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# DISCOVERY OF THE BONES OF THE EXTINCT GIANT RAIL, APTORNIS OTIDIFORMIS, AT AN ARCHAIC SITE NEAR NEEDLES POINT, MARLBOROUGH

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## ABSTRACT

The giant rail, Aptornis otidiformis Owen, was one of many different New Zealand birds driven into extinction during late Holocene times. The reason(s) for this large scale avifaunal depopulation is currently unclear.

In 1971 bones of Aptornis otidiformis, in presumed human association, were recovered from an archaeological site near Needles Point, on the North Kaikoura Coast. This site and the immediate environs have produced an interesting assemblage of Archaic Phase artifacts, as well as the bones of at least one species of moa, Emeus crassus. The site, adjacent to supplies of fresh water, appears to have been a home base for people engaged in the exploitation of rich local stocks of moas, fish, shellfish, and crustaceanas, and artifact-quality Amuri Limestone.

To date only eight different South Island archaeological sites containing Aptornis are known, and although these are concentrated in the extreme northeast of the island and down the east coast, it is anticipated that further research will only serve to illustrate a much more widespread coastal distribution for this species.

## INTRODUCTION

One of the most interesting yet archaeologically neglected stretches of coastline in the South Island of New Zealand is situated to the north of Kaikoura, between Willawa Point and the mouth of the Flaxbourne River (see Figure 1). This 11-mile stretch of the Marlborough Strand Plain (see Cotton 1913: 292-3; Jobberns 1928: 516-7) is composed of a complex series of longitudinal sand dunes that extend inland for up to one - third of a mile, and abut the prominent steeply-sloping escarpment of the local "rough hill country" (Cumberland and Fox 1958: 144-7). The continuity of the Strand Plain is broken by Needles Point, a high, rugged, limestone promontory, nine miles to the north of Willawa Point, and by the mouths of Woodside Stream and the Ure River (which is also known as the Waima).

Prior to consolidation of the dunes by marram grass early in the present century a kaleidoscope of archaeological debris was revealed by the shifting sands: oven remains, bone accumulations, shell middens, numerous stone adzes and stone flakes and cores, minnow shanks and fishing sinkers, ornaments of various sorts, and human burials. The great majority of this material relates to the Archaic (or Moa-Hunter) Phase of New Zealand Maori Culture, as defined by Duff (1956), Golson (1959), and Green (1974:Figure

3). Data provided by local informants and obtained in the course of pedestrian field surveys conducted in 1971 revealed that there were originally four different archaeological sites or site clusters of major importance in this area (see Figure 1 - details of these are given in Orchiston 1974), and it is the most northerly of these with which this paper is concerned.

