

Turanga Estuary, Whitford — 6 on 22/6/58, among which was perhaps the reddest specimen I have ever seen; the other five were very pale, not showing a trace of pink.

Opoutere, east coast of Coromandel — 12 during June 1967 (per Helen Waters).

Kaituna riverbed, Maketu — 5 on 4/6/66; 8 on 20/5/67 (per R. W. Jackson and H. Lyall).

Red-breasted Dotterels feed mainly along the upper tidal levels of the foreshore where it is sandy or stony, avoiding the soft sticky mud such as commonly occurs near mangroves. After rain and in windy weather they will also feed in short pastures, especially where there are shallow puddles or drainage runnels. Not only moulting adults but also pale juveniles are content to loaf for long hours in dried out seaside paddocks; and may forage for insects there. By mid-winter the flocks are breaking up; and many pairs have taken up territories before the end of July. Later flocks are likely to be composed of immature non-breeders, presumably yearlings; such, for example, as nine, all pale birds, present in Kidd's marsh paddock on 19/8/66; but when fifteen or more were feeding in a bay at Port Waikato on 24/8/60, most were showing some colour. Early breeders are now known to lay their first eggs before the end of August.

The Red-breasted Dotterel is a unique species. Because of its rarity and with a view to its conservation, its numbers should be assessed and its ecology studied without delay. It is probably most plentiful to the north of the area covered in this preliminary survey; but the fine beaches of Northland are fast being "developed." In its favour we know that it is adaptable within limits and persistent; and it appears to be long-lived.



CENSUS RECORDS OF PACIFIC GOLDEN PLOVER FOR FIRTH OF THAMES AND MANUKAU HARBOUR

By H. R. McKENZIE

The Pacific Golden Plover (*Pluvialis dominica fulva*) is the fourth most numerous of the Arctic migratory waders coming to New Zealand for our summer. From eastern Asia and Alaska they become widely spread through Melanesia, Polynesia and Hawaii to New Zealand and to Australia.

The census counts of this plover are not so rewarding as those of the Godwit and Knot. Besides being in much smaller numbers they are irregular in their habits. A flock may be found on beach or mudflat one day and inland on short pasture or ploughed ground the next. Even when feeding on the tideflats they will often not use the high-tide roosts of other waders, but will repair to inland resting places up to a mile or more from the sea. Much of their feeding is done inland so they cannot be relied upon to come to the tideflats for every low tide. The seasonal timing of Census counts is important, because when they first arrive from overseas they tend to scatter and are often found in singles or very small flocks, whereas later they gather into larger localised flocks, as noted by Sibson (N.Z.B.N. 2, 6-7).

In the Firth of Thames at high tide a flock can easily be missed on a ploughed paddock some distance inland, the paddock itself not being visible because of the lack of any eminence from which to overlook the extensive plains. In the Manukau it is exasperating to see parties flying inland to some favourite spot which diligent search so far has not revealed. Because of these irregular habits the Golden Plover is not one of the best subjects for census work, so notes taken at other times ("Stab" counts) are used more freely than would be necessary with some other species.

Firth of Thames Summer Counts

Observations by R. B. Sibson, H.R.McK. and others began in the spring of 1941. From 1943 to 1951 small numbers, up to 35, were found but not every year.

The Census records, from 1951 to 1966 inclusive, are given on the chart. The dates and figures in parenthesis are stab counts of occurrences other than censuses, some being gap-filling where no census has been taken and some larger than the census counts of the same season. The flock of 210 counted on 10/1/65 was the biggest recorded for New Zealand. Other counts taken during the period of the censuses have not been used as they are not required for the purpose of this account.

Firth of Thames Winter Counts

Not yet seen in winter.

Firth of Thames Habitat

Although the upper part of the chart is not very satisfactory these observations would indicate that this bird has increased in the Firth of Thames coastal plains belt. Its present habitat there was once a vast swamp where it could not feed or rest. The mudflats alone would not satisfy it. Farm development has provided the ploughed paddocks beloved of the species and allowed the population to build up. Buller, 2nd Ed., 1888, states that flocks of up to 100 were to be seen in favoured places so it would seem that it has perhaps increased and spread more widely since the time of which he wrote. In Clevedon it was not known to occur when G. C. and H. S. Munro were collecting in the eighteen eighties, although the habitat was eminently suitable, with large areas of tidelflat and great stretches of ground ploughed for growing oats. Now it is a regular summer visitor in small numbers. On the other hand a false impression may be gained, because of the former lack of observers in much of the country which is now watched.

Manukau Harbour Summer Counts

Prior to census-taking, the records for Manukau Harbour were based on observations made mainly at Puketutu and Karaka. In 1939-40 flocks of up to 30 were noted, but one of 130 was recorded by P. C. Bull. From 1940 to 1950 flocks were studied more frequently. Counts ranged up to 28 on 23/3/41 near Puketutu; 35 in January 1946 and 49 on 5/3/50 at Karaka. Buller (2nd ed. 1888) mentions that several examples had been obtained in the Manukau Harbour. Skins in the Auckland War Memorial Museum are: Two, "Manukau Harbour" 1881; one, "Auckland District" 1934; two, "Manukau Harbour" 1936. Localities favoured about Manukau have been, or are still, Puketutu, Ihumatao, the Mangere Airport and the Karaka coast. A small flock on a farm at Te Atatu, at the upper end of the Waitemata

Harbour, may have had some relationship with the Manukau flocks. It is most likely that the Manukau area was one of the earliest habitats. The Golden Plover records outside the census period will be better placed if used in a paper covering all records for New Zealand. For the census period 1951 to 1966 the Manukau counts show more comprehensive results than do those for Firth of Thames.

