

The 1972 figures for late November-December are higher for all three species on the Ashhurst-Palmerston North section, but most markedly for Pied Stilt, many of which were seen on the paddocks (some with half-grown chicks) at the time of the 1974 census. One Black-fronted Dotterel was observed on a paddock on 28 October.

The 1974 census did not cover all the suitable habitats in the Manawatu and it was perhaps too early in the season for an accurate comparison with the 1972 figures, but it did serve to indicate the extent of the spread of the Black-fronted Dotterel since their presumed penetration of the Manawatu Gorge about 3 years previously. Breeding on the Oroua River was proved by R. Wasley who photographed nesting birds in November 1974.

Out of the breeding season, Black-fronted Dotterel have appeared in flocks at a variety of places e.g., Centennial Lagoon, Palmerston North (15 in March 1973), Hamilton's Lagoon (25 in August 1974), L. Pukepuke (8 in April 1974). Censusing would appear to be more satisfactory during the breeding season when the birds are largely confined to the river beds.

Our thanks are due to all members who co-operated in the census work, and all who helped to make the 1974 Labour Day Weekend such a success.

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SEASONAL VARIATION IN ESTUARY USE BY  
BROWN TEAL (*Anas castanea chlorotis*)  
ON GREAT BARRIER ISLAND

My earlier observations on feeding behaviour of Brown Teal (*Anas castanea chlorotis*) on Great Barrier Island (Weller 1974: *Notornis* 21: 25-35) provided some data on the distribution of teal according to habitat. Estuaries were not only used intensively but feeding was rhythmic in response to tides. A major portion of this post-breeding population was so tied to estuarine life that I wanted to gather additional data on their behaviour in another season. Three days were spent (27-29 Aug. 1974) on Great Barrier Island in search of Brown Teal, and my observations were so at variance with earlier notes that they seem worth recording.

*Habitat Selection and Numbers:*

In February of 1973 (7-14 Feb.), about 34 Brown Teal regularly used estuaries of the Port Fitzroy area. In August of 1974, I searched the estuaries in the Fitzroy area for teal but not one bird was seen during mornings, evenings, or after dark in spite of favourable low tides. Local residents had noted the absence of teal but had no knowledge of the timing of the seasonal variation.

Also in August of 1974, I visited the Mabey Farm where over 100 birds had been seen in February of 1973. A total of 35 birds was seen in the freshwater stream that meanders between the farm buildings. These birds were loafing and bathing during the early afternoon hours when I was there, but there was no active feeding in the uplands. Mrs Mabey noted that teal were normally present all year.

These brief observations, supported by local residents, suggest a different pattern of habitat use, and reduced population size in the late winter compared with the post-breeding period in late summer. Several possible reasons may exist and further information on this pattern could be valuable in preserving habitat for this rare duck.

First, there may be dramatic seasonal variation in production of estuarine invertebrates in winter due to shorter day length and colder waters. Invertebrates certainly were not conspicuous as they had been during summer. Secondly, rainfall patterns may produce more freshwater areas where teal may disperse, especially in the prebreeding period. And finally, surplus populations may leave the island and disperse to suitable areas on the mainland. Data on seasonal variations of Brown Teal appearing at ponds and sewage lagoons near Auckland or on the Coromandel Peninsula should be correlated with populations on Great Barrier.

#### *Plumages and Behaviour:*

Seasonal variation in plumages was very evident in comparing plumages of birds during the pre-breeding season in August and the post-breeding period in February. Whereas sexes were virtually indistinguishable in February, and all birds were drab brown with no evidence of breeding plumage, most males were approaching full breeding plumage in August. Hens still were essentially plain brown but, in comparison, drakes had darker greenish-black scapulars with a contrasting light linear line. Males also had a reddish chest, whitish sides of the tail, blackish undertail, a more prominent bronze and green iridescence in the crown, vermiculated sides, a more bluish-edged black bill, and a longer tail. None had a white ring around the neck but several had light areas there. None was as bright as figured by Scott in Delacour (1956, *The Waterfowl of the World, Vol II*. London).

Hens were paired or had males in close company. There were no active displays by males but hens incited and aggressiveness was conspicuous. There were only 8 females to 27 males in the flock at the Mabey farm.

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