

THE BLACK-FRONTED DOTTEREL (*Charadrius melanops*) IN THE WAIRARAPA

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ABSTRACT

A survey of the Wairarapa river system to discover the population and distribution of the Black-fronted Dotterel (*Charadrius melanops*) was carried out by Wellington and Wairarapa members of the OSNZ during November-December 1972. Further observations up to July 1973 are included.

A total of 78 birds, mainly in pairs, was found. Their distribution is widespread, reflecting closely the distribution of their favoured habitat in the Wairarapa. Winter distribution is very similar, with many birds remaining in pairs but with some flocking in favoured feeding places. Their habitat, breeding and possible competition with Banded Dotterels (*C. bicinctus*) are briefly discussed in the hope of encouraging further study. Juvenile plumage is described.

Known records of earlier sightings are given.

INTRODUCTION

Inspired by taking part in the 1972 Labour Weekend survey of the Hawke's Bay rivers, and the increasing reports in *Notornis* of Black-fronted Dotterels seen in widespread parts of New Zealand, I decided to investigate the rivers of the Wairarapa to find out to what extent they are present and breeding.

From a brief visit to the several bridges over the Ruamahanga River on 12 November 1972, which produced a dotterel pair with a single fledging chick near the Gladstone bridge, it was clear that the species was present and breeding. The following day at the monthly meeting of the Wellington region of the OSNZ, due largely to the enthusiasm of the acting Regional Representative, Max Falconer, a survey of Wairarapa rivers was adopted as an immediate project.

It was revealed also at this meeting that there had been previous sightings in the Wairarapa dating back to 1966, of which I had been unaware; these were principally by Miss H. Cook of Featherston and Mr R. H. D. Stidolph of Masterton.

The following members took part in various ways and degree during the succeeding four weekends. Wairarapa region: Miss Helen Cook and her nephew Simon Cook, Brian Boeson, Michael Dennison, Colin Scadden, Don Hadden, Bob Stidolph. Wellington region: Miss Jean Anderson, Brian Ellis, Max Falconer and family, Peter Gaze, Ron Goudswaard, Peter Harper, Barrie and Rosemary Heather and family, Miss Mollie Logan, Mrs Helen Oliver, Dean Palmer, Roy Slack, Gavin Woodward. Their initials only will be used in the text.

THE RIVERS AND THEIR DOTTEREL HABITAT

The major Wairarapa river, the Ruamahanga, flows south from the Mt Bruce area to Lake Wairarapa for some 70 miles (112 km). Its bed north of Masterton tends to be of large stones unsuited to Black-fronted Dotterels, although Pied Stilts and Banded Dotterels are present. South of Martinborough, except perhaps for the first few sweeps, the river is unsuitable, flowing wide between stop-banks.

In the central stretch between Masterton and Martinborough, the Ruamahanga is confined to a single channel usually swinging from side to side against low cliffs or banks, with heavily stacked gravel inside the curves. Braided channels in the manner of Hawke's Bay rivers occur to a small extent only below the junctions with the two significant tributaries, the Waingawa and Waiohine. Habitat for Black-fronted Dotterels occurs most often as small backwater remnants of former channels. Such places, with their still or gently flowing water and patches of wet mud, are infrequent but they are where the Black-fronted Dotterels were almost invariably found.

The Waingawa and Waiohine Rivers, rising in the Tararuas, have direct, often swift channels with a bed of heavy boulders grading to shingle for the last few miles to their junctions with the Ruamahanga, but without the backwaters and muddy patches preferred by Black-fronted Dotterels.

The Tauherenikau River, flowing from the Tararuas for some 10 miles (16 km) south to Lake Wairarapa, has less volume but a similar bed of boulders or coarse gravel; only in the final mile does it become gentler, shingly and with one or two mud patches. It is in this last stretch that a few Black-fronted Dotterels were found. An account of observations at a nest on this river is given by Don Hadden later in the present issue of *Notornis* (Hadden, 1973; see also Fig. 2).

