

the one month monitoring period. The radio transmitters were glued to the birds' backs using the method described in Aikman (1995) and modifications of this method (Davis and Aikman 1997). While this method seemed successful during the 1994 release, a number of problems developed during the 1995 release and again, despite modifications, during the 1996 and 1997 releases (Davis and Aikman 1997, Taylor *et al.* 1998). During the 1997 release four tail-mounted transmitters were used in addition to 'back-pack' type transmitters (Taylor *et al.* 1998).

Birds that were still carrying radio tags when last sighted, for which no signal could be received on Motuora Island are assumed to have dispersed. The fate of those birds which disappeared without radio tags attached has been recorded as 'unknown'. Two birds that are known to have died on the mainland after flying there have been recorded as having 'dispersed'.

Six birds dispersed from Motuora Island less than one month after their initial release and were caught and returned to the island. Only data from their initial release on the island has been used, and so their fate has been recorded as 'dispersed'.

Four birds were apparently preyed on. All were found away from the shoreline in scrub or pasture, habitat not used by Shore Plover. The remains consisted of piles of feathers and in one case, body parts. Traces of skin on the back of the transmitters suggested that they had been ripped from the body. A transmitter found after the 1997 release and described as a possible predation by Taylor *et al.* (1998) did not have the same strong circumstantial evidence as the previous four recorded predations. The sign was similar to a number of other dropped transmitters that birds, that were later seen alive, had managed to dislodge while preening. The fate of this bird has been recorded as unknown. Three birds were preyed on, possibly by Australasian Harrier (*Circus approximans*), in the pre-release aviary before the first release and have been excluded from all analyses.

The survival of birds on Motuora Island for the first month of intensive monitoring after release, for six months after release and ongoing residency on the island have been used as measures to assess the success of releases on Motuora Island. I have compared the proportion of birds released at different age classes and birds that have been reared by different methods that have remained on Motuora Island for these time periods.

## RESULTS

Eight (15%) of the 53 birds released on Motuora Island during releases in 1994, 1995, 1996 and 1997 were still present on the island on 1 September 1997 (Table 1).

The fate of 60% of the released birds is known. For this group, dispersal has been the major cause of loss from Motuora Island, accounting for 53% of birds of known fate (n=32). The next major cause of loss was predation, probably by Morepork (*Ninox novaeseelandiae*), accounting for 13% of birds of known fate. Four predation events were recorded, two after each of the first and second releases. Three

*al.* 1997). The strategy being used to achieve this is to release captive-bred birds on a suitable island within the historical range of Shore Plover.

Significant progress towards these objectives has been made since the initiation of a captive-breeding programme in November 1990. Two captive populations have been established: at the National Wildlife Centre, Mt Bruce, and at Peacock Springs in Christchurch. Motuora Island was selected as the first liberation site. This 80 ha island is 5 km off the eastern coast of the New Zealand just north of Auckland in the Hauraki Gulf (36°30'S, 174°48'E). Motuora Island was selected because it is free of mammalian predators, has legal protection as a Department of Conservation reserve, has suitable coastal habitat (i.e. rocky wave platforms, sandy beaches and adequate coastal vegetation to provide cover for nesting), and has easy access for monitoring and management.

While the transfer of endangered birds to islands free of mammalian predators is a technique that has been successfully employed with a number of New Zealand forest bird species, this technique has rarely been attempted with waders (Aikman 1995). During the 1970s there were three unsuccessful attempts to establish a Shore Plover population on Mangere Island in the Chatham Islands. Birds were transferred directly from nearby Rangatira Island but failed to establish, with a number of birds flying straight home (Bell 1974, Flack 1976). It was thought that the use of captive-bred birds, which might not be strongly site-attached, might help to overcome the tendency of Shore Plover to return to its natal area. The use of captive-bred birds also allows new habitats to be stocked without placing undue pressure on the one remaining wild population (Davis 1987).

