

CENSUS RECORDS OF KNOT FOR FIRTH OF THAMES AND MANUKAU HARBOUR

By H. R. McKENZIE

The Knot (*Calidris canutus rogersi*) is an eastern species of the genus *Calidris*. Its habits as observed in New Zealand are very much in line with those of the Eastern Bartailed Godwit (*Limosa lapponica baueri*). It has been of equal importance with the Godwit in the census work on the above two wader haunts. The Knot is perhaps more selective in its choice of living quarters than is the Godwit. It is very plentiful in the Firth of Thames and Manukau Harbour; but is hardly ever seen with the 1000 or so Godwits at the Wairoa South (Clevedon) River estuary. At the harbours of Whangarei and Ohiwa, Bay of Plenty, where 3000 Godwits or so may be expected, Knots are virtually absent. There are, however, no wader places where there are Knots and no Godwits, though Knots will outnumber the larger birds on occasions.

Some comparisons with the census records of Godwits (Notornis 14, 18-21) may be discussed briefly. Migratory behaviour varies but little, as far as we know. Both species leave about the same time but possibly not together. It is very difficult to tell when Godwits are really setting off, even when they fly right out of sight. The writer has seen only two small late flocks leave Parengarenga Harbour in a manner which very strongly indicated definite departure. No Knots were with them and none was seen which appeared to be leaving. The "going away" dress of the Knot is a little more pronounced in colour. The under surface is a more "solid" red, especially in the males; and the upper surface a rich reddish brown, mottled with blackish. Non-breeders staying through our winter vary in numbers from year to year but are fewer in proportion in this respect than the Godwit. Greater care has to be taken in counting Knots as when resting they pack tightly in "blanket" formation so that a fold in a shellbank can conceal several hundreds of birds. Also there can be a dense flock in the middle of a flock of the larger Godwit where they can be missed or underestimated, especially by inexperienced observers. The Knot roosts of the two census areas, though not so numerous as those of the Godwit, still make it necessary to depend mainly on full censuses and not "stab" counts of only one or just a few roosts. On the chart "stab" counts are shown in brackets, and are used only where they are larger than the census counts or when there has been no census. They may be of only one place, or several, but not all.

Some readers may be inclined to question the counting where say "5000" is shown on one date and "6611" on another. The latter could be an estimated 6000 in one place, 600 in another and 11. Great care is taken in making these estimates.

FIRTH OF THAMES, SUMMER COUNTS

The stab count of 5000 on 10/2/51 is more realistic than the 302 for 29/4/51. Nearly all, no doubt, had left by the end of April. The other figures are reasonably even, the only odd one being of

Knot Census Totals for Firth of Thames and Manukau Harbour
From Feb. 1951 to Dec. 1966.

FIRTH OF THAMES			MANUKAU HARBOUR		
Date	Summer	Winter	Date	Summer	Winter
29- 4-51	302 (5000 on		25- 2-51	5550	
24- 6-51	10-2-51)	632	6- 5-51		10
2-12-51	5200		1951- 52	----	
13- 7-52		223	14- 6-52		127
1952- 53	(3000 on		1952- 53	----	
2- 8-53	7-12-52)	400	14- 6-53		1053
13-12-53	4627		22-11-53	102	
1954		----	1954		----
1954- 55	(7000 on		1954- 55	(200 on	
	12-12-54)			11-12-54)	
26- 6-55		1400	24- 7-55		57
4-12-55	8062		1955- 56	----	
17- 6-56		19 (42 on	8- 7-56		800
		12-7-56)	4-11-56	300 (5000 on	
25-11-56	5398		1957	16-2-57)	----
1957		----	1957- 58	(6500 on	
1957- 58	(4000 on		1958	22-2-58)	----
1958	20-1-58)	----	1958- 59	(5000 on	
1958- 59	(5000 on			29-3-59)	
1959	13-12-58)	----	21- 6-59		498
6-12-59	6611		8-11-59	538	
1960		----	10- 7-60		3614
27-11-60	7320		4-12-60	1183	
2- 7-61		590	30- 7-61		300
26-11-61	8520		10-12-61	2500	
24- 4-62		78	22- 7-62		550
2-12-62	4500		16-12-62	3120	
14- 7-63		170	23- 6-63		607
8-12-63	2606 (3000 on 4-11-63		3-11-63	41 (7000 on	
	5000 on 3-3-64)			31-1-64)	
17- 5-64		123	14- 6-64		465
8-11-64	3750		22-11-64	25	
4- 7-65		352 (580 on 1- 8-65			195
		2-6-65)	12-12-65	650 (4000 on	
14-11-65	7060			9-1-66)	
24- 7-66		18	5- 6-66		250
4-12-66	5456		11-12-66	690 (5000 on	
				28-2-67)	

8/12/63, which does not seem to be an error as it and 4/11/63 are so nearly the same. This is the only summer count at Firth of Thames which, by the stab count of 3/3/64 indicates an autumn build-up.

