



Birds New Zealand



Birds Wanganui

Wanganui Branch (Birds Wanganui)

Whanganui Summer Programme
Visit to Manawatū River Estuary



24th January 2017

Tour leaders

Peter Frost (Birds New Zealand), Whanganui

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About Birds New Zealand

“Fostering the Study, Knowledge and Enjoyment of Birds”

Birds New Zealand is the popular name for the Ornithological Society of New Zealand, a society for those interested in all aspects of wild birds that was founded in 1939. It currently has about 1200 paying members world-wide, ranging from professional ornithologists and government institutions in New Zealand and overseas, through experienced amateur observers and students at secondary and tertiary educational institutions, to newcomers wanting to increase their knowledge of birds. No special qualifications are required for admission and membership is open to anyone interested in birds. Details and application forms are available on the Society’s website at <http://www.osnz.org.nz/join-society/new-members> or from the Membership Secretary, Jill West, PO Box 33523, Barrington, Christchurch 8244, New Zealand (email: membership@osnz.org.nz).

Members are entitled to:

- Participate in all activities and meetings of the Society
- Receive all free publications (including society’s scientific journal *Notornis* and its general-interest magazine *Birds New Zealand*) and have access to the library (housed at Auckland Museum) and records of the Society
- Vote in elections to appoint Officers of the Society

Ordinary Member	NZ \$70
Full-time Student Member	NZ \$35
Family member *	NZ \$17.50
Institution/Group member	NZ \$140
Corporate Member	NZ \$350
Life Member (40 years and over)	NZ \$1,380

** A Family Member is someone living in a household with an Ordinary Member, Life Member, or a Fellow (appointed), and does not receive the Society’s publications*

There are also provisions for overseas members. Details of membership fees for overseas members can be found on the society’s website (same page address as above).

Birds Wanganui is the local branch of Birds New Zealand, but is open to anyone interested in birds and birding who live in and around Wanganui, or is visiting. Membership of the group is free (i.e. you do not have to be a member of Birds New Zealand, although we hope you will join). Members share information on a regular basis. Evening meetings (talks, slide shows) are held on the last Monday of each month at the Wanganui Art Society building in Trafalgar Close, accessed via Trafalgar Place, off Ridgway Street, between Wanganui Motors and Holdaways Brake & Clutch. Field trips are arranged periodically, often in association with the Wanganui Museum Botanical Group. For further details contact Peter Frost 06 343 1638 or 021 103 7730 (email: birds.wanganui@xtra.co.nz).

The Manawatū River Estuary

This estuary lies at the mouth of the Manawatū River, alongside the township of Foxton Beach. It is the largest and most important estuary in the southern part of the North Island, providing a refuge for thousands of migratory wading birds, both from the northern hemisphere, during the southern summer, and the South Island, during the southern winter (Figure 1). It is one of six wetlands in New Zealand designated under the Convention on Wetlands of International Importance (more commonly known as the Ramsar Convention).



Figure 1. The Manawatu Estuary is an important wintering ground for waders such as these **bar-tailed godwits**, migrants from the northern hemisphere that nest in eastern Russia and Alaska. It is also important for South Island waterbirds such as the **royal spoonbill** (up to 50% of the national population) and the **wrybill**, an endemic New Zealand wader that is vulnerable because of predation while breeding, coupled with ongoing degradation of its breeding habitat on the braided rivers of the South Island.

The Manawatū river drains a catchment area of 5,944 km², more than half of which lies east of the Ruahine Range. Instead of flowing eastwards to the coast south of Hawkes Bay, the Manawatū uniquely cuts back westwards across the Ruahine Range through the Manawatū Gorge, and then on to the sea at Foxton Beach. The river appears to pre-date the rise of the relatively young (~1–2 million-year-old) Ruahine Range, the drainage being superimposed on the gradually rising land and maintained by the river eroding the bedrock faster than the land is being forced upwards.

Much of the catchment has been greatly modified by human activities, principally through the transformation of land cover from one that was mostly forested to the more open pastures, cultivated lands, and plantations that now dominate the landscape. Erosion rates, as a result of these modifications, have undoubtedly risen, increasing the flow of sediment to the estuary and hastening the infilling process. The lower Manawatū has the reputation of being one of the rivers with the lowest median annual water clarity measures in the country (0.5 m), reflecting the high sediment load that it carries at times.