Between 1994 and 1997 there were four releases of captive-bred Shore Plover onto Motuora Island: a trial release of five birds in September 1994; 15 birds in September 1995; 16 birds in February 1996 and 17 birds in February 1997. Intensive monitoring was carried out for one month after each of the releases (Aikman 1995, Davis and Aikman 1997, Taylor *et al.* 1998). Ongoing monitoring at other times has been carried by Department of Conservation staff on the island. In this paper I summarise data from all four releases and examine the retention of birds on Motuora Island after the initial month-long monitoring period. Birds that disperse to the mainland are apparently killed quickly by mammalian predators. Factors which might influence the length of time birds remained on the island after release are discussed, and recommendations for future management and research are given.

## METHODS

The fate of released birds and the length of time they have remained on Motuora Island after release was investigated for all birds in the 1994, 1995, 1996 and 1997 releases on Motuora Island.

The majority of birds were released with radio transmitters attached (4 birds had transmitters in 1994, 10 in 1995, 11 in 1996 and 17 in 1997). However, due to difficulties with the method of attachment most transmitters dropped off within

# Attempts to establish Shore Plover (*Thinornis novaeseelandiae*) on Motuora Island, Hauraki Gulf

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## ABSTRACT

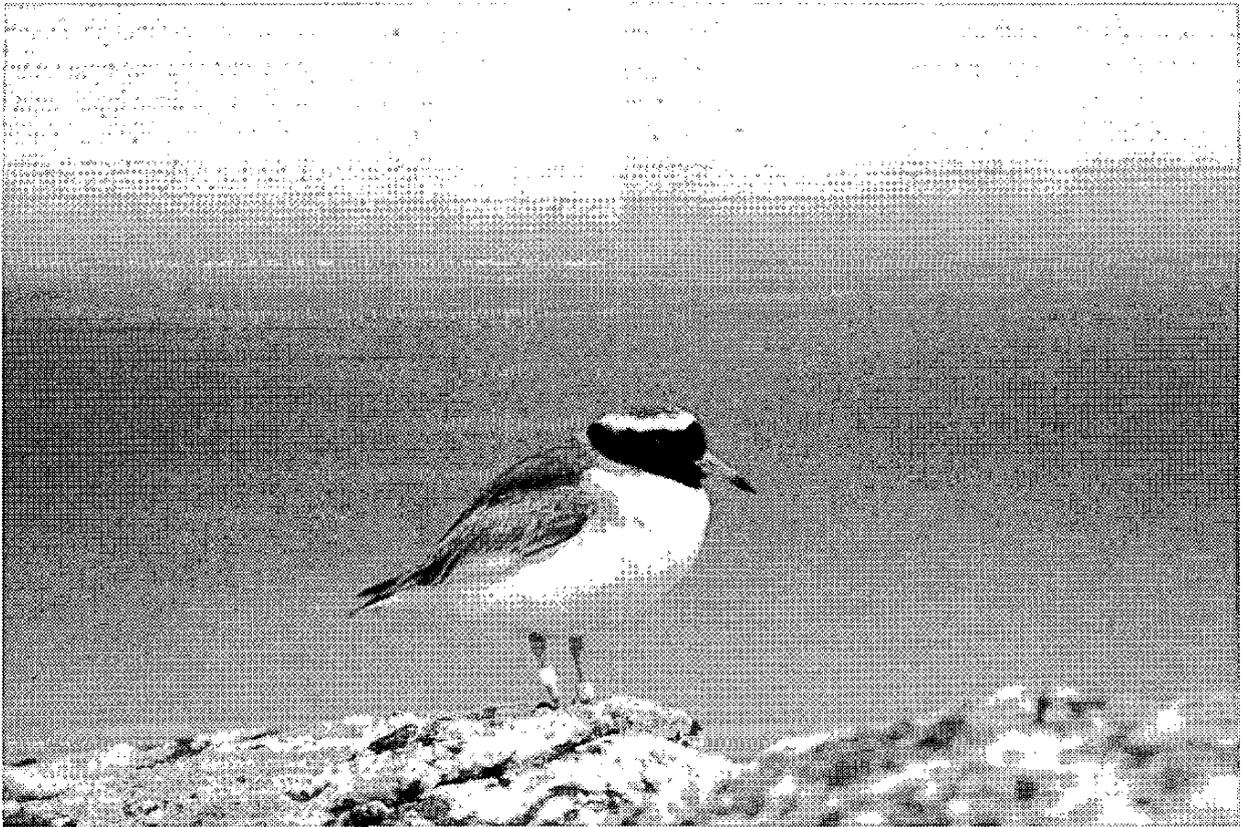
Fifty-three captive-bred New Zealand Shore Plover (*Thinornis novaeseelandiae*) were released on Motuora Island in the Hauraki Gulf, New Zealand in an attempt to establish a second population of this endangered shorebird in the wild. The birds were liberated in four releases between September 1994 and February 1997. In September 1997, eight (15%) of the released birds were still resident on Motuora Island. Dispersal to the mainland was the principal known cause of loss of birds from the island, with predation being the next most important cause. Differences were found between the use of adult and juvenile birds for release but there did not seem to be any difference between using hand- or parent-reared birds. Possible seasonal patterns of disappearance may become clearer once more birds have been released on the island. Recommendations for future management and research include continuing the transfer programme to Motuora Island with intensive monitoring during the first month after release, inclusion of more adult birds in releases, release of both hand- and parent-reared captive birds and conducting more research into Morepork predation of Shore Plover.

