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A MINIMUM AGE FOR POLYNESIAN DEFORESTATION AT RANGI POINT, HOKIANGA NORTH HEAD

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This note reports a radiocarbon date for a group of pits, middens, and gardened soils, at Rangi Point. The context of the date also provides a minimum age for deforestation at the site. The emerging evidence for the chronology of settlement and deforestation in the north-western North Island dune belts is briefly reviewed.

Widespread deforestation occurred in New Zealand from the 14th Century A.D. (McGlone 1983), and there has been some indication of earlier, patchy, deforestation (possibly from natural causes) many centuries earlier (Chester 1986, Molloy 1969). Documentation of the extent and significance of this change has considerable importance in relation to population growth, horticultural subsistence and settlement pattern.

Rangi Point

Wright and Court (1977) first recorded site N14/96 & 98 in the course of surveys preceding afforestation of a large part of Hokianga North Head. A report of investigations at the site has already been published (Jones 1984). The site provides a good example of a general pattern of settlement and horticulture on the inland margins of the western North Island dune belt, running north from Aotea Harbour to the North Cape vicinity. The soils on the dunes are characterised as northern yellow-brown sands (Cox 1977) which occur in several age groupings. Archaeological sites lie exclusively on the latest of these soils, the Pinaki suite, which overlies semi-indurated sands of Pleistocene age.

A maximum age for Pinaki soils will have uses in setting a time horizon for the maximum age of dune settlement, a matter which will be further discussed in a later section.

The position of N14/96 & 98 is shown in Fig. 1. The site was largely deflated and exposed a useful sequence of soils in relation to the archaeological features (Jones 1984: 81-82). Fig. 2 shows a photograph of the casts of the pits exposed by deflation. A feature of the site was an apparent deforestation of the Pinaki soils with subsequent cultivation mixing the charcoals into them. In the same span of settlement, pits were dug through the Pinaki soils and into the underlying semi-indurated sands. The pits show in Fig. 2 as slightly elevated, rectangular casts of black sandy topsoil.

A small sample of charcoal (2-3 grams), picked from an exposed face in the Pinaki soils upper charcoal-flecked layer (see Jones 1984), was identified by R.T. Wallace as follows:

Olearia sp.	1
Matai (P. spicatus)	4
Libocedrus sp.	1
Angiosperm twigs (not identified)	3

Although the sample was small, it came from a mixed soil horizon with dense charcoal flecking throughout which is unlikely to over-represent a species simply because a single lump of charcoal had broken up in the course of extraction or subsequently in the bag. The result therefore indicates that the natural forest at the site was of a forest type with a podocarp, New Zealand cedar, and shrubby angiosperms including Olearia present. This contrasts with the landsnail species composition from the middens, interpreted as from a "disturbed" coastal scrubland cover (Jones 1984:82).

The C 14 date on a sample of Paphies australis from the "south midden" (Jones 1984:82) is:

NZ 6790 458+30 yrs B.P. (old T1/2)
471+31 yrs B.P. (new T1/2)

- indicating a late 15th Century A.D. calendar age.

The shell sample closely seals the charcoally soil, with no lenses of blown sand between the midden and the charcoally soil. The date therefore gives a minimum age or terminus ante quem quite close to the period of deforestation and horticulture on the site.

Deforestation on West Coast Dunelands

On dune country, deforestation led to advances of sand inland, driven by the prevailing south-westerly winds of the Auckland and Northland west coasts. Although allowance must be made for episodic cycles of erosion, it has usually been inferred that deforestation was caused by Polynesian firing of the landscape (Hicks 1975). Evidence of horticulture on the dunes has been noted at Hokianga North Head (Jones 1984), North and South Kaipara Heads (Irwin 1985, Bellwood 1971), Waikato River entrance (Fox and Green 1983), Taharoa, and at Aotea (Fox and Cassels 1983, Walton 1983). The question arises as to the pattern and age of the deforestation which gave rise to the historically observed bare dune and scrubland of the coastal zone (Beever 1981).