Other impacts arise from increased nutrient run-off from farmland and urban areas, together with industrial effluent, resulting in higher nutrient levels in the river and increased algal growth. Dissolved reactive phosphorus and soluble inorganic nitrogen levels are particularly high in the lower Manawatū catchment (<http://www.manawaturiver.co.nz/assets/Uploads/State-and-Trends-of-Water-Quality-in-the-Manawatu-catchment.pdf>). The effects of various engineering works such as roads, bridges, channelling, stabilized embankments and sundry other flood-control measures, together with increased water abstraction for agriculture and industry, also affect the river. Despite this, the estuary still functions largely naturally and retains many of its essential features, and efforts are being made through the Manawatū River Leaders Accord to address the many problems of poor water quality along the whole river (see <http://www.manawaturiver.co.nz/>).

Why are estuaries important?

Estuaries are formed at the mouths of rivers where they open into the sea. They are characterised by the throughflow of freshwater and sediments eroded from the land and river courses upstream, and by a twice-daily influx of seawater and marine sand on the rising tides. This mixing of freshwater and seawater produces a salinity gradient from the river mouth (most saline) upstream to the limits of the tidal reach (least saline; 20 km upstream in the case of the Manawatū). The transport of sediment into and out of the estuary with the river and tidal flows creates a complex patchwork of sandbanks and mudflats that provide a variety of habitats for animals and plants. The finest sediments are generally found towards the fringes of the estuary, and in creeks and backwaters, where the water current is slow moving. Conversely, the main channel, river mouth, and other areas where the water flows fastest, are filled with sand and gravel, with the finer material being suspended and flowing out to sea.

Estuaries are usually highly productive, being sustained by nutrients and organic matter brought in both on the tides and through river flow from upstream, and supplemented by that produced by plants growing in salt marshes and along the estuarine fringe. As a result, estuaries are important habitats for organisms such as cockles, snails, bloodworms, small crustaceans, and other invertebrates that feed by filtering organic matter from the water and sediments, or those such as crabs that scavenge material from the surface. These in turn provide food for wading birds and fish. Estuaries are particularly important as nursery areas for fish. The Manawatū is probably no exception, as can be seen by the number of whitebaiters who operate in the estuary during the whitebait season, though the importance of the estuary as a fish-nursery site has still to be assessed.

Estuaries are also favoured by people more generally, being places next to which to settle; for hunting and fishing; and for boating (including jet skiing) and other forms of recreation (e.g. canoeing, kayaking, kite surfing). One of the interests in designating the Manawatu estuary as a wetland of international importance was to see how best to manage this multi-use natural resource. Is it possible to reconcile the many different demands for access to and use of the estuary without compromising its ecological integrity? If so, how could this best be achieved: by zoning; by specifying periods for particular uses; by limiting the nature and extent of use without excluding any completely; or by some other means? What kinds of co-management arrangements will work best? Can any arrangement be sustained and even strengthened over time?

What is the Ramsar Convention?

The Ramsar Convention, or to give it its official title, *The Convention on Wetlands of International Importance especially as Waterfowl Habitat*, is an intergovernmental treaty that provides a framework for national action and international cooperation on the conservation and wise use of the world's wetlands and their resources. The initial focus of the Convention, drawn up and signed in Ramsar, Iran, in 1971, was to protect waterfowl and waterfowl habitat, but its scope has since broadened to include all facets of wetland structure, functioning, and use. It is one of the oldest of the international environmental treaties.

At present, 158 national governments are Contracting Parties to the Convention. These have designated 1,828 wetlands, covering 169 million ha, as being internationally important. New Zealand acceded to the Convention on 13 August 1976, the 13th nation to do so. Six New Zealand wetlands, totalling 39,068 ha, are currently designated as sites of international importance.

The Manawatū river mouth and estuary is the smallest (~200 ha) and most recently listed of these Ramsar sites in New Zealand, having been designated on 25th July 2005. The others are Waituna Lagoon (Southland, ~3,556 ha), Farewell Spit (Tasman, 11,388 ha), Whangamarino (~5,923 ha), Kopuatai Peat Dome (10,201 ha), and the Firth of Thames (~7,800 ha), all in Waikato.

Why is the Manawatū Estuary designated as a ‘Wetland of International Importance?’