**KEYWORDS:** Shore Plover, *Thinornis novaeseelandiae*, shorebirds, captive-breeding, translocation, New Zealand

## INTRODUCTION

Historically, the Shore Plover (*Thinornis novaeseelandiae*) was distributed throughout New Zealand in coastal and estuarine habitats (Davis 1987). Since the turn of the century the species has been confined to one sedentary population on Rangatira (South East) Island in the Chatham Islands (Davis 1994). Shore Plover declined quickly on the mainland last century, probably mainly as a result of introduced mammalian predators, in particular Norway rats (*Rattus norvegicus*) and cats (*Felis catus*) (Davis 1987). The limited distribution and restricted population size of Shore Plover (approximately 125 individuals in the wild in 1996-97 (Kennedy *et al.* 1997)), make it highly vulnerable to extinction. Shore Plover are ranked as a Category B priority for conservation management by the Department of Conservation (Molloy & Davis 1994) and is 'endangered' by international standards (Collar *et al.* 1994).

The draft New Zealand Shore Plover Recovery Plan outlines conservation management objectives for the species until 2002 (Kennedy *et al.* 1997). The long-term goal of management is to restore Shore Plover to as much of their original range as possible. Objectives for the next five years include the establishment and maintenance of at least one additional self-sustaining wild population (Kennedy *et*



Shore Plover (*Tbinornis novaeseelandiae*).

(Rod Morris, DoC)

i.e. some post-breeding flocking and local movement, but most pairs remaining close to their breeding territory. Lake Wairarapa has, however, proven to be an important wintering habitat for Black-fronted Dotterels, with a peak population equivalent to about 40% of the Wairarapa population. It is perhaps especially important for those birds breeding on the nearby lower Ruamahanga River or on the east coast rivers that are prone to flash-flooding in winter.

Further surveys are needed to determine the status of Black-fronted Dotterels on several of the rivers on the eastern coast of the Wairarapa where birds have been reported, but not counted systematically.

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### LITERATURE CITED

- BRATHWAITE, D.H. 1956. Notes on some rare birds recently recorded in Hawke's Bay. *Notornis* 7: 56-58.
- HEATHER, B.D. 1973. The Black-fronted Dotterel (*Charadrius melanops*) in the Wairarapa. *Notornis* 20: 251-261.
- HEATHER, B.D.; ROBERTSON, H.A. 1996. *The Field Guide to the Birds of New Zealand*. Viking, Auckland.
- ROBERTSON, H.A.; HEATHER, B.D. 1999. Effect of water levels on the seasonal use of Lake Wairarapa by waders. *Notornis* 46: 79-88.
- STIDOLPH, R.H.D. 1971. *The Birds Around Us*. Hedley's Bookshop, Masterton.