The only significant tributary entering the Ruamahanga from the east is the Huangarua, near Martinborough. This river, although narrow and only some 10 miles (16 km) long, is quite different in character and supports over half the Wairarapa population of Black-fronted Dotterels. It is shallow, slow-moving, with frequent muddy areas and patches of decaying scum. The Tauweru River, entering the Ruamahanga from the east north of the Gladstone bridge, was not examined. It is very sluggish, flowing largely between willow-lined papa banks in hilly country and has a restricted channel without gravel. It may provide feeding places in a season of unusually low water level but is unlikely to provide breeding sites.

Three small independent rivers flowing to the east coast of the Wairarapa are the Pahaoa, the Awhea and the Opouawe. The Pahaoa was not visited but is believed to resemble the other two, which were examined cursorily and judged to be generally unsuitable, being particularly subject to flash-floods from bank to bank except perhaps near their mouths, where a few stilts and Banded Dotterels were found.

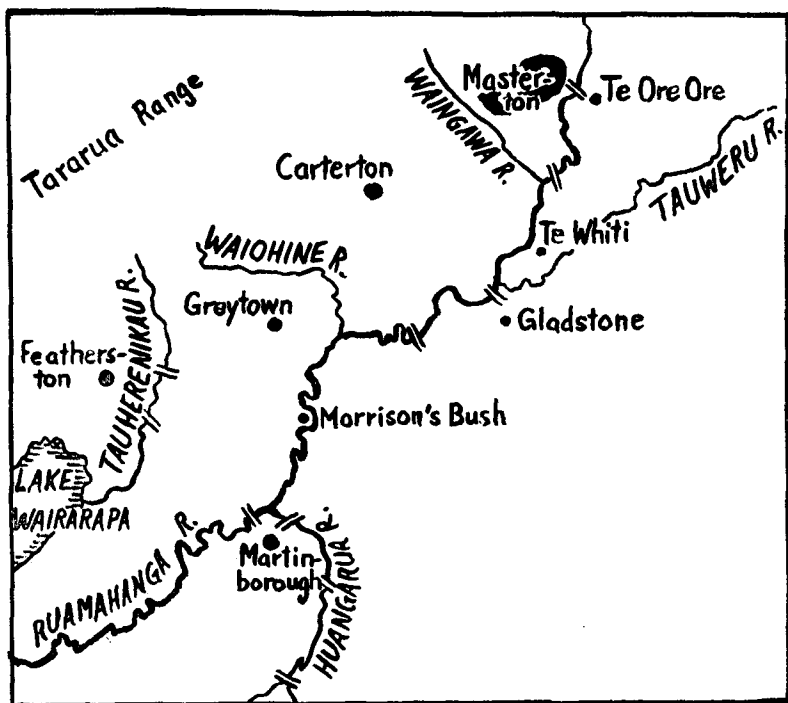


FIGURE 1 — Black-fronted Dotterel study area, Wairarapa river system.

RESULTS

Sections of the rivers were walked, and in one case rather adventurously canoed by those whose names are in brackets.

Ruamahanga River

1. North of Masterton (MF & family) 26 November: nil.
2. Masterton (Te Ore Ore bridge) to Waingawa junction (CS, MD) 25-26 November: 2 pairs, opposite sewage ponds.
3. Waingawa junction to Gladstone bridge (RHDS, CS, MD) 25-26 November: 5 birds.
4. Gladstone bridge to Waiohine junction
 - (a) First 2 miles (BH, RH) 18 November: 2 pairs, 1 single.
 - (b) Remainder (BH, RG, GW) 26 November: 3 pairs.
5. Waiohine junction to Martinborough, main road bridge.
 - (a) Waiohine junction to Morrison's Bush (BH, DP) 19 November: 3 pairs, all in first mile.
 - (b) Morrison's Bush to Martinborough (RS, by canoe) 3 December: 1 pair, 3 singles.
6. Martinborough to Lake Wairarapa: not surveyed in detail.