It is generally recognised that, with charcoals in

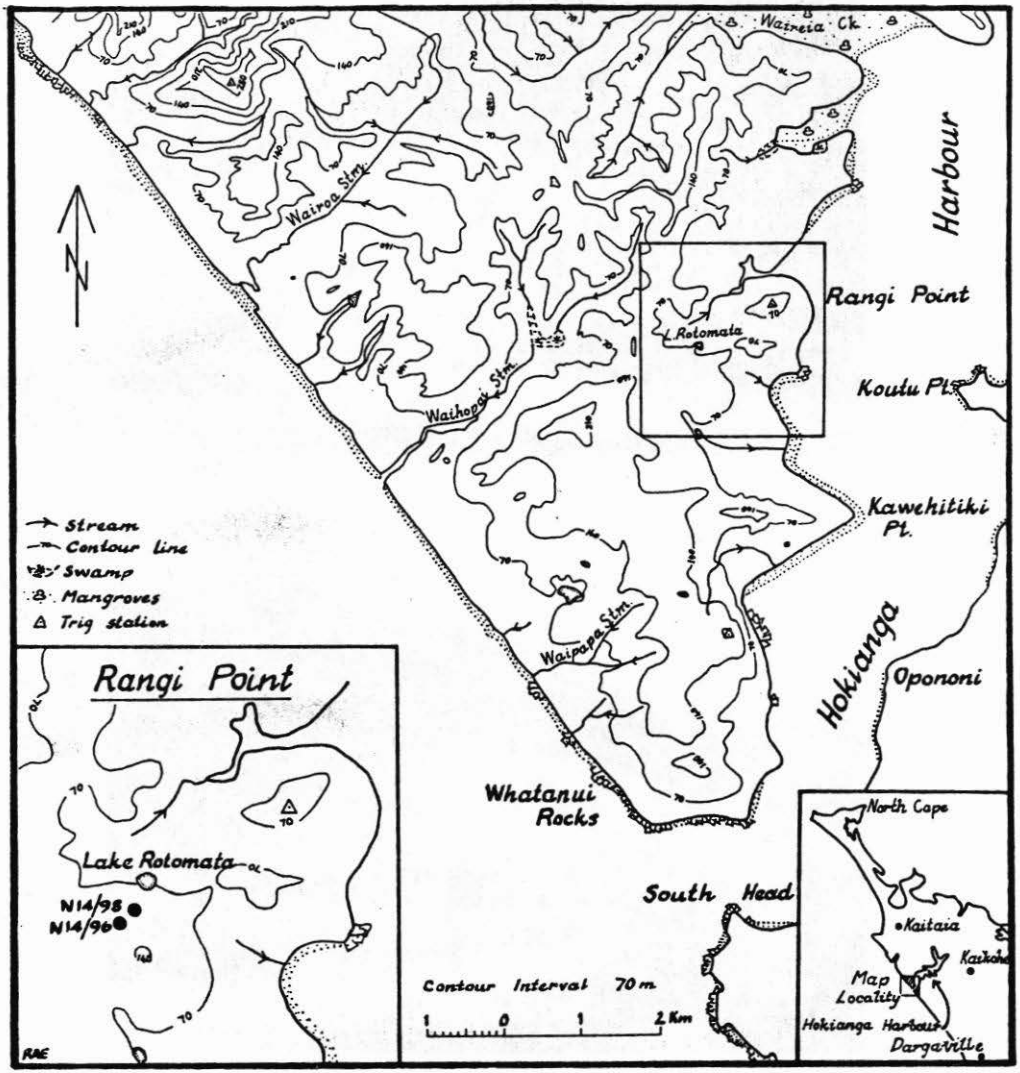

FIGURE 1. Hokianga North Head, showing location of N14/96&98.

