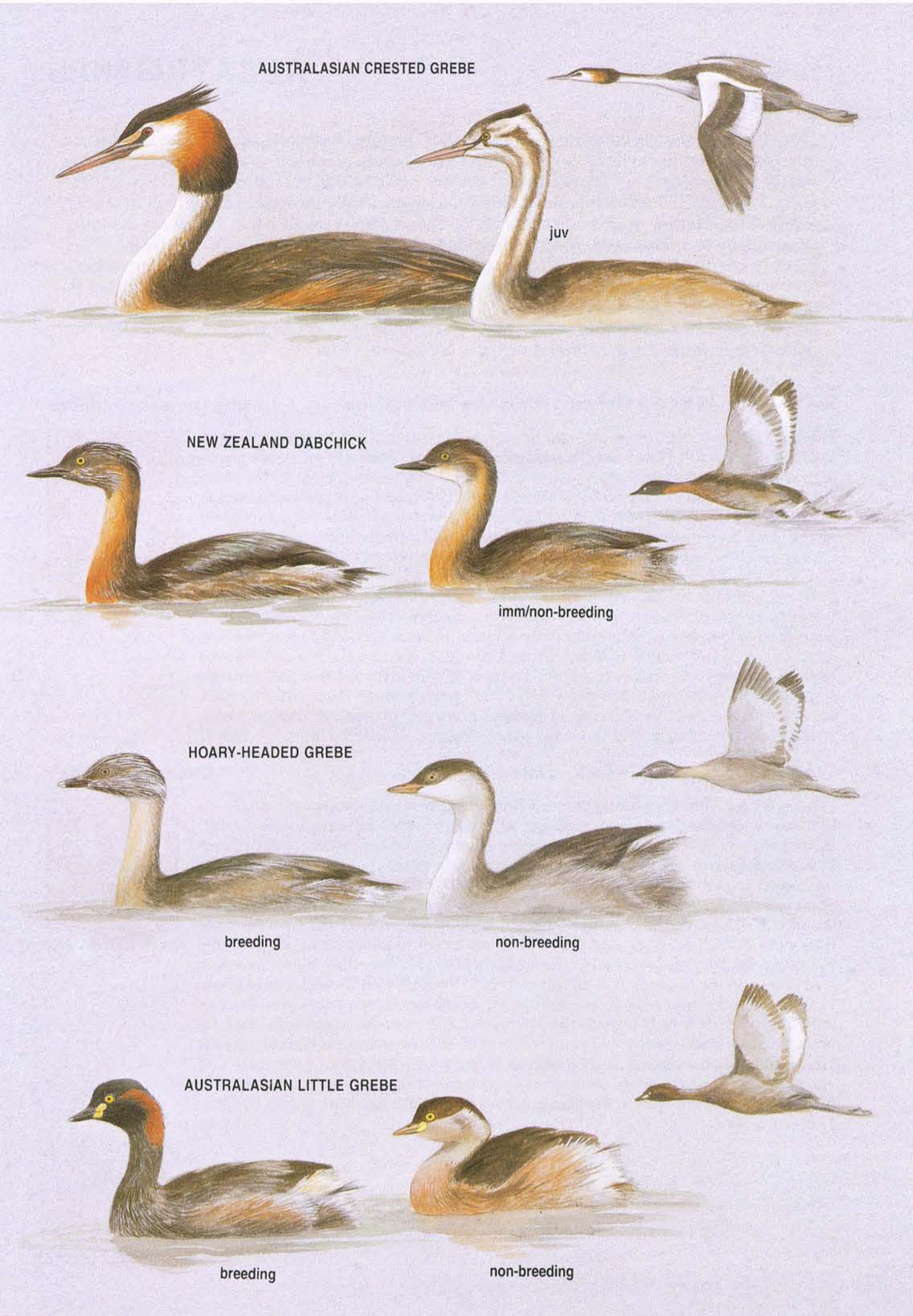
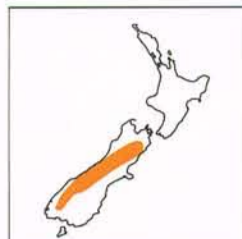


Freshwater diving birds with a distinctive silhouette – dumpy body, low to the water, with rounded rear end because of no visible tail; bill pointed; head held erect. Sexes alike. They feed underwater, propelled by special lobed feet. As their legs are set well back, they are awkward on land and seldom venture onto it. Patter across the water when disturbed or during displays, but can fly well at night. Gather in loose flocks in autumn and winter. Silent. Nests are bulky floating structures, often attached to emergent or overhanging vegetation. Lay 2–4 chalky white eggs, staining to brown; covered whenever the adult leaves the nest. Chicks are carried on an adult's back when very small. Young have striped heads, through to the age of independence.