FIRTH OF THAMES, WINTER COUNTS

As with the Godwit these vary rather widely. The 1400 on 26/6/55 is a large number but not at all unlikely. For example, W. Ridland and R. B. Sibson estimated more than a thousand present in July, 1941. Counts of under 100 are more surprising. Knots are seldom seen in fields, even in very wet weather, so there is less likelihood of their being missed than is the case with the Godwit.

MANUKAU HARBOUR, SUMMER COUNTS

It is unfortunate that so many of these are missing in the first half of the chart. The reasons are given in the Godwit account, p. 20. Here the stab counts are useful in partly filling the gaps; and seasonal movements shown by both census and stab counts will be discussed later.

MANUKAU HARBOUR, WINTER COUNTS

Here again, on 10/7/60, is an oddly large number. It is composed of a reliable count of 3575 at Karaka Shellbank and small lots of 24 and 15 elsewhere. It will be noted that the Firth of Thames and Manukau Harbour summer counts are, on the whole, very similar; but that in spite of this the winter counts are very much in favour of Manukau.

COMMENTS ON VARIATIONS IN NUMBERS OF SUMMER POPULATION IN MANUKAU HARBOUR

Except for 1954-55 the stab counts are all later in the season than the census counts. Years ago D. A. Urquhart drew attention to the almost complete lack of Knots at Karaka early in the season and the very large influx later. The chart supports his observations. It can be seen that for the most part the numbers up to late December are small; then swell very quickly in January and February. Movement from Firth of Thames could not account for this, though there could be a little traffic at odd times. Where the influx comes from remains to be determined. It comes to mind that the most likely source is Farewell Spit. There is no other large population elsewhere to the south. The Invercargill flock, even if the whole of it moved, could not account for the large numbers. The total for the census of Farewell Spit on 24/1/61 (Notornis IX, 150) was 27,370. This is a large number but since a December tally has not been made it cannot be taken for granted that the population was not larger in December and had been decreased by January 24 by the departure of the flock which builds up at Manukau from early January. Against this there seems to be no reason why this quite regular movement should not continue until the Farewell Spit flock was exhausted. This does not happen. The food situation at the Spit would hardly necessitate about 6000 leaving the area in order to leave enough food for the larger part of the flock.

Knot counts made on the 1967 Farewell Spit Field Study Course were felt to be rather unsatisfactory. A count of 26000 on 14/1/67 was in line with that of 27370 on 24/1/61 but a census count of 13000 on 24/1/61 was puzzling. Intermediate counts were up to 16000 for part of the Spit. A stab count at Karaka Shellbank only was c.7000 on 31/1/67 as against 690 at the full Manukau Census on 11/12/66. The movement of 7000 to Karaka Shellbank, and perhaps of some to other parts of the Manukau Harbour and possibly others to the Firth of Thames, might account for a large part of the Farewell Spit discrepancy. In any case the evidence for such transfers is further supported.

SUNDRY NOTES

The Firth of Thames does not normally have the pre-Christmas shortage and the post-Christmas build-up. Unusual occurrences over long distances as described for Godwit have not been observed. Even in their regular movements Knots seem to be more secretive, perhaps travelling mostly at night. Besides the devoted band of census takers who work when populations are mainly steady, some observers make frequent checks throughout the year so that odd flight behaviour other than local would be noted.

The only local flight of some distance observed by the writer and a party of watchers is mentioned on p. 21. This was a flight of c.800, with Godwits, from outside Puketutu Island in the Manukau Harbour, over to Whitford, $12\frac{1}{2}$ miles. This however was only because of the difference in tides between the two coasts and they flew back again in a few hours. This was near outward migration time when wader behaviour becomes irregular. In the more settled part of the season, when censuses are taken, Knots have not been recorded at Whitford.

Outside the censuses period of 1951 to 1966 records of Firth of Thames were kept by R. B. Sibson, H. R. McK. and others from 1941 to 1951. These were in the nature of stab counts, not so comprehensive as censuses but containing much useful information. Notes of arrival from overseas indicate a build-up to normal numbers during late September, all of October and early November. An odd spring record reads: "To south (of Miranda) c.20,000 mixed Godwit and Knots. Great preponderance of Knots." No doubt about half of each species would pass on elsewhere. For the departure period odd notes are: "18/3/45, 10,000+, with c.3000 Godwit"; "19/3/49, 20,000 to 25,000 Godwit and Knots; more Knots than Godwit." The latter occasion made a fine study for C. M. Roberts, Hetty M. McKenzie and H. R. McK. as the birds raced about, high and low, near and far, or rested briefly on shell-banks between Kaiaua and Miranda. It was a grand and exciting display of pre-migration fighting. Other pre-departure records of the 1941 to 1951 period are practically in line with the period of the censuses, 1951 to 1966. The reason for the odd larger numbers can at present be only conjectured. It is obvious that further information can best be acquired by continuing the census method at these two places and by more observation at other wader resorts.