Waingawa River

PG on 26 November: 1 bird at Ruamahanga junction.

Waiohine River

HC during late November-early December: nil.

Tauherenikau River

BH, RH & family 18 November: 2 pairs (see Fig. 2).

Huangularua River

- (a) White Rock Road bridge to Te Muna (Campbell's) farm (RH)
3 December: 6 pairs, 1 single.
- (b) Te Muna farm to Hinakura Road bridge (BH) 26 November;
(BE, BH, RG) 3 December: 5 pairs, 3 singles.
- (c) Hinakura Road bridge to Ruamahanga River junction (BH,
RG, GW) 26 November: 7 pairs, 3 singles.

Awhea and Opouawe Rivers

BE, RG, BH, RH, 3 December: nil.

Lake Wairarapa

Time and manpower were inadequate to include this area, despite earlier sightings (see below). Brief visits to the Lake Domain near Featherston were made by BH on 8 December and by BB and RHDS on 13 December, and to part of the lake shore and lagoons eastward of the Tauherenikau outlet by RHDS on 4 January 1973, without Black-fronted Dotterels being seen.

Five miles (8 km) of the lake shore eastward of the Tauherenikau outlet were walked on 25 February by HC, MF & BH but, although other waders were present, there were no Black-fronted Dotterels. On 17 December several members visited Boggy Pond and some adjacent lagoons which were found to be quite unsuited to Black-fronted Dotterels.

Population Summary:— Adult birds only

| | |
|---------------------|----------|
| Ruamahanga River: | 31 birds |
| Tauherenikau River: | 4 birds |
| Huangularua River: | 43 birds |
| Overall population: | 78 birds |

It is believed that the Wairarapa population is unlikely to be much greater than this. No more than one or two birds could have been missed, perhaps on the canoed stretch, but one or two may have been double counted where beats met on different days at river junctions. Elsewhere birds were well spaced out except on the Huangularua, half of which was checked and found to be accurate by a second count. Only once was a bird seen on a paddock, close to the Huangularua, where it quickly returned (BH).

Several pairs may have bred at the Greytown sewage ponds, which were not discovered until 4 March, when there were nine birds present, including two juveniles.

A small number may be found to exist in the uppermost reaches of the Huangarua, above the White Rock Road bridge, and on the shores of Lake Wairarapa. Their presence anywhere else is thought to be very doubtful.

PREVIOUS WAIRARAPA RECORDS

Stidolph (1971) records the first sighting by J. M. Cunningham, R. A. Falla, C. A. Fleming and R. H. D. Stidolph at Te Whiti below the Waingawa-Ruamahanga junction on 3 December 1966. Presumably the same two birds were seen again from October to December 1967, but not in 1968 except for one bird on 4 December. The dates (Stidolph, *in litt.*) were 1967: 14 Oct., two; 11 Nov., one; 1 Dec., one; 24 Dec. and 30 Dec., two. 1968: none on 15 Jan., 1 Oct., 13 Nov., 11 Dec. It is interesting that six birds were found in this area in the present survey, including two at Te Whiti, perhaps suggesting a stable state since at least 1966. Stidolph's (1971) report of four birds at the Waingawa seepage ponds, about three miles west of Te Whiti, in July 1971 would tend to support this opinion of stability.

Stidolph (1971) mentions also a report of five birds on the Huangarua in December 1969, which is not surprising in view of the 1972 population.

He also records a displaying bird on the northern shore of Lake Wairarapa on 13 December 1970. On 16 December, however (Stidolph, *in litt.*), the lake was in flood and the bird found further west. Breeding of probably the same bird is confirmed by the report sent to the OSNZ Recording Scheme (Moore 1972) of a pair seen on 13 September and with a three-egg nest on 15 and 22 November 1970. This nest was on the lake shingle near the Tauherenikau outlet (M. Moore, *pers. comm.*).

