



NEW ZEALAND  
ARCHAEOLOGICAL  
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**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER**



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SULLIVAN, A.            1975    Slope gardens at Wiri Mt., Manurewa.  
   Working Paper No. 31, Dept of Anthropology,  
   University of Auckland.

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AGE AND FUNCTION OF MADE SOILS  
A COMMENT ON THE STATE OF KNOWLEDGE

Garry Law

Helen Leach, in a paper delivered to the Maori Soils seminar at Hamilton in 1974, called for New Zealand archaeologists to reject their ethnographic crutch in relation to studies of prehistoric horticultural features. She pointed to the inadequacy of the ethnographic record of made soils, and of particular relevance to the preceding papers, pointed to the lateness of the record of the technique.

The paper on the Moturua Garden leaves us in no doubt as to the prehistoric nature of the technique of sand addition, while the Rocky Bay example can only be held to be most unlikely to have commenced as late as the historic. Both illustrate use of the granular material which was immediately available, at Rocky Bay gravelly sand, and at Moturua, sand, both from the beach. A garden soil has been dated previously. This is the soil which sealed the period 1 pits at Kauri Point pa (N63-64/5), (Schofield 1961, Ambrose n.d.). Although this was found over a small area, it may formerly have extended further but have been destroyed by the intense earthworks on this site. As this soil predates period 2, it is prior to the  $C_{14}$  date for a structure of this period,  $495 \pm 100$  B.P. (charcoal, ANU 25). This date can be supported by other dates later in the site history and the dates from the swamp site adjacent. The interpretation is supported by other evidence for horticulture. The added material in this case includes sand, the only local granular material, again from a beach.

Other instances of the use of sand, though these are not provenly prehistoric, are a further site in the Bay of Islands, at Rawhiti, recorded by myself, the Lower Waikato soils (Law 1968) where sand sizes predominate over gravel in nearly all exposures, and sites in South Taranaki where stabilized dunes have been used as borrows yielding only sand (Buist, pers. com.). Where sand alone is the added material, the resulting soil cannot be distinguished as added to other than by a close inspection, preferably of a profile. The early ethnographic record in New Zealand is predominantly coastal and, in regions where sand was the most available, granular material as a soil additive. The failure of the visitors, and to some extent the early residents, to comment on sand in gardens would not be very surprising if they had not seen the actual act of addition.

While this might explain the ethnography, it does not add to its utility. Indeed, the common understanding of New Zealand archaeologists that the added material is always gravel, underlines a mistaken emphasis of the ethnography on gravel as the prehistoric additive, though preferential use of gravel may be a feature of the time and place of record. Testing rigorously the ethnographic claim that such soils were for kumara must be put aside at present. If many of the soils are prehistoric, then they conform closely to a geographic expectation generated from climatic restrictions to kumara cultivation (e.g., Law 1969, for the South Island). A criteria apparent from the above is that the plants grown at the sites using beach sand must have had a tolerance of salt brought with the sand.