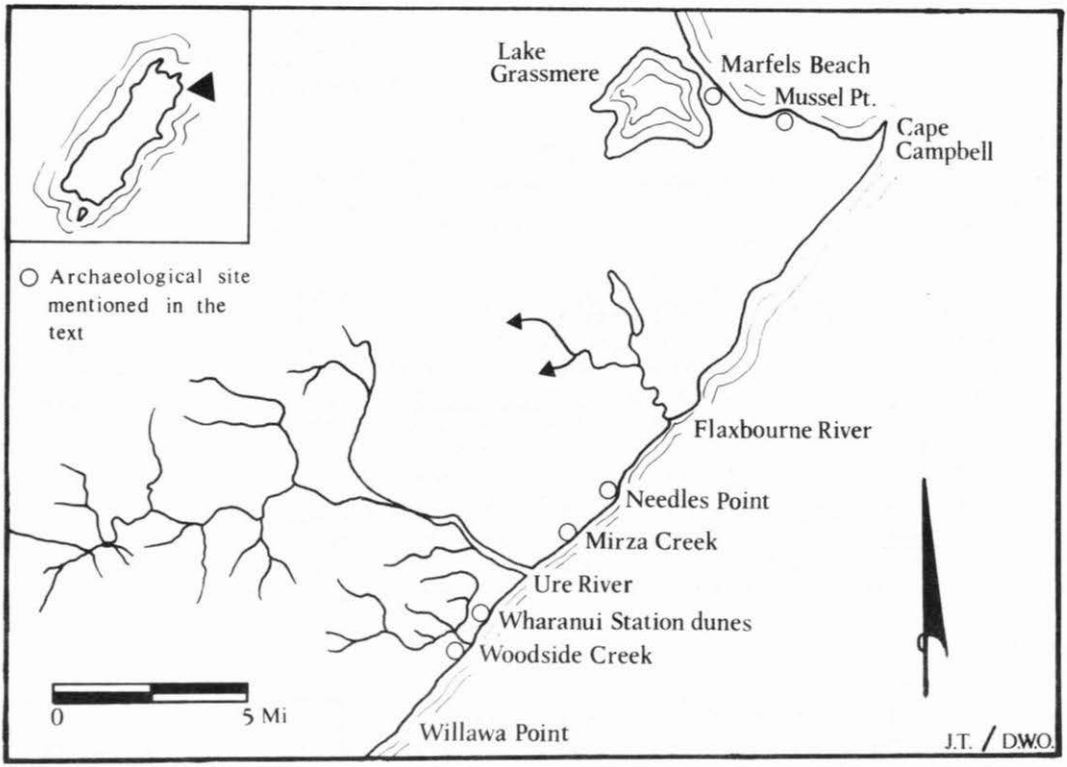


Figure 1 - The Northeastern Corner of the South Island.

## THE NEEDLES POINT SITE

Between grid reference 414555 and 414554.5 (NZMS Sheet S36, First Edition) just north of Needles Point are two adjacent one-acre deflation basins in the consolidated dunes. These are well-known to local collectors, and a number of interesting artifacts have been recovered here and in the immediate vicinity over the years (Table 1). In the course of the 1971 field survey, the more northerly basin was found to contain

Table 1: Select Artifacts from the Needles Point Archaeological Site and Immediate Environs

| Description | Collection |
|---|---|
| Adze, argillite, Duff 1A. | Kennington |
| Adze, argillite, Duff 2A. | Butt |
| Adze, argillite, Duff 3A. | Kennington |
| Adze, argillite, Duff 4A. | Kennington |
| Minnow shank, limestone, triangular cross-section, bilateral trolling line perforation. | Butt |
| Minnow shank, moabone, triangular cross-section, bilateral trolling line perforation. | Butt |
| Minnow shank, moabone, rectangular cross-section, grooves for trolling line attachment (though a start has been made on a dorso-ventral perforation). | Kennington |
| Sinker, limestone, egg-shaped, with single longitudinal groove. | Butt |
| Unique amulet, serpentine, edge-notching, proximal end perforation. | Canterbury Museum (E168.547) |

one-third of an acre of eroding ovenstones, flakes and cores, and the other basin half an acre of exposed ovenstones, flakes and cores, shellfish, and bones. A bone sample was gathered, and was found to comprise the following species (after Ron Scarlett, private communication, January 1972):

| Species | Number of Individuals Represented |
|---|---|
| Dog (Canis familiaris) | 1 |
| Extinct rail (Aptornis otidiformis) | 1 |
| Moa (Emeus crassus) | 1 |
| Penguin (Eudyptula minor) | 1 |
| Southern fur seal (Arctocephalus forsteri) | 1 |

The extinct giant rail, Aptornis otidiformis, was represented by three bones (the distal end of the left femur; a fragment of the right femur; and a phalanx), probably from a single bird. From the positioning of these bones in the site we can conclude that there is a very low probability that they were not originally in direct human association.

DISCUSSION

The Needles Point site is situated beside a freshwater stream, and the presence of workable blocks of white Amuri Limestone (see Orchiston, in press), a localized moa population, and abundant rocky shore molluscs, fish, and crustaceans, seem to have attracted Polynesian man and his dog to the area. Dense Podocarp-based forest clothed the hinterland hill country (Holloway 1954; Molloy et al.1963), and both local physiography and the dense growth characteristic of the shrub and herb strata would have restricted most terrestial environmental exploitation to the narrow coastal Strand Plain. This carried a distinctive "coastal forest", which degenerated into scrubland in those seaward areas subject to salt-spray exposure (Cockayen 1906; Robbins 1962: 36). A small area of indigenous scrubland still existed in the backdunes near Mirza Creek in 1971. If the giant rail found at the Needles Point site was in fact caught locally, it was most likely a denizen of the "coastal" vegetation on the strand plain, or of the "coastal forest" - Podocarp forest ecotone located along the western boundary of the strand plain.