Finally, Miss Helen Cook has, while fishing, been aware for several years of Black-fronted Dotterels on the lower Tauherenikau and on the Huangarua; and a single bird was seen by Brian Ellis on 28 November 1970 on a stream in the Hikawera-Hinakura district.

JUVENILE PLUMAGE

New Zealand references do not make clear the appearance of juvenile Black-fronted Dotterels. In flight they are not readily distinguished, unless one clearly sees the breast and the absence of breastband, for they show the same white wing stripe as adults. Newly flying chicks seen in December had a more erratic flight and a higher pitched voice than those of adults. On the ground, newly fledged birds in December were very distinctive. Most obvious was the total lack of black breastband. The black-white face and nape markings of adults, though present in the down markings of chicks, are very indistinct, so that there seems to be continuous brown on head, nape and back. The brown crown is mottled with white, and the adults' black face and central black stripe from beak to crown are absent so that the face appears white. Legs and beak are brown

rather than pink, there is no red eye-ring and the chestnut scapulars of adults are only very faint. The overall impression is of a rather plain brown and white dotterel.

The seven juveniles studied by BH on 17-18 February 1973 were still very like the December birds. The bold chestnut and black streaks on back and wings, so clearly portrayed by Moon (1967), were still absent, although the chestnut scapulars were a little more apparent. The basal portion of the beak showed varying amounts of pink, while the tip was now more black than brown. Legs were still light brown with a faint orange tinge. A faint shadowy trace of the breastband could be seen at close quarters. Black and white horizontal head stripes were now clear on the nape but still rather indistinct on the side of the head as far forward as the eyes. Black was still lacking forward of the eyes, on forehead and crown. Red eye-rings were still absent.

A juvenile seen near the Waiohine junction on 4 March (BH) was no different but on 11 March three near Gladstone bridge had breastbands that were becoming distinct, especially at the sides (BH, RHDS). The last report of juvenile plumage was of one with no breastband and three with indistinct bands on 6 April at Waingawa seepage ponds (RHDS).

The only apparent change in adult plumage was a reduction in general vividness of colouring except for one adult, still accompanied by juveniles, which had a breastband conspicuously mottled with white on 18 February (BH.)

DISCUSSION

It must be made clear that the following discussion is based on very limited evidence and the opinions will therefore be oversimplified. It is given in the hope of stimulating much further work in the region.

Population:

The 1972 Wairarapa population of the Black-fronted Dotterel was no less than 78 birds and almost certainly no more than 100 birds. This is small compared with the population in Hawke's Bay but reflects exactly the scarcity of their preferred habitat in the Wairarapa. The distribution of the population reflects also the distribution of this preferred habitat very closely and indicates that the species is fully distributed and has been for several years at least. The search for birds becomes, in effect, a search for their favourite breeding places (cf. Fig. 2) — a site in fine shingle, raised above the surrounding terrain, handy to quiet water and some wet mud (a mere 3 metres of muddy edge was available and being used by one lone pair seen by BH, RG & GW on a long stretch of the Ruamahanga north of the Waiohine junction).



FIGURE 2 — Black-fronted Dotterel on nest, Tauherenikau River, lower Wairarapa, November 1972.

Photo: Don Hadden

The wide distribution and what seems to be, at least in 1972, a rather poor breeding success, suggest a stable population may already have been attained. A similar survey in, say, five or ten years' time would be of interest to see whether the species spreads for breeding into less favoured parts of the Wairarapa rivers or whether the population size and distribution continue to reflect the vagaries of the rivers in producing muddy places with adjacent nest sites. Population levels reached on the Huangarua, where in parts the birds seem already rather overcrowded, will be of particular interest — how important is territory, how much crowding can be tolerated, does crowding in itself affect chick rearing?

Black-fronted versus Banded Dotterels?