The Ramsar Convention provides nine criteria for deciding whether a wetland should be considered one of international importance.

1. Contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
2. Supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
3. Supports populations of plants and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
4. Supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.
5. Regularly supports 20,000 or more waterbirds.
6. Regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.
7. Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
8. Is an important source of food for fishes, or a spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.
9. Regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

The Manawatū Estuary qualifies on six of these criteria (numbers 1-4, 6, and 8), but particularly as a wintering area for migratory birds.

Birds of the Manawatū River Estuary

A total of 100 bird species have been recorded on or around the Manawatū River Estuary, 59 of which are resident or visit the estuary regularly. The rest are rare visitors or vagrants. Some of the more prominent bird species that occur, and which you might see during the excursion, are given in Table 1. You can download a full list at <http://ebird.org/ebird/newzealand/printableList?regionCode=L521287&yr=all&m=> (yes, that is correct, the address ends with a ‘=’). Some of these species are illustrated on the next two pages. These and other species regularly attract numbers of birdwatchers and other nature lovers to the area (Figure 2).

Eleven of the species recorded from the estuary are listed by the Department of Conservation as being ‘threatened’, and another six as ‘at risk: declining’. These included the **grey duck**, **black-billed gull** and **white heron**, all classed among the threatened species as ‘nationally critical’. The salt marshes adjacent to the estuary are important habitat for the secretive and threatened **Australasian bittern** (‘nationally endangered’) and for the **fernbird**, a species endemic to New Zealand (‘at risk: declining’: Figure 3). The estuary is a vital wintering ground for another endemic, the **wrybill** (‘threatened: nationally vulnerable’), which nests on the braided rivers of the South Island, but winters on several estuaries in the North Island.

Centrefold (overleaf): Photographs of some of the species that you are likely to see on the excursion



White-faced heron (Matuku-moana)
Ardea novaehollandiae



Royal spoonbill (Kotuku-ngutupapa)
Platalea regia



Red-billed gull (Tarapunga or Akiaki)
Larus novaehollandiae



Black-billed gull (Tarapunga)
Larus bulleri



Black-backed gull (Karoro)
Larus dominicanus



Caspian tern (Taranui)
Sterna caspia



Bar-tailed godwit (Kuaka)
Limosa lapponica



Red or lesser knot (Huahou)
Calidris canutus



Pacific golden plover
Pluvialis dominica



Wrybill (Ngutuparore)
Anarhynchus frontalis



Turnstone
Arenaria interpres



Pied stilt (Poaka)
Himantopus himantopus



Pied oystercatcher (Torea)
Haematopus ostralegus



Variable oystercatcher (Toreapango)
Haematopus unicolor



Figure 2. The estuary is popular with birdwatchers and nature lovers generally, as well as with those engaged in fishing, boating, and off-road 4WD motoring. A major challenge in managing the area is to reconcile and make provision for these activities while retaining the area's core natural values.



Figure 3. The salt-marsh ribbonwood plant community in the upper reaches of the estuary supports the largest southern population of the North Island race of the fernbird (matata), *Bowdleria punctata vealeae*.

One of the key reasons for designating the Manawatū Estuary as a wetland of international importance under the Convention on International Wetlands is because the estuary supports more than 1% of the world's population of **wrybill** at various stages of its annual cycle, mainly during its migration to and from its southern breeding grounds to its wintering area on the Firth of Thames and the Manukau and Kaipara estuaries. The **wrybill** is unique among waders in having a bill that is twisted to the right, an adaptation that allows the birds to probe under pebbles in the braided streams along which they breed.

Other species of conservation concern that regularly use the estuary are the **black-fronted tern** ('nationally endangered'); **red knot**, **Caspian tern**, **banded dotterel** and **red-billed gull** (all 'nationally vulnerable'); and the **white-fronted tern** and **bar-tailed godwit** (both 'at risk: declining'). One other threatened species that has occurred occasionally on the estuary is the **shore plover**, a nationally critical species now confined, as a naturally breeding species, to the Chatham Islands (where the population is only about 70 pairs). Birds from a captive breeding programme have been released onto various islands around New Zealand, including Mana Island. The shore plovers recorded on the estuary, the last being in mid-March 2013, are likely to have come from Mana I.

