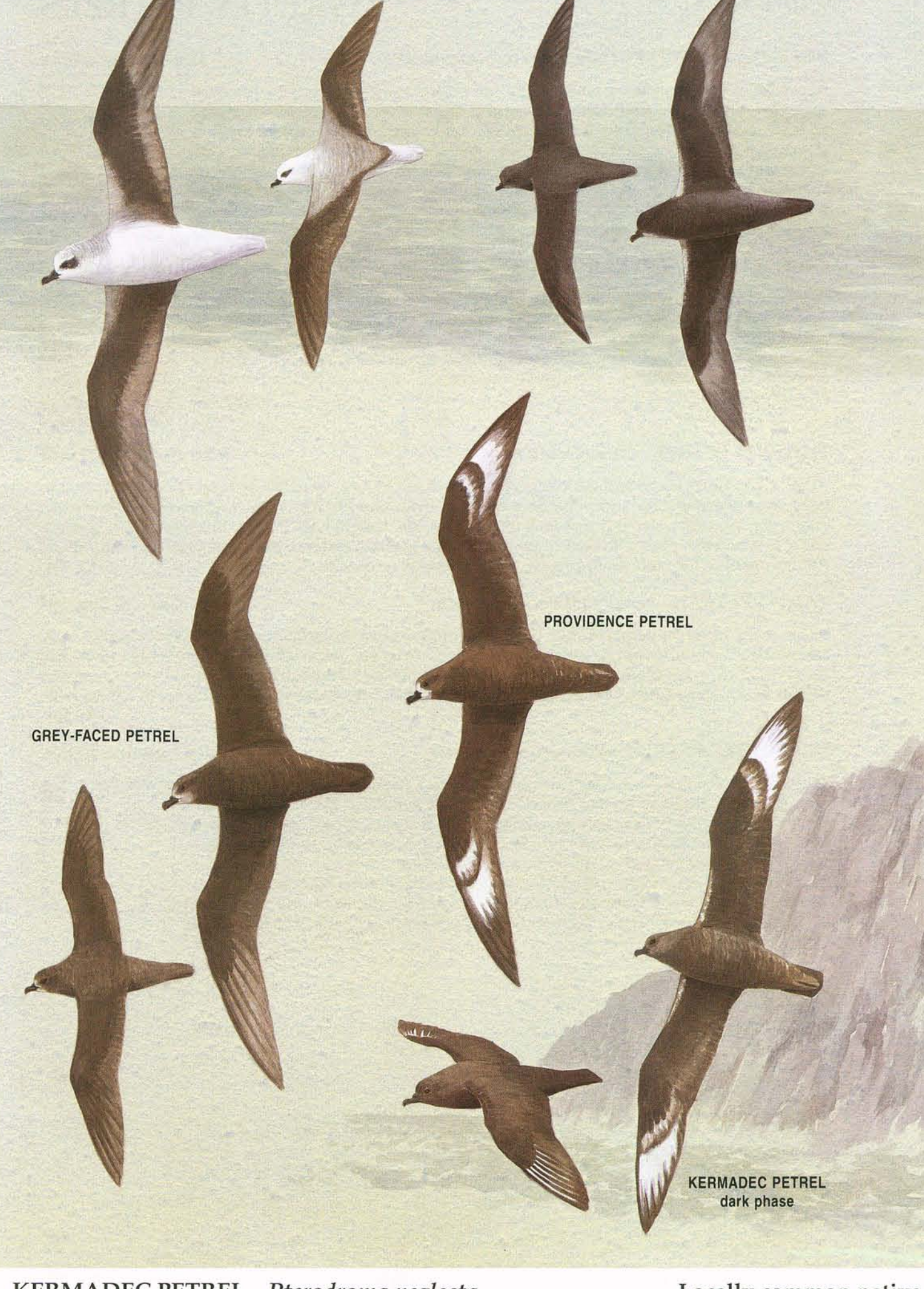
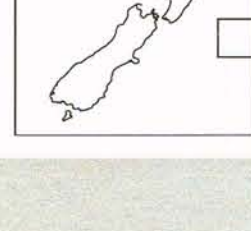


Medium to large seabirds with mostly short deep and heavily hooked bill, nostrils encased in a tube, joined at the base of the bill. Most are dark above and mainly white below. Sexes and ages alike; males slightly larger. Underwing patterns are often distinctive. In flight, long narrow wings held stiffly 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.