One impression gained during the survey is that there is no serious competition between these species. Breeding Black-fronted Dotterels seem to prefer the habitat described, regardless of the surroundings — closeness of cliffs, banks, willows or other vegetation seems of no significance to them — and even now seem in many cases to be breeding in marginal conditions for raising offspring. On the other hand Banded Dotterels select more open places, with sand rather than mud among the shingle, places not favoured by Black-fronted. The Huangarua, for example, had 43 Black-fronted and 41 Banded Dotterels during the survey but invariably the Bandeds were found on open flats with much dry sand among the stones while

the Black-fronteds were at the water's edge where there was wet mud among the stones. If, indeed, there has been significant competition it seems to be producing a balance for both, with the Bandeds having a less liberal choice of feeding and breeding places than they may have formerly.

During the mid-winter survey of 8 July Banded Dotterels were not found except for 11 on the mid-Huāgarua, whereas Black-fronteds were as well distributed as in summer; thus a difference in dispersal habits removes winter competition.

Breeding:

This survey began too late for us to establish accurately the extent of the breeding season and its peak period; particularly as the length of riverbed each person had to cover seldom allowed time to search thoroughly for nests or chicks.

Certainly birds were in discrete pairs throughout the survey time and the absence of flying chicks until early to mid December suggests that all pairs seen had either nest or chicks during mid and late November. Thus it is probable that late October to late November was the peak period for 1972. Single birds seen were not in juvenile plumage.

Nests and chicks were often curiously difficult to find, particularly on the Huāgarua where several pairs whose breeding could not be confined despite all efforts were later seen with a flying chick; other pairs seemed not to be breeding at all. On the other hand both first and second clutch nests and chicks on the Tauherenikau were found without special difficulty. Clearly behaviour while breeding and the real result of each pair's breeding need much more study.

The following are the few definite breeding results so far.

1. Nest 3 eggs Lake Wairarapa, 15 & 22 November 1970 (Moore 1972).
2. Pair with one fledging chick, Ruamahanga River below Gladstone bridge, 12 November 1972 (BH, RH).
3. Two birds described by HO below the Waiohine junction were probably an adult with a flying chick, 26 November.
4. 7 December, two pairs on the upper Huāgarua each with a flying chick (HC & Simon); seen also on 8 December (BH).
5. 17 December, a pair with two flying chicks on the mid-Huāgarua (PH, HC). Chicks or nests of five other pairs in same area could not be found on same day by a combined party.
6. 17 February 1973, Waiohine junction, one adult with one juvenile, two adults with no juveniles (BH); 18 February, Gladstone bridge, three separate pairs each with two juveniles (BH).
7. 4 March, mid and upper Huāgarua (BH); no juveniles now where there had been two and two singles earlier, although adults all still distributed much as before.
8. The two pairs on the lower Tauherenikau provided the following information:

Pair A

- 18 November 1 egg (BH, RH)
- 19 November 2 eggs (BH, DP)
- 26 November 3 eggs (BH et al.)
- 15 December 3 eggs (BH)
- 16 December 3 chicks (DH, HC). One chick dead near nest. Thus incubation period of 25 or 26 days (see Hadden, elsewhere in this issue)
- 30 December 3 eggs same site, or very nearly; no chicks seen (MF)
- 13 January 1973 3 eggs approx. 29 x 22 mm; 29 x 21; 28 x 21 (MF, GW)
- 17 January 3 eggs no chicks (MF)
- 21 January 3 eggs; birds still sitting (MF)
- 2 February nest empty; only one adult seen (MF)

Pair B

- 8 December nest not found but frantic behaviour of pair during search (BH)
- 17 December, 3 recently hatched chicks near nest site; on wrong side of river from feeding area (BH, RH)
- 30 December no chicks; nest 3 eggs, one rather large (MF)
- 13 January 1973 3 eggs approx. 27.5 x 21 mm; 27 x 21; 33 x 22 (MF, GW)
- 21 January no chicks seen; 3 eggs, birds sitting (MF)
- 2 February nest empty; 2 adults, no chicks (MF)

Both of these pairs seem to have failed completely to reproduce, suggesting that conditions are more marginal than they appear. The whole question of breeding failure and its causes could prove to be an interesting topic for further study.