Migrant Waders

The Manawatū Estuary supports two groups of migrant waders. One group comprises those species that breed in the South Island during the southern spring and summer, and then winter on estuaries of the North Island, principally the Firth of Thames, adjacent to the Coromandel Peninsular, and the Manukau and Kaipara estuaries. These include **wrybill**, **pied oystercatcher**, **pied stilt**, and the **banded dotterel** breeding on the Canterbury plains and in the Marlborough region. Some birds of these species also winter on the Manawatū Estuary but its main importance is as a staging area for the birds on their migration. In this regard, the Manawatū is particularly important to the **wrybill**, as it supports more than 1% of the world population of this species on its migration to and from its wintering grounds. Up to 70 **wrybill** spend their winter on the estuary.

The second group of migrants are those that breed during the northern summer mainly in Siberia and western Alaska, and winter in Australasia, including New Zealand. The most numerous of these are the **bar-tailed godwit** (~85,000 spend the northern winter in New Zealand, ~70% in the North Island), the **red** or **lesser knot** (~45,000 birds), **turnstone** (~4,000 birds), and **Pacific golden plover** (300-1,200 birds). All of them occur on the Manawatū estuary in varying numbers.

Extensive programmes of marking birds with combinations of individually numbered metal bands, coloured plastic leg bands and flags, and, more recently, satellite-tracked transmitters, carried out by scientists in New Zealand, Australia, East Asia, and North America, are giving us a clearer picture of the migration patterns of these birds: where they come from and where they fly to; where they stop over on the way, and for how long; and the duration of their flights, especially those over the Pacific Ocean. This research is providing important insights into the physiological capacity of these birds to fly exceptionally long distances non-stop, and what areas need to be conserved along the way to sustain this remarkable migration.

In early 2007, satellite-tracked transmitters were implanted in 16 female **bar-tailed godwits**, eight at Farewell Spit and eight at Miranda on the Firth of Thames. Six birds were successfully tracked to their breeding grounds in Alaska and far-eastern Russia, while one bird remained in New Zealand (at Farewell Spit) during the southern winter and into the following spring and summer. One female, 'E7', was tracked all the way from the Piako R mouth near Miranda on the Firth of Thames, New Zealand, to her breeding ground in Alaska (Figure 4).

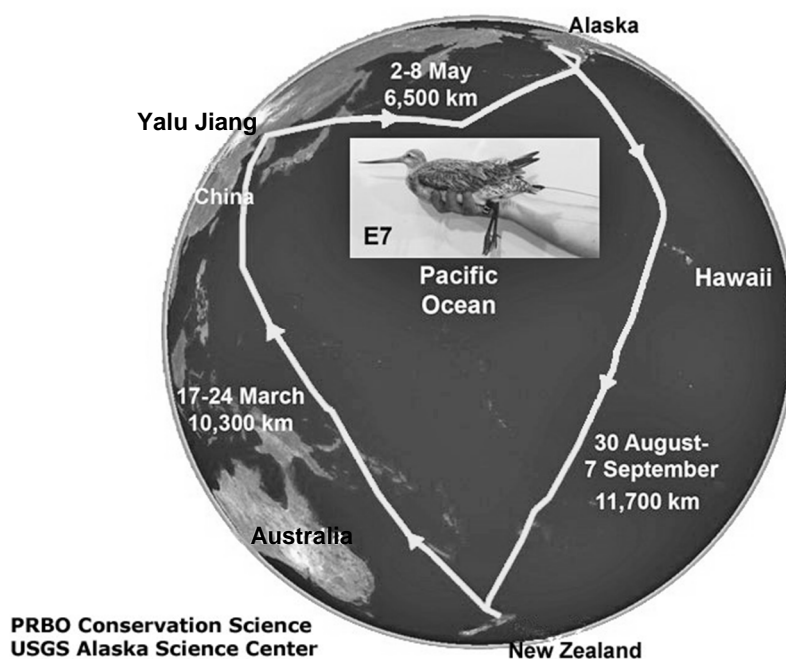


Figure 4. Migration route of female Bar-tailed Godwit E7 from New Zealand to Alaska via Yalu Jiang on the border between North Korea and China (March-May 2007), and back across the Pacific (August-September 2007).