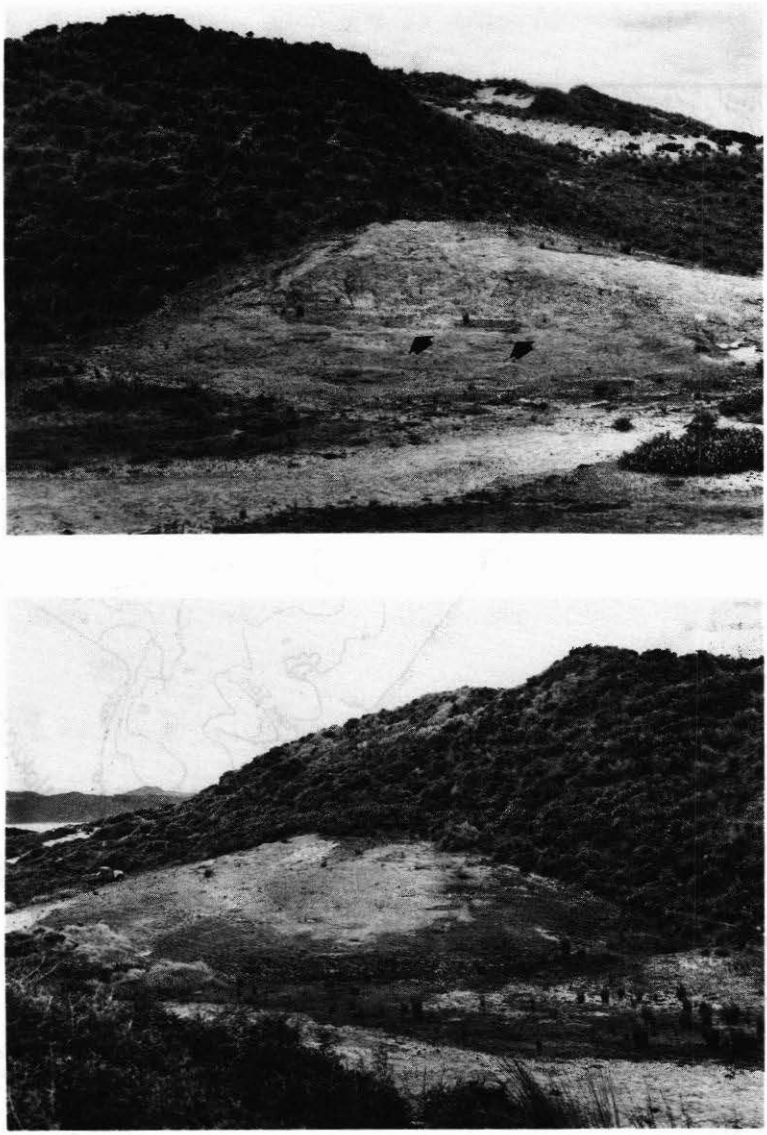

FIGURE 2. (a) N14/96&98 looking south-east: pits arrowed, south midden on extreme right. (b) Looking north-east: charcoally Pinaki soils (dark) overlying semi-indurated sands (light).

topsoil, the relative species composition of the charcoals is a fair indication of the vegetation cover at the time of burning (Payton and others 1984:211). Another potential source for interpretation of vegetation is a pollen profile, although pollen seldom survives in good condition in a dune environment. At Otakinini on the Kaipara Harbour shoreline, apparently poorly preserved pollens indicated an original vegetation cover of rimu, rewarewa, and red beech (Bellwood 1971: 65). Landsnail assemblages will generally represent a modified post-occupation vegetation cover, since they are only likely to survive in the less acidic environment of a midden. As the Rangi Point example shows, the contrast between the charcoals and the landsnails is likely to be marked.

On the Aupouri Peninsula, the Pinaki dunes had a cover of light, closed-canopy broadleaf forest with some podocarps (Coster 1983:183), probably similar to that at Rangi Point. An age for the occupation of this area has yet to be fully reported. The C14 dates for this area lie in the ranges 350-450 and less than 350 years B.P. (Coster pers. comm.).

Some 20 C14 dates for the areas discussed above, and for Maioro (north of the Waikato River mouth), are compared in Fig. 3. The likely period of deforestation is shown hatched. It is clear that the bulk of settlement occurs in the 14th and 15th Centuries A.D., with an inferred period of deforestation occurring a short time before and probably not much earlier than the 14th Century. The Otakinini case is based on Bellwood's suggestion that the date for first settlement was fairly early and his description of vegetation cover at that time (Bellwood 1971:65). In Fig. 3 dates for pa are shown with a "P".

Maioro has very early setlement with a hiatus and re-occupation in the 15th Century A.D. Overall, it is tempting to see the occupation and settlement of the west coast dunes as a reflection of 14th and 15th Century A.D. expansion in population. The well documented use of the abundant west coast sources of open beach and harbour shellfish would be important, especially on a coast where offshore fishing appears to have been difficult. Maioro may be best seen as a component of the early settlement of the Waikato/Taupo basin and the Auckland isthmus where earlier settlement is well recognised. Generally the lack of earlier settlement on the west coast, particularly in comparison with the east, remains to be explained. By contrast, as this paper shows, there is a fairly full record of post 15th century A.D. sites on the west coast, compared with a paucity of investigated sites of this age on the east coast. Destruction of sites by land development, or the west coast's lack of the characteristic locales of early settlement such as the seaward margins of estuaries, may explain this. The lack of well dated, extensive settlement surveys on the east coast