Post-breeding dispersal:

Investigation is needed to reveal the activity of Black-fronted Dotterels between breeding seasons. Some 100 birds must find their winter feeding in the district while rivers and lakes are high. A certain amount of flocking and local movement occurs as shown by Stidolph (*in litt.*).

WINTER DISTRIBUTION

That at least a certain amount of post-breeding flocking and local movement occurs was shown by Stidolph (*in litt.*) who noted the following numbers in 1972 at the Masterton sewage ponds: 8 February, 3; 4 March, 1; 11 June, 3; 17 July, 4; 13 August, 9; 5 September, 9; 14 October, 1. Many of these were feeding on a wet muddy patch in pasture near the ponds.

However, from casual visits to the Ruamahanga and Huangarua in March, April and May it seemed that, even when the summer and

autumn drought of 1973 had ended, many birds were remaining on the rivers. To investigate the position, on 8 July the most-favoured areas were surveyed by HC, MD, MF, J. A. Fowler, BH, RH, RS, RHDS, GW. The Ruamahanga River near the Waiohine junction and near Gladstone bridge, the Greytown sewage ponds and the whole Huangarua River were examined. RHDS inspected the Waingawa ponds on 7 July, the Masterton ponds on 15 July and the Waingawa junction area on 23 July. He also checked the Kourarau Dam and other likely ponds and excavations in the Masterton district, where he found no dotterels. On 27 July BH examined the northern shore of Lake Wairarapa, adjacent flooded fields and the lower Tauherenikau River.

Results:

Waiohine junction area: none on main river where had been 3 pairs + 1 juv. on 4 March, but 5 on muddy flat beside drain from sewage ponds.

Greytown ponds: 10 to 12, several more than the 9 on 4 March and 6 on 26 May (these ponds are close to the Waiohine junction).

Gladstone bridge northwards: none; signs of recent flooding.

southwards: 10, possibly 12, including three pairs in same places as in November. Others on muddy runnels in field beside river.

Waingawa junction: 2 in same place as in November.

Waingawa ponds: 9.

Masterton ponds: 5 on same muddy patch as in 1972.

Huangarua River: 44, almost all in discrete pairs (43 in November).

Lake Wairarapa and flooded fields: none, as in summer.

Lower Tauherenikau: 5 on braided, muddy overflow from main channel, 2 km south of summer breeding area.

RHDS's figures for 1973 at Waingawa ponds seem to reflect changes in the river levels: 6 April, 5 or 6 (4 juvs.); 18 April, 5; 1 & 17 May, none; 1 June, 8; 27 June, 15; 7 & 14 July, 9. The first seen at Masterton ponds were 5 on 15 July, although there were no June visits.

This total for July of some 90-95 birds is surprisingly close to the November total of 78+, if one excludes most of the birds at Greytown ponds, which had been missed in November, and if one allows for a small number of surviving young.

Discussion:

It is clear that there has been no appreciable dispersal away from the breeding region. Furthermore, although by July juveniles cannot be distinguished from adults, the figures suggest that juveniles may also have remained in the region.

Wherever river levels have permitted, birds have remained close to their summer quarters, in many cases remarkably close. On the Huangarua and Tauherenikau, rivers of small volume, all birds were to be found very near the breeding areas, shifting slightly up or downstream to the nearest quiet water with muddy margins.

On the Ruamahanga, where river levels have changed more drastically, at least four pairs were still on summer territory but the rest seemed to have shifted, either to the few ponds with permanent muddy margins (Greytown and Waingawa ponds) or to temporarily muddy places (Masterton, Carter's Bush and Greytown ponds drain). All of these places are within very short flying distance of the river.

In spite of careful observation, we have so far found no dotterels using ordinary flooded pasture, even when it is available to birds nearby on small areas of river mud. Stilts, herons and swallows are much less particular.

It is recognised that a rather difficult colour-banding exercise would be needed to confirm the movement of individual pairs and their offspring that has been discussed.

ACKNOWLEDGEMENTS

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