

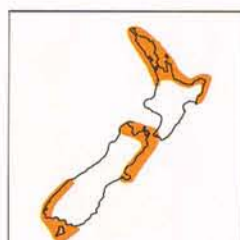
Shags are medium to large aquatic birds. Most are all black, or black above and white below. Bill long, strongly hooked at the tip. Upright posture when perched. Short legs; feet are fully webbed. Many have brightly coloured facial skin when breeding. Sexes alike. In flight, wings short and broad, and neck is extended. Swim with head held uptilted and body low in the water.

PIED SHAG (Karuhiruhi) *Phalacrocorax varius*

Locally common native

81 cm, 2 kg. Large. Glossy black above, face from above eye and all underparts white, except for black thighs. Long grey bill; bare skin buff in front of green eye, pink below bill; eye-ring blue; feet black. Immature similar but brownish above, white underparts streaked and mottled brown. **Habitat:** Coastal, ranging inland only to coastal lagoons and lakes. **Breeding:** All year.

[Sp 92]



SHAGS

Phalacrocoracidae

33 species worldwide in freshwater and marine habitats; 12 species breed in the New Zealand region, including 8 endemic species.

longest, and a web connects the inner toe with the long hind toe. In the breeding season, bare skin on the face becomes brightly coloured and contrasts with the eye and bill.

In New Zealand, all members of the Phalacrocoracidae are called shags, whereas elsewhere the term 'cormorant' is used for members of the genus *Phalacrocorax*. Foot colour varies between the three genera in New Zealand: black in the mainly freshwater *Phalacrocorax*, pink in the marine *Leucocarbo*, and yellow in the marine *Stictocarbo*.

Shags sometimes feed in flocks, but they typically roost in flocks and breed in colonies on cliffs or rocky islets, or in trees overhanging water, sometimes together with other shags. They have an elaborate series of ritualised courtship displays at or near the nest, a bulky platform made of sticks or seaweed. Their eggs have a chalky encrustation on the surface. Both sexes share incubation. The chicks are naked at hatching but soon develop down. Both parents regurgitate food for the chicks. If a predator approaches, chicks in tree nests overhanging water will jump well before they can fly, but they are adept at climbing back up to the nest.

Shags are medium to large, long-necked aquatic birds with a stiff, wedge-shaped tail, and moderately short, rounded wings, which black-footed shags hold out to dry when perched. They feed by diving from the water surface to catch fish and crustacea with their long hooked bill. They use their webbed feet to swim underwater. The outermost toe is

92. PIED SHAG *Phalacrocorax varius*

Plate 23

Other names: Karuhiruhi, Pied Cormorant
Size: 81 cm, 2 kg
Geographical variation: Two subspecies: *varius* breeds in New Zealand, and *hypoleucus* breeds in Australia.
Distribution: Breeds in coastal mainland Australia. In New Zealand, Pied Shags have a patchy breeding distribution, mainly in warmer areas on sheltered coasts, harbours and offshore islands. The main breeding areas are around the Kaipara and Hokianga Harbours, on the east coast of the North Island from Doubtless Bay to Gisborne, in the South Island from Tasman Bay through the Marlborough Sounds and south to Banks Peninsula, in Fiordland and around the east coast of Stewart Island. Colonies are on freshwater lakes at Pupuke (Auckland), Elterwater (Marlborough) and Rotorua (Kaikoura). Pied

Shags are generally sedentary and, unlike their Australian counterpart, rarely venture inland. A few birds, mainly juveniles, disperse well away from breeding areas and can turn up in coastal sites almost anywhere.
Population: Widespread and moderately common (5000–10,000 pairs), especially in the Bay of Islands, inner Hauraki Gulf, Coromandel Peninsula and Marlborough. Most nest in small colonies of 5–30 pairs, but over 50 pairs have been recorded in Whangarei Harbour, in Panmure Basin (Auckland) and near Nelson.
Conservation: Protected native. Pied Shags are sometimes illegally persecuted by fishermen who regard them as competitors for fish, and some birds are caught accidentally in fishing nets. Shags are now known to have a minimal impact on fish stocks, and few are

now shot. This may have contributed to an apparent increase in numbers of Pied Shags. **Breeding:** Nest in colonies, sometimes together with other shags, especially Black and Little Shags. Colonies are commonly in pines, pohutukawa or rata growing on cliffs and overhanging the sea, but occasionally they nest in pohutukawa, willows or silver poplars, or on navigation lights and artificial structures over estuaries or lakes. The nest is usually a large platform 0.5 m across, built of sticks and seaweed, up to 10 m above the water.
 Most colonies are active all year round, but laying peaks in July–October and January–March. They lay 2–3–4–5 pale bluish-green eggs (59 x 38 mm, 47 g) 2 days apart. Incubation lasts 25–29–33 days, but this varies within a clutch so that first eggs take c. 31 days to hatch and fourth eggs take c. 27 days. The chicks hatch over the space of a few days. Chicks first leave the nest at c. 4 weeks old,

but fledge at 47–53–60 days old. They are fed by their parents for up to 11 weeks after fledging. In Australia, a banded Pied Shag lived over 20 years.
Behaviour: Mostly feed alone but sometimes form flocks of 20+ birds where food is abundant. They often roost in small groups on logs, on rocks and in trees. Generally silent away from their colonies, but at the nest they are noisy, making a variety of harsh croaks, squeals and wheezy whistles.
Feeding: Diet is mainly fish 6–15 cm long. Flounder, mullet, perch, smelt and eels are usually taken in water less than 10 m deep. Dives usually last 20–30 seconds, depending on water depth. The longest dive recorded was of 225 seconds in 20 m deep water. Rest time between dives is 5–10 seconds.
Reading: Lalas, C. 1979. *Notornis* 26: 94–95. Millener, P.R. 1972. MSc thesis, Univ Auckland. Stonehouse, B. 1967. *Ibis* 109: 600–605. Taylor, M.J. 1987. *Notornis* 34: 41–50.