Manukau Harbour Winter Counts

Those shown on the chart may not all be winter birds. The one on 30/7/61 was in winter garb so had most likely wintered here but could have been a stray bird from one of the Pacific islands arriving as a straggler after having failed to go north for the breeding season. One on 5/8/61 was in the full breeding dress of a female or more than half way for a male. It was not the bird of 30/7/61. Although "stay-over" migratory birds will often assume partial breeding colour this one would seem to be a very early migrant in fading plumage. It is perhaps more likely that the state of plumage indicated an aberrant bird. The bird of 26/4/63 was a lame female in breeding plumage. It could still have departed overseas even though it would be a late date for it to do so. The bird of 1/8/65 was quite pale so should have been in the "stay-over" category. Prior to the Census period R. B. Sibson recorded three on 17/4/44 (N.Z.B.N. 2, 6) which were judged to be immature and so might be staying on. Another record by the writer is of two birds on 2/6/47. These would probably be over-wintering. All of these are Manukau observations.

Manukau Harbour Habitat

The principal habitat, at Mr. E. D. Kidd's farm, Karaka, is much easier to approach than the Waitakaruru district of the Firth of Thames. When these plovers are present a car can usually be driven over the grass to an area of semi-salt flat where the growth is always very short. Although they are wary they are so prominent that they can be counted from a distance. At times they have frequented farm land not far away but they do not stay long in any one locality. It is more or less routine when the tide is rising to find them on sand and flat rock on the front of the Urquhart properties. When pushed off there by the water they fly south-west, sometimes to Bell's (formerly Higham's) stop-banked paddocks, but mostly to Kidd's, just inshore from the Karaka shellbank. From there they often go off south overland until lost to sight. The habitat at Puketutu, Mangere, has been destroyed. The other Manukau resorts are used rather spasmodically.

The Pattern of Arrival and Departure for Manukau

The pattern of arrival and departure for this locality is rather well illustrated in observations for the years 1963-64, 1965-66 and 1966-67. These read:—

1963-64			1965-66			1966-67		
Oct.	4	16	Sept.	12	1 male in full	Sept	17	5
	6	19			plumage	Oct.	16	33
	19	40		14	2 Not the	Dec.	11	58
Jan.	31	70			above	Jan.	27	60
Mar.	28	60		27	65	Mar.	27	60
Apr.	11	15	Dec.	12	95 Census	Apr.	7	1 pale, one
	14	1	Apr.	7	16			leg

The Census results do not take any account of high country, so do not help to check the rather vague reports of occurrences over the years in New Zealand. In Hawaii the species occurs regularly from sea level to over 8000 feet, so it is worth while to watch our mountains as well as the littoral. Definite inland reports are: Piopio, 1962, 1, P. McD. McLean; Lake Rerewhakaiteu, R. W. Jackson, 4/12/66, at least 25 (Notornis 14, 33).

Pacific Golden Plover Census Totals for Firth of Thames and
Manukau Harbour from Feb. 1951 to Dec. 1966

Date	Summer Counts	Date	Summer Counts
29- 4-51	Nil	25- 2-51	13 (55 on 8- 4-51)
2-12-51	65 (35 on 6-10-51)	1951-52	NC (18 on 14- 2-52)
1952-53	NC	1952-53	NC (7 on 29- 1-53) (18 on 14- 2-53)
13-12-53	Nil	22-11-53	17 (8 on 11-10-53) (45 on 21- 3-54) (36 on 3- 4-54)
1954-55	NC (12 on 27-12-54) (39 on 27- 2-55)	1954-55	NC (13 on 11-12-54)
4-12-55	Nil	1955-56	NC (19 on 5-11-55) (48 on 4- 3-56)
25-11-56	Nil (40 On 3- 3-57)	4-11-56	22 (50 on 16- 2-57)
1957-58	NC	1957-58	NC (30 on 22- 3-58)
1958-59	NC (168 on 15- 2-59)	1958-59	NC (110 on 27- 2-59)
6-12-59	105	8-11-59	30 (62 on 3- 1-60)
27-11-60	85	4-12-60	38 (70 on 18- 3-61)
26-11-61	90 (80 on 31- 3-62)	10-12-61	24 (3 on 10- 9-61) (14 on 14- 9-61)
2-12-62	62 (130 on 3- 1-63)	16-12-62	48 (162 on 26- 3-63)
8-12-63	120 (130 on 3- 3-64)	3-11-63	1 (70 on 31- 1-64)
8-11-64	Nil (210 on 10- 1-65)	22-11-64	7 (50 on 25-11-64) (70 on 19- 3-65)
14-11-65	40 (36 on 13- 2-66)	12-12-65	95
4-12-66	10	11-12-66	58

Records of Over-Wintering

None	(1 on 30/7/61)
	(1 on 5/8/61)
	(1 on 26/4/63)
	(1 on 1/8/65)

Note.—“Nil” = Census held but none seen.

“NC” = No Census held or records lost.