AUSTRALASIAN CRESTED GREBE (Puteketeke) *Podiceps cristatus*

Uncommon native

50 cm, 1100 g. A large long-necked grebe with a dagger-like bill and a prominent double crest and ruff. Swims with its slender white neck held erect, head horizontal. Brilliant white foreneck and chest visible when head lowered at rest. Adult plumage similar all year. Juveniles retain stripes on head until independent. Immature lacks ruff and has only a small crest, making it look like an immature Pied Shag. In flight, long thin body and prominent white panels on front and back of dark upperwing. Dives smoothly without splash. **Habitat:** Large open lakes of inland South I. Usually in pairs but gather on some Canterbury lakes in winter. A rare vagrant to North I. **Breeding:** Sep–Feb. [Sp 4]



GREBES

Podicipedidae

20 species; 4 in New Zealand region, including 1 endemic.

An ancient group of diving birds, quite unrelated to the family Anatidae (swans, geese, ducks), grebes may have diverged early

vegetation. Their lobed toes (not webbed) propel and steer them underwater. Their tails are a vestigial tuft only, not a rudder. Their large feet are set well back, making them efficient swimmers but clumsy on land, which they avoid. Their small narrow wings are not used in swimming but are used for flight, mainly at night. In winter, many gather on large lakes or (seldom in New Zealand) in estuaries and harbours.

Sexes are alike, but males are larger than females on average and have longer bills. Fish-eating grebes have long, pointed bills, whereas invertebrate-eaters have short, stubby bills. Most, especially fish-eaters, swallow their own feathers, especially breast and flank feathers,

on from the lineage that gave rise to the penguins, petrels, pelicans and storks.

Grebes are aquatic specialists, usually living on clear, shallow freshwater lakes and ponds, particularly those with mud, clay or sand on the bottom and emergent or floating

which may help in the forming of pellets.

The nest is a mass of sodden waterweed and sticks, attached to submerged or emergent vegetation. The eggs, laid at intervals of about two days, are white but soon become stained brown. They are covered with vegetation when the bird leaves the nest. Young chicks often ride on their parents' backs. The chicks of almost all grebes have stripes on the head and neck, remnants of which remain for several months after they have become independent juveniles. After breeding, most grebes moult all their flight feathers at once and so are flightless for several weeks; presumably true of New Zealand grebes also.

4. AUSTRALASIAN CRESTED GREBE *Podiceps cristatus* Plate 2

Other names: Puteketeke, Kamana, Southern Crested Grebe, Great Crested Grebe

Size: 50 cm, 1100 g

Geographical variation: Three subspecies: *cristatus* breeds in the Palearctic, *infuscatus* in Africa, and *australis* in Australasia.

Distribution: Throughout Europe, Africa and parts of Asia to Australia and New Zealand. In New Zealand, Crested Grebes breed in the South Island only, on lowland lakes west of the Southern Alps and on subalpine and alpine lakes within and east of the main ranges, with the greatest density in inland Canterbury.

In some winters, some move to coastal lakes and estuaries; e.g. 64 gathered for the winter of 1995 on Lake Forsyth, near Lake Ellesmere. A few, perhaps vagrants from Australia, have been seen in the North Island at Lake Rotorua (1975–76 and two in 1979). Subfossil and midden records in the North Island suggest that they formerly had a wider distribution.

Population: c. 350 birds in 2004: c. 10 in Marlborough, c. 20 on the West Coast, c. 200 in Canterbury, c. 100 in Otago and c. 20 in Fiordland.

Conservation: Protected threatened native. Since 1900, Crested Grebes have disappeared from Lakes Rotoiti and Rotoroa in Nelson, except as occasional visitors. Moderately

common on inland lakes of Marlborough, such as McRae and Guyon, and up to 15 were seen in 1985–86 on Lake Rotorua, near Kaikoura. They have declined severely on the West Coast, in Fiordland and western Southland; e.g. they are absent from traditional strongholds such as Lakes Gunn and Fergus and have become very rare on Paringa, Brunner, Ianthe, Te Anau, Manapouri and Monowai. They remain stable in inland Canterbury and have occupied several artificial hydro lakes, but their low numbers and concentration on four groups of lakes (Pearson, Coleridge, Ashburton and Alexandrina) leave them vulnerable to human interference and habitat changes.

Breeding: Prefer large clear lakes of glacial origin, provided there is some aquatic vegetation for building and anchoring the nest. Both sexes build the nest, which is attached to submerged branches, often under willows in water over a metre deep. They lay 1–3–7 eggs (57 x 36 mm) in September–February, mostly December–January. Both sexes incubate for 23–26–31 days, starting when the first egg is laid. The chicks stay near the nest until all have hatched. Both adults feed the chicks and often carry them on their backs.

Behaviour: Usually breed as territorial pairs but come together in loose flocks in winter.

They are silent except when breeding.

Feeding: Diet is mainly fish and aquatic invertebrates. They feed underwater and can tolerate rough water and poor underwater visibility. Larger fish are brought to the surface for swallowing. They also swallow feathers, removed mostly from their breast and flanks

while preening, and feed chicks small fish mixed with these wetted and pulverised feathers.

Reading: O'Donnell, C.F.J. 1981. *Notornis* 28: 212–213. O'Donnell, C.F.J. 1982. *Notornis* 29: 151–156. Sagar, P.M. 1981. *Notornis* 28: 301–310. Sagar, P.M. & O'Donnell, C.F.J. 1982. *Notornis* 29: 143–149.