

Polynesian Plant Introductions in the Southwest Pacific: Initial Pollen Evidence from Norfolk Island

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ABSTRACT. Thick organic swamp sediments, buried under land fill on Kingston Common, preserves evidence of the Norfolk Island flora and vegetation back to the middle Holocene and probably much earlier times in the Late Quaternary. These sediments provide (1) a bench mark against which the impact of humans on the flora and vegetation of a long-isolated island can be assessed and (2) a means of determining whether particular plant genera and species are introduced or native to the island. Although sediments contemporary with Polynesian occupation about 800 years ago were destroyed by European draining and cultivation of the swamp during the early nineteenth century, the pollen data indicate that New Zealand flax (*Phormium tenax*) was introduced to Norfolk Island by Polynesians. Other putative exotics such as Ti (*Cordyline*), a bull-rush (*Typha orientalis*) and, less certain, herbs such as the sow thistle (*Sonchus oleraceus*), were part of the native flora long before the earliest recorded Polynesian settlement. Wildfires have been part of the landscape ecology of Norfolk Island since at least the middle Holocene.

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Like Europeans, Polynesians have been responsible for the spread of exotic plants into the southwest Pacific. Obvious examples are food species such as bananas (*Musa paradisiaca*), coconuts (*Cocos nucifera*) and sweet potato (*Ipomoea batatas*). Less clear-cut examples are the New Zealand flax (*Phormium tenax*), Ti (*Cordyline*) and the sow thistle *Sonchus oleraceus*. European commensals found include dandelion (*Taraxacum officinale*) and plantain (*Plantago lanceolata*, *P. major*).

Norfolk Island (29°02'S 167°56'E) lies too far south for coconuts to survive (see Hoare, 1988: 18). However, when first visited by Europeans in A.D. 1774 (James Cook) and A.D. 1788 (Phillip King), large numbers of banana trees were found growing along a freshwater stream flowing from Arthur's Vale into the Kingston Swamp on the south coast (Fig. 1). New Zealand flax covered rocky outcrops and sea cliffs in the same area (references in Hoare, 1988). Hoare (1988: 19) lists *Sonchus oleraceus*, palm hearts (*Rhopalo-*