Pseudowintera axillaris

Lucy B. Moore

In *The Botany of Auckland* (1981, p.103) Lucy Cranwell asks "What happened to horopito?" In the Waitakeres where Cheeseman had found it locally frequent in 1872 she could refer to only two recent records, one in Piha Valley, the other behind Huia. Any extant plants north of Auckland seem therefore to be worth reporting.

Logue's Bush, some 10 km eastwards from Wellsford, at an altitude of about 100 m, in the Whangaripo Valley, was visited by the Mid-North Branch of the Royal Forest and Bird Protection Society on 23 May 1982. Quite close to the stream and not far below the swing bridge that gives access to the bush, Mr Frank Hudson spotted an unfamiliar shrub consisting of a few slender branches and about 2 m tall. The entire leaves with pale, almost bluish undersides suggested horopito and anyone prepared to chew a fragment could confirm that this was indeed "Maori painkiller". A few paces further on a second plant was seen, similar in habit to the first and, like it, without flowers or fruit; leaves were healthy with little or no insect damage. These plants, growing amongst mixed shrubs of like height, were well shaded under a high canopy.

Mr Hudson recalls seeing horopito in two places at Kaipara Flats about 1940 but the few plants have long since disappeared. Does this species still grow right up to the Far North as recorded by Kirk and by Cheeseman?

TWO PTEROSTYLIDS THAT APPEAR TO BE 'HOOKED' ON KAURI

E.D. Hatch

I have been aware for 40 years that *Pterostylis brumalis* L.B. Moore and the plant Cheeseman described as *P. graminea* var. *rubricaulis* (Matthews) were to be found in the immediate vicinity of the kauri, but it was not until 1968 (*N.Z.Journ.Bot.6*: p.485) when Dr Moore described *brumalis* and I looked at the species afresh, that I realised that neither plant had ever been found anywhere else. While both can and do grow in the soil, they seem to prefer the loosely packed debris which builds up round the bases of the trees, growing entangled in fungal hyphae among the noduled kauri rootlets. I have only found *brumalis* in stands of pole (or ricker) kauri, while *rubricaulis* grows both with pole and with mature trees.

P. brumalis needs no further discussion, except to say that it appears at present to be confined to an area between Warkworth and Coromandel, being most abundant in the Waitakere and Hunua ranges. Dr Moore (*ibid.* p.486) records specimens in CANTY from Birkdale (Auckland North Shore) in 1920 by H.B. Matthews, and from Mauku (Waiuku) in 1899 by H. Carse; and there is a specimen in AK from the Pukapuka Bush, Mahurangi West, collected by Phyll Hynes in 1971. It may still linger in kauri reserves on Auckland's North Shore, but these are becoming in general too trampled to be suitable. Mr John Smith-Dodsworth made a survey during June 1982 of the north-eastern Coromandel ranges and recorded it from 5 localities, in each case with pole kauri.

P. rubricaulis Matth. *sens.strict.* has a wider recorded range. From Taiharuru Bay in the north-eastern Coromandels (J. Smith-Dodsworth) northwards to Kaitaia. I have myself found it throughout the Waitakere and Hunua ranges; Albany, Coatesville and Auckland North Shore; Kaeo in the far north; Waipoua and Trounson forests; and the Atuanui forest near Glorit on the Kaipara, always with kauri, both pole and mature, and never anywhere else. I dont believe it to be part of the *graminea* complex and in 1949 (*Trans.R.S.N.Z. 77*: p.240) I transferred it to *P. montana*. I still hold to this opinion.

I asked Dr Ross Beever to look at the mycorrhiza of both these orchids and he tells me that there is no apparent connection with the kauri. The fungus is stimulated by the piled-up decaying debris, while the orchids respond to the combination of the abundant fungi and the easily penetrated, moisture retaining debris layer. Whatever causes which to happen, there they both are, the Pterostylids and the kauri growing in beauty side by side.

SAGO PALMS

J. Beever

It is not uncommon to hear a reference to a Sago Palm as if there was only one such species. Investigation reveals that about eighteen species in nine genera are commonly used in sago production in different parts of the world. There are a few other species used occasionally but the above mentioned are the chief source of the well-known food. The following details appear in a publication "Palm Sago" by K. Riddle, D. Johnson, P.K. Townsend and J.D. Rees from the Australian National University Press, 1978, which summarises the present position.

The name sago comes from the Malay word, sagu, used for the food obtained from the trunk of certain palms. The palm is felled, the trunk cut open and the pith extracted, cut in small pieces and macerated with water. By this means the white starchy food is separated from the fibrous mass and after removal of some water the sago is either used as a food there and then or processed into the small pellets we are familiar with.

The first and still by far the most important genus used for sago is the tropical *Metroxylon* of which several species are used in New Guinea (both East and West), Kalimantan (Borneo), Indonesia, Malaysia and the Philippines. Other palms used to a much lesser extent are, the *Arenga pinnata* in India, West Malaysia, the Philippines and Indonesia; the *Caryota* (4 species) or Fishtail Palm in Malaysia (East and West), Kalimantan and Viet Nam; *Corypha* (2 species) a fan palm, in Sri Lanka, the Philippines, Malaysia, Madeira (Brazil),and Sulawesi (Celebes); *Eugeissonia* (2 species) in Sarawak, Kalimantan and Malaysia. The New World has also used palm sago; in the West Indies the *Roystonea oleracea* (the Feathery Cabbage Palm) is most used; in Venezuela the *Mauritia flexuosa* and the *Arecastrum romanzoffianum* in Paraguay and Brazil.

As well as palms some cycads have been used for sago in some parts and strangely in New Zealand cycads seem to have acquired the common name of Sago Palm. The writers of the afore-mentioned article say that commercially, world production of sago now includes the similar material obtained from the tropical root crop manioc or cassava which we would differentiate as tapioca.