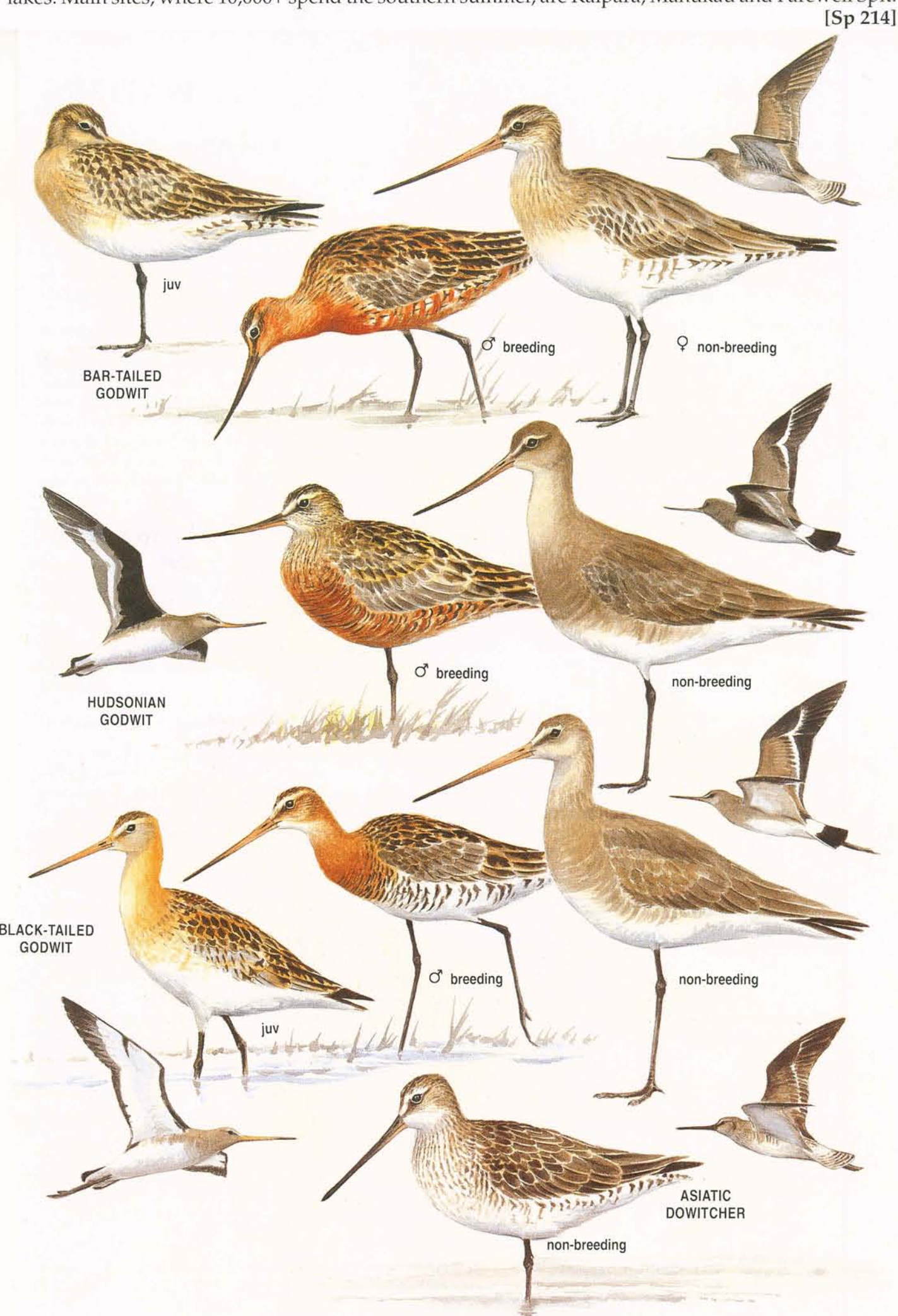


A large diverse group of birds of estuaries, coasts, riverbeds and farmland. Most are long-legged and feed in or near shallow water. Bill shape is varied; short and stubby in those (e.g. dotterels) that peck from the surface, but longer in those that feed in shallow water (e.g. stilts), or probe deeply (e.g. godwits). Flight strong and direct. Often form flocks while roosting or flying, but disperse to feed. Many species seen in NZ breed in the Arctic and arrive in September, with remnants of breeding plumage, and depart in March, often in breeding plumage. Most subadults and a few adults spend the southern winter here.