E7 left Piako on 17 March 2007, flying almost 10,300 km non-stop across the Pacific Ocean in just over 7 days to Yalu Jiang, a nature reserve near the city of Dandong in north-eastern China. From another study, we know that female bar-tailed godwits weigh on average 419 g just prior to leaving New Zealand, whereas birds arriving at stop-over sites such as Yalu Jiang average 249 g. This means that the birds burn up about 170 g of fat or 40% of their initial body mass *en route*.

E7 stayed at Yalu Jiang for just over 5 weeks, from the last week of March to beginning of May, no doubt recouping her energy reserves. In early May, she set off on a 6,300 km, 5- to 6-day trip over the northern Pacific Ocean to Alaska, eventually ending up in mid-May at Manokinak, about 600 km north of Port Heiden in Alaska. Here she stayed for about two months, probably nesting. In mid-July, she headed south to Cape Avinof and the Kuskokwim Delta in Alaska, a major feeding area for godwits and other waders, where the birds fatten up before migration.

She left Kuskokwim on 30 August, flying south over the Alaskan Peninsula and out over the Pacific, towards Hawaii. On 1 September 2007, about 600 km north of the island of Kauai, Hawaii, she turned SW and headed to Fiji, which she overflew, arriving off North Cape, New Zealand, on 6th September. There she turned south and flew on to Piako on the Miranda Estuary, arriving on 7th September. In crossing the Pacific Ocean, she had flown almost 11,700 km non-stop in 8½ days at an average speed of 57 kph. In all, her migration route covered about 29,100 km (not counting the flights around her breeding ground).

The important thing is not just that E7 did all this, but that she confirmed that it can be done, as tens of thousands of godwits do each year, migrating to and from their breeding grounds in eastern Siberia and Alaska, and New Zealand (and Australia). It is also fortuitous that the transmitter lasted this long, as it was expected to last only long enough to track the bird from New Zealand to its breeding ground. Transmitters on several other birds lasted almost as long. Two birds were tracked on the same return route but they stopped short of New Zealand, one in New Caledonia, the other in Papua New Guinea. A fourth godwit was tracked from Alaska to Pavuvu Island in the Solomons before its transmitter went off the air. In early 2008, a further nine birds were fitted with transmitters. The results show that the males follow the same route as the females.

This research is important for several reasons. It is helping us identify the intermediate staging areas that the birds use on their long journeys to and from their breeding areas (e.g. Yalu Jaing, Kuskoswim Delta). The birds need these areas to replenish their energy stores so that they can complete their journey back to their breeding grounds. The energy, protein, and nutrients stores carried to the breeding grounds may also be important in supporting the physiological changes that the birds undergo in preparation for breeding. Given the short breeding season in the Arctic, any delays could compromise the chance of successful breeding.

Coordinated international action is required to ensure that these staging areas, as well as the birds' main wintering grounds and nesting areas, are fully protected. This is an important aim of the Ramsar Convention. Unfortunately, several of these staging areas are currently threatened by industrial expansion onto reclaimed tidal land and other coastal developments such as aquaculture. These developments are changing tidal regimes, causing disturbance, and creating pollution.

Birds displaced by such developments do not easily re-establish themselves elsewhere or, if they do, they simply increase the pressure on local food sources because such areas already support their own populations of migratory and resident shorebirds. One prominent example of this is the so-called 'redevelopment' of the 40,000 ha Saemangeum coastal wetland in Korea, one of the main shorebird staging areas in East Asia. This has involved constructing a 33-km long sea wall to 'reclaim' 400 km² on which are being built factories, water treatment plants, golf courses, and supporting infrastructure. An even bigger and more threatening development is taking place in Bohai Bay, China. This is the main staging site for red (lesser) knots on their way north to their summer breeding grounds.

The impacts of these developments are already emerging, with lower numbers of migratory shorebirds reaching Australia and New Zealand, including the Manawatu estuary. Effective conservation of these species requires protecting not only their breeding and wintering grounds but these intermediate staging areas as well.

Table 1. A list of the more common birds found on and around the Manawatū estuary.