With the addition of Needles Point to the list of South Island sites in which Aptornis otidiformis has been found in human association, we obtain a distribution map with a marked east coast bias (Figure 2, which is based on Haast 1874:83; Lockerbie, private communication, June 1977; Trotter 1955, 1965; Scarlett, private communication, September 1972). From north to south, the sites are Wairau Bar, Marfels Beach, Mussell Point, Needles Point, Redcliffs Flat and Moabone Point Cave, Tumbledown Bay, Waimataitai, and Pounawea. All of these have produced moabones in human association and Archaic Phase artifacts, and although charcoal radiocarbon dates have been published for Wairau Bar, Redcliffs, Pounawea, and Waimataitai, only at the last-mentioned site can the value of 1284 ±40 A.D. (after McCulloch and Trotter 1975, but incorporating Michael and Ralph's 1972 correction figures) be related directly to the Aptornis finds. It is pertinent to point out that the distribution of sites in Figure 2 is probably simply a sampling bias in that Archaic Phase occupation occurred along the whole length of the east coast, through Foveaux Strait, and intermittently up the west coast and round into Golden and Tasman Bays, yet in very many cases the avifaunal components of sites have not been examined (let alone excavated). And, even where such analyses have taken place and produced no evidence of Aptornis, the fauna generally have been recovered from comparatively small sampling areas within the sites themselves. Future research will surely turn up further evidence of Aptornis otidiformis in human association, and with additional radiocarbon dates we will eventually be able to sketch the extinction history of this species in detail.

At present we can do little more than conclude that the localised disappearance of Aptornis must have occurred at different times in different parts of the South Island (c.f. Field 1893: 560). It is apparent, however, that this process merely was part of a wider pan-New Zealand Holocene pattern involving a whole range of avifaunal species characterised by giantism (Fleming 1962a; Simmons 1968: 121; Williams 1962). Whether Aptornis was driven to extinction through human agency (hunting by man; the effects of anthropogenic fires; or predation by the newly-introduced Polynesian dog), or as a result of natural processes (Pleistocene and post-glacial environmental changes; or long-term maladaptive evolutionary genetic drift) with man simply providing the final catalytic "coup-de-grace", is yet to be resolved. This aspect, which has witnessed a lively debate (for example, see Cumberland 1961: 40-4; 1962a; 1962b; 1963: 189-91; Fleming 1962b: 91; McDowall 1969; Martin and Wright 1967: 75ff; Oliver 1949: 193-5. C.f. Williams 1956: 16-8), lies beyond the scope of the present paper.

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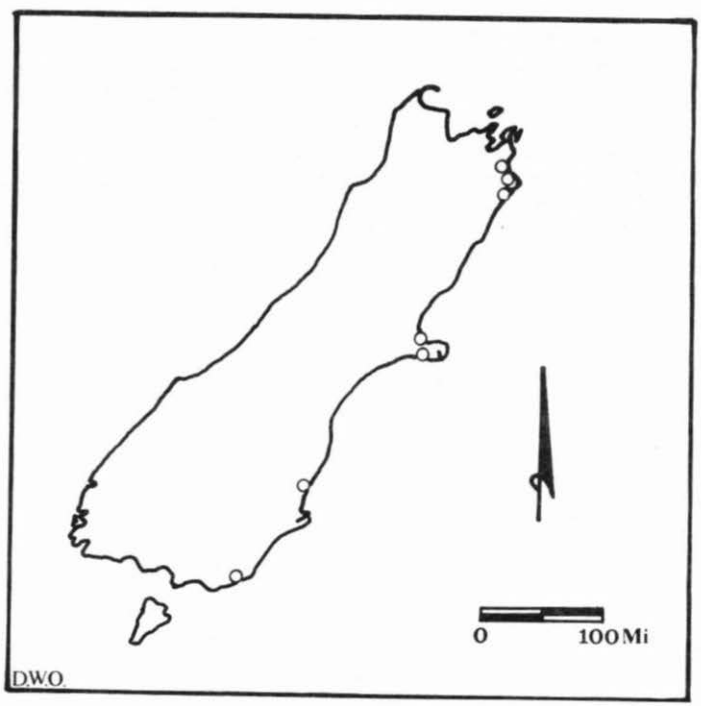


Figure 2 - Prehistoric South Island Archaeological Sites with Aptornis in Human Association.