BAR-TAILED GODWIT (Kuaka) *Limosa lapponica* Abundant Arctic migrant

♂ 39 cm, 300 g; ♀ 41 cm, 350 g. Commonest migrant wader. Long (♂ 8.5 cm, ♀ 10.5 cm) *slightly upturned black bill with a pink base*. Legs and feet black. Non-breeding has head, upperparts and upperwings streaked grey-brown; lower back, rump and tail barred brown and white; underparts dirty white, washed grey on breast; underwings extensively flecked dark brown. Breeding adult, seen from February onwards, has black and buff upperparts; brick-red head, neck, breast and underparts in males; buffy red with fine barring in females. Juvenile like non-breeding but buffer and with more heavily marked upperparts, but unmarked breast. In flight, wingbar indistinct, pale rump and barred tail. Flies fast with twisting and turning, or direct in long lines or chevrons. **Habitat:** Breeds Arctic in Eurasia and Alaska. Eastern race *baueri* migrates to Australasia, especially NZ estuaries, sandy beaches and shores of coastal lakes. Main sites, where 10,000+ spend the southern summer, are Kaipara, Manukau and Farewell Spit. [Sp 214]



SNIPE, SANDPIPERS, GODWITS and CURLEWS Scolopacidae

About 79 species, of which 2 breed in New Zealand (non-migratory snipe) and 32 reach New Zealand as migrants for the northern winter.

Apart from stints (known as peeps in North America), these waders have a slender bill that is as long as or longer than the head. In curlews and godwits, the bill is sensitive and flexible at the tip, and the mandibles open during probing in soft mud or shallow water. All have long, pointed wings, rapid flight, a long neck, long legs and, for birds, a short tail. Their eyes are smaller than those of plovers and dotterels, as suits their more tactile, less visual, feeding. Gregarious when not breeding.

Their food has not been studied in detail in New Zealand. They take a variety of mudflat-burrowing crabs, small amphipod and ostracod crustaceans, polychaete worms and small gastropod and bivalve molluscs. Their diet includes insect larvae and pupae of craneflies (Tipulidae), midges (Chironomidae), beetles and flies; they may also take spiders and earthworms. They swallow grass, sedge and rush seeds, but whether by accident or design is not known for certain. The various species probe to different depths according to the length of their bill. Most of the rapid, vigorous, sewing-machine probing of medium and smaller waders is exploratory, as often is the slower, more careful probing of godwits, curlews or whimbrels.

The waders that migrate to New Zealand mostly breed in the arctic or subarctic tundra of the Northern Hemisphere and are strongly migratory. Those that breed furthest north tend to migrate furthest into the Southern Hemisphere, from the largest curlews to the smallest stints. The routes taken by the various species of wader are being elucidated by an extensive co-operative programme of banding and leg-flagging throughout the East Asian flyway. The New Zealand Wader Study

Group have caught over 4000 Arctic migrants in the Auckland area, and some of these have been marked, to enable resightings, with white plastic leg flags.

The first Arctic migrants arrive in September-October, but others trickle into the country through November. Most leave in March-April, but a variable proportion of the summer population stays behind to spend the southern winter in New Zealand; most are probably yearlings, as few adopt breeding plumage, and so the number left behind provides an indication of the success of the previous northern breeding season.

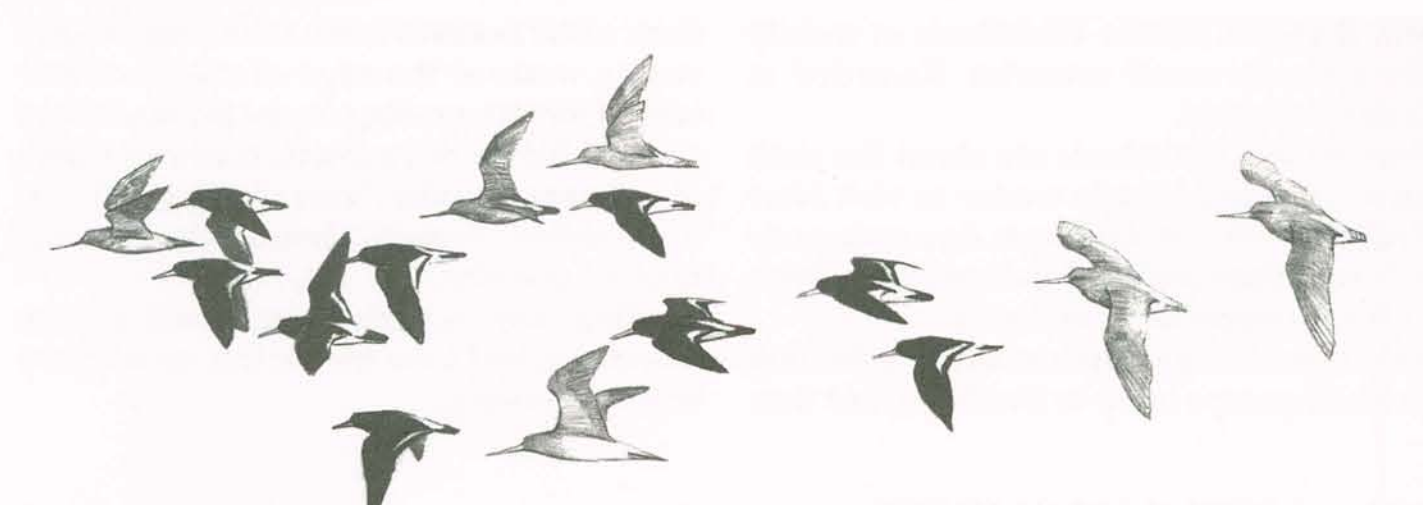
New Zealand is at the southern limit of many species, and some of the distances travelled are huge; it is possible that some of the migrants fly between New Zealand and China, Japan or the Aleutian Chain in a single flight, although most stop at least once to refuel. In order to undertake such a long journey, waders feed voraciously in the weeks before departure and often arrive late to their roosts. They lay down extensive fat deposits, their weight can increase to 50-75% above their normal non-breeding weight. On arrival, they are often exhausted and quite approachable, but quickly regain their condition. The adult Arctic migrants moult all their flight feathers during the southern summer, and so can be distinguished from juveniles, which do not moult or lose only a few feathers until the southern autumn.