**KERMADEC PETREL** *Pterodroma neglecta*

Locally common native

38 cm, 500 g. Variable plumages. Dark phase is uniformly brownish black except for obvious white bases to the primaries on underwing, and white inner webs and shafts of primaries sometimes visible on upperwing. Bill (30 x 13 mm) black; feet and legs variable from black to pale flesh with dark tips to webs. See Plate 16 for other phases. **Habitat:** Breeds subtropical S Pacific, including Kermadec Is. Migrates to tropical Pacific. Vagrants occasionally reach NZ mainland. **Breeding:** Oct–May. [Sp 60]



**KERMADEC PETREL** *Pterodroma neglecta*

Locally common native

38 cm, 500 g. Variable plumages. Pale phase has head, neck and body white to pale ashy grey with flecks of grey or brown; upperwing brownish black except white inner webs and shaft of primaries sometimes visible; underwing dark greyish brown with obvious white bases to the primaries. Intermediate phase similar but has variable amounts of brown on head, upperparts, upper breast and undertail. See Plate 15 for dark phase. Bill (30 x 13 mm) black; feet and legs variable from black to pale flesh with dark tips to webs. **Habitat:** Breeds subtropical S Pacific, including Kermadec Is. Migrates to tropical Pacific. Vagrants occasionally reach NZ mainland. **Breeding:** Oct–May. [Sp 60]



**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.

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.

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.

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 periods 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

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

being chilled for six days. Incubation stunts 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 colonies 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.

The four species of *Procellaria* are large stinky 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.

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

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.

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.

**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.

Equally variable Herald Petrels (*P. heraldica*), which breed in the central Pacific and have been seen in the Tasman Sea, also have white patches at the base of the primaries but lack the white shafts to the primaries on the upperwing, and have a smaller

bill (25–26.8–28.5) than Kermadec Petrels (28–30.4–33 mm).

**Conservation:** Protected native. In 1908, c. 500,000 Kermadec Petrels were nesting on Raoul Island, but these were ravaged by

**Behaviour:** At sea, Kermadec Petrels usually feed alone. They are noisy over their colonies and on the ground, with a distinctive loud 'yuk-on-a-ooo-wuk' call, the explosive final note being given 0–3 or more times.

Norway rats (eggs) and cats (adults), together with the harvesting of birds by settlers early in the 1900s. They had virtually gone from Raoul Island by 1970 and are now just visitors from nearby breeding colonies.

**Feeding:** Diet is squid and crustaceans, taken while sitting on the surface of the sea or dipping from the air.

**Breeding:** Kermadec Petrels can breed at any time of the year. Eggs or chicks are recorded in almost all months. Most adults return to their colonies in August, and most eggs are laid October–March, but young close to fledging have been recorded in November. Most eggs are laid on the Meyer Islets in January, a couple of months after the peak used to be on Raoul Island. They lay 1 white egg (64 x 47 mm) in a shallow scrape on the surface, usually under thick vegetation. Eggs hatch after 50–52 days, and chicks depart at 110–130 days old.

**In the hand:** Kermadec Petrels have a wide range of plumages, but all have a skua-like white patch on the underwing at the base of the primaries.

**Population:** Good numbers in the eastern part of the range, but only 5000–10,000 pairs on the Kermadecs, mainly on North and South Meyer Islets (6000 pairs), <50 pairs on Macauley Island.

**Distribution:** Breed widely across the subtropical Pacific at Balls Pyramid (Lord Howe Island), Kermadec Islands, French Polynesia, Pitcairn group, Juan Fernandez Islands, San Ambrosia Island, in the South Atlantic at Ilha da Trinidad, Brazil, and in the Indian Ocean at Round Island, Mauritius. They range mainly in the subtropical Pacific, but a few stragglers reach New Zealand: six beach-wrecked on the west coast of Northland to 2004; singles off the Chathams (1975), at Cuvier Island (1976–81), Hawke's Bay (1995) and Kaikoura (1999). Some migrate to the tropical North Pacific between the Philippines, Japan and Mexico.

**Geographical variation:** Two subspecies: *neglecta* breeds widely across the western and central South Pacific, and *juana* breeds on the Juan Fernandez Islands and San Ambrosia Island in the eastern Pacific.

**Size:** 38 cm, 500 g

**60. KERMADEC PETREL** *Pterodroma neglecta*

Plates 15 and 16

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**Reading:** Merton, D.V. 1970. *Notornis* 17: 147–199.