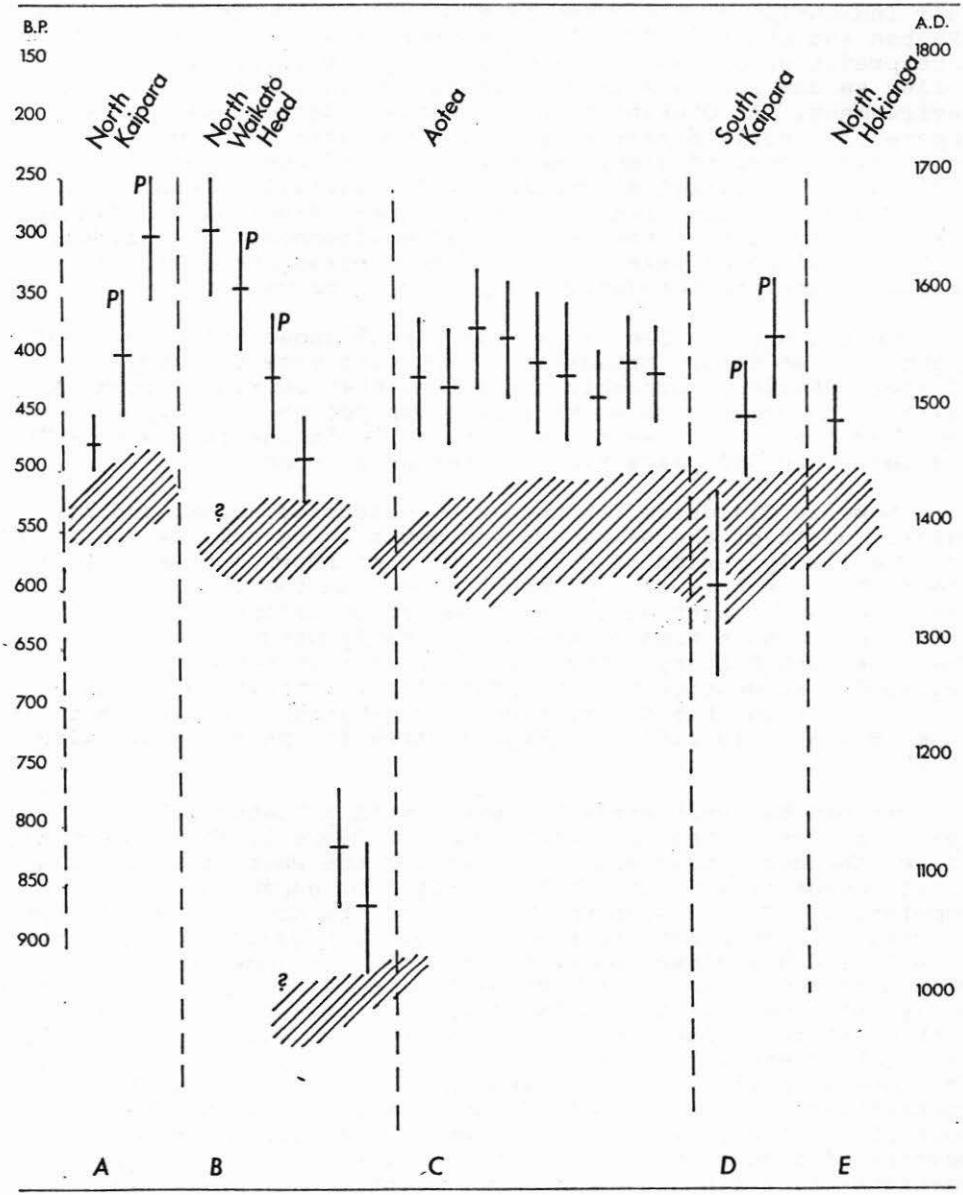

FIGURE 3. C14 dates for Pouto (Irwin 1985); Maioro (Green 1983); Aotea (Fox and Cassels 1983); and south Kaipara (Otakanini Pa) (Bellwood 1971).

is only slowly being redressed by the work in the inland Bay of Islands or the limited work in the traditional locus of the east coast Archaic, the Coromandel Peninsula. The deflated dunes of the west coast have long offered an easy opportunity to examine extensive settlement evidence and a review of the implications for 16th Century A.D. and later settlement patterns is long overdue.

Acknowledgements

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