The sexes are alike, but females are often noticeably larger than males. The non-breeding plumage, as is mostly seen in New Zealand, is dull, the upperparts mottled or a uniform brown and grey, the underparts paler, sometimes with streaks and spots. Before leaving and while breeding, they are brighter, many species becoming more rufous above and rufous or black below. The age of first breeding is 1-2-3 years, and many birds live to at least 15 years old.

214. BAR-TAILED GODWIT *Limosa lapponica* Plate 49

Other name: Kuaka
Size: male 39 cm, bill 85 mm, 300 g; female 41 cm, bill 105 mm, 350 g
Geographical variation: Two subspecies are currently recognised, but this is under review: *lapponica* breeds from Scandinavia east to central Siberia, and migrates to Europe, Africa and southern Asia; *baueri* breeds from the

Lena River across eastern Siberia into northern Alaska, at least as far east as Point Barrow, and migrates to southeastern Asia and Australasia. Recent studies in Australia have shown that Bar-tailed Godwits in north-western Australia have longer bills and shorter wings than those in southeastern Australia and New Zealand, and as neither



group seems to fit the published measurements of *baueri*, further subspecies may be raised.

Distribution: Breed from northern Scandinavia across northern Siberia to Alaska. They migrate mainly to estuaries and coasts of tropical and temperate regions from Europe and Africa to Australasia and southwestern Pacific islands, such as Vanuatu, New Caledonia and particularly Fiji. In New Zealand, they are found on estuaries and sandy coasts throughout, but especially on inlets and estuaries with broad intertidal mudflats; south to Stewart Island and east to Chatham Island. Over 10,000 birds visit the Kaipara and Manukau Harbours and Farewell Spit each southern summer, and flocks of 1000-10,000 birds visit other harbours in Northland, the Firth of Thames, Bay of Plenty estuaries, Tasman Bay, Avon-Heathcote Estuary, and Southland estuaries and coastal lagoons. They are a regular visitor to the Kermadecs, and a few straggle to subantarctic islands.

The New Zealand Wader Study Group has shown from banding recoveries and leg-flag sightings that some adult Bar-tailed Godwit reach New Zealand in late September or early October by flying non-stop the 11,000 km across the Pacific from their breeding grounds in western Alaska, but others, and perhaps most juveniles, travel the 3500 km longer route through eastern Asia and Australia, arriving here in October-December. At least some of the juveniles stay in Australia until moving here in their second year. Bar-tailed Godwits leave mainly in March or early April and head for the Yellow Sea and Japan, with some

stopping briefly in northern Australia or Irian Jaya. They reach their breeding grounds in western Alaska in May and early June, after another refuelling stop on the Kamchatka Peninsula of eastern Russia.

Population: Bar-tailed Godwits are the most common Arctic wader to visit New Zealand: between 85,000 and 110,000 are present each summer, of which c. 70% are in the North Island and 30% in the South Island. Each year, 8000-18,000 birds remain for the southern winter; presumably mainly youngsters, as few are in breeding plumage in winter.

Behaviour: Gregarious; they feed in loose flocks on mudflats and fly and roost in large tight flocks, often in company with Lesser Knots. Just before landing, a flock may split apart, its members side-slipping erratically; on landing they run together with an excited chattering. Their call in a flying flock is a clear, excited 'kew-kew', and a soft 'kit-kit-kit-kit' is heard from passing flocks. Roosting flocks, if uneasy, may keep up a steady conversational chatter.

Feeding: Diet is mainly polychaete worms and molluscs. They feed on tidal flats, most moving with the tideline, but birds slowly scatter as the tide falls. They make trial probes at intervals as they walk across mud or wet sand and probe, for the full length of the bill if necessary and sometimes with head under water, often walking round the bill to reach down, better to where their prey is hiding. They also dig out crabs from sandy burrows or in eelgrass beds.

Reading: Barter, M. 1989. *Stilt* 14: 43-48. Riegen, A.C. 1999. *Notornis* 46: 123-142.