Black shag	<i>Phalacrocorax carbo</i>	Black backed gull	<i>Larus dominicanus</i>
Pied shag	<i>Phalacrocorax varius</i>	Red-billed gull	<i>Larus scopulinus</i>
Little shag	<i>Phalacrocorax melanoleucus</i>	Black-billed gull	<i>Larus bulleri</i>
Little black shag	<i>Phalacrocorax sulcirostris</i>	Caspian tern	<i>Sterna caspia</i>
Black swan	<i>Cygnus atratus</i>	White-fronted tern	<i>Sterna striata</i>
Paradise duck	<i>Tadorna variegata</i>	Pied stilt	<i>Himantopus himantopus</i>
Mallard duck	<i>Anas platyrhynchos</i>	Sacred kingfisher	<i>Halcyon sancta</i>
Grey duck	<i>Anas superciliosa</i>	Skylark	<i>Alauda arvensis</i>
Grey teal	<i>Anas gracilis</i>	Welcome swallow	<i>Hirundo tahitica</i>
White-faced heron	<i>Ardea novaehollandiae</i>	New Zealand pipit	<i>Anthus novaeseelandiae</i>
Cattle egret	<i>Bubulcus ibis</i>	Dunnock	<i>Prunella modularis</i>
Royal spoonbill	<i>Platalea regia</i>	Blackbird	<i>Turdus merula</i>
Australasian bittern	<i>Botaurus poiciloptilus</i>	Song thrush	<i>Turdus philomelus</i>
Australasian harrier	<i>Circus approximans</i>	Fernbird	<i>Bowdleria punctata</i>
Pied oystercatcher	<i>Haematopus ostralegus</i>	Fantail	<i>Rhipidura fulginosa</i>
Variable oystercatcher	<i>Haematopus unicolor</i>	Silvereeye	<i>Zosterops lateralis</i>
Spur-winged plover	<i>Vanellus miles</i>	Tui	<i>Prosthemadera novaeseelandiae</i>
Pukeko	<i>Porphyrio porphyrio</i>	Yellowhammer	<i>Emberiza citrinella</i>
Banded dotterel	<i>Charadrius bicinctus</i>	Chaffinch	<i>Fringilla coelabs</i>
Golden plover	<i>Pluvialis fulva</i>	Greenfinch	<i>Carduelis chloris</i>
Wrybill	<i>Anarchynchus frontalis</i>	Goldfinch	<i>Carduelis carduelis</i>
Bar-tailed godwit	<i>Limosa lapponica</i>	House sparrow	<i>Passer domesticus</i>
Knot	<i>Calidris canutus</i>	Starling	<i>Sturnus vulgaris</i>
Turnstone	<i>Arenaria interpres</i>	Magpie	<i>Gymnorhina tibicen</i>



The Manawatu Estuary Trust

The Manawatu Estuary Trust was established as a charitable trust in 2001 by people in the region. The Trust is dedicated to the sustainable management of the estuary, with the aim of conserving it for its biodiversity, educational and eco-regional values. Its members include individuals, wildlife tourism groups, schools, societies and other public organisations. Guided tours, talks to groups, and class visits by schoolchildren, are handled currently by volunteers, but the Trust is working towards building a wetland information centre that will function professionally as a destination for eco-tourists and local visitors. Anyone can be a member on application and payment of an annual membership fee (\$20 for an individual, family, or organisation). Membership forms are available from Information Centres in the region, or from the Manawatu Estuary Trust, P.O. Box 11, Foxton Beach. As a charitable organisation, the Trust can accept donations, which go towards helping the Trust realise its vision of having an educational Wetland Centre at the estuary.

Further information can be obtained from Elizabeth Parlato (Secretary), email manawatu.estuary@gmail.com, or go to <http://www.metrust.org.nz/>

Photo credits

Peter Frost: frontpiece; birdwatchers on the Manawatu; white-faced heron; royal spoonbill; red-billed gull; Caspian tern; wrybill; E7 migration (from information given at http://alaska.usgs.gov/science/biology/shorebirds/barg_updates.html)

Paul Gibson: bar-tailed godwit flock; fernbird; black-billed gull; black-backed gull; bar-tailed godwit; red knot; banded dotterel; pied stilt; pied oystercatcher; variable oystercatcher

Scott Streit (<http://www.bird-friends.com/>): ruddy turnstone

C.V. Vick (aka **nuclearbunny**): Pacific golden plover (http://lh6.ggpht.com/_13vPqj1_kD8/Rl8uUZntKgl/AAAAAAAAAHU/S1W5g3YZZcg/s640/Pluvialis%20dominica.jpg)



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