MANGROVES OF THE NORTHERN TERRITORY, AUSTRALIA:

IDENTIFICATION and TRADITIONAL USE

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DARWIN 2006

Nypa **ARECACEAE**

DERIVATION: *Nypa* is taken from ‘Nipa’ the traditional name used in the Moluccas and the southern Philippines, which was recorded by Georgius Rumphius when he was based in Ambon in eastern Indonesia.

A monotypic genus it is considered to represent an independent line of specialisation in the Arecaceae, and was placed in a monotypic group, the Nypoid palms. *Nypa fruticans* is only known from three populations in the NT.

Nypa fruticans Wurmb **Mangrove Palm**

DERIVATION: The Latin ‘fruticans’ means shrubby, and refers to the shrubby habit of this species.

DERIVATION: Palm, clumping; stems subterranean, robust, prostrate, forking, rooting from lower surface. Fronds pinnate, erect, slightly recurved, 4–6 m long; petiole 1–1.4 m long, stout, strongly flanged at base. Pinnae 100–120 per leaf, 60–130 x 5–8 cm, upper surface shiny green, lower surface somewhat powdery, midrib regularly marked by linear, brown, medifixed scales to 2 cm long. Inflorescence borne on peduncle 1–2 m long, arising from stem; female flowers in spherical head 25 cm diameter; male flowers in catkins below. Fruiting body spherical, 45 cm diameter, individual fruit obovate, angular, fibrous, 10–15 x 5–8 cm. Seed one per fruit, egg-shaped, white, 5 x 4 cm.

HABITAT: *Nypa fruticans* is found on soft, fine–grained substrates fringing the upper limits of tidal waterways, which receive a perennially high input of freshwater. Northern Territory populations occur on strong flowing perennial waterways, where salinity is low all year round. Associates include *Xylocarpus granatum*, *Rhizophora apiculata*, *Lumnitzera littorea* and *Dalbergia candenatensis*.

DISTRIBUTION: *Nypa fruticans* is known from three localities in the NT; at Melville Island on Maxwell and Tjipripu Creeks, the third at Trepang Bay on Cobourg Peninsula. This species also occurs on the north-east Queensland coast. Extra-Australian distribution includes the Philippines, Malaysia, New Guinea, south-east Asia and the western Pacific.

DISTINCTIVE FEATURES: Palm with feather-like fronds 4 to 6 metres long.

ETHNOBOTANY: For some Tiwi people *Nypa*, or rola, is a dreaming or totemic plant (Puruntatameri et al. 2001). It also provides the geographic name for one of the areas where it occurs, Rola Plains. Large mud mussels (*Geloina coaxans*) are found around the base of the stems of this palm where it grows in deep mud in fresh water. These mud mussels are eaten after roasting, and are highly

sought after due to the pleasant taste and large amount of food that can be easily gathered. They are only found at the *Nypa* site.

Iwaidja speakers consider *Nypa* to be have been introduced by Macassan fishermen, and the name badthunggu is recognised as a Macassan name (Blake et al. 1998).

Rirratjingu people have classified and named the fruit that regularly wash up on beaches in north-east Arnhem Land, even though the plant does not grow in the area (Yunupingu et al. 1995).

Recorded Aboriginal language names

Gunawu, fruit (Rirratjingu) Rola (Tiwi)
Badthunggu (Iwaidja)

Aboriginal people of the Herbert River area collect and eat unripe seeds (Elliot & Jones 1984). In Asia, sap is collected from *N. fruticans* and is used in the production of alcohol and, to a lesser extent, sugar and vinegar (Watson 1928). Fronds of *N. fruticans* are used for thatching, umbrellas, hats, mats, baskets and cigarette papers, the fruit have also been utilised as a food source, after preparation; petiole fibres are used to produce rope, brooms and brushes (Watson 1928).

In the Philippines the leaves are used for thatching and shingles, the sap is made into wine, alcohol and vinegar, the fruits and seeds are eaten and it is also used to treat toothache and headache (Jara 1987). The fronds are widely used as thatching, the seeds are eaten raw or preserved, the sap is used to make vinegar, wine or dark sugar in Indonesia (Soegiarto & Soemodihardjo 1987). In Vietnam fishermen build houses on wooden platforms and use *Nypa* fronds to make shingles for the roof and walls (Hong & San 1993), it is also planted in tidal areas to reduce erosion. *Nypa* leaflets are also used to wrap sticky rice coconut cakes, the leaf stalks are used for floats for fishing nets and to make broom handles and immature seed endosperm was eaten raw (Hong & San 1993).

Other uses of *Nypa* in south-east Asia include the flowers to make aromatic tea, medicine for skin diseases from the young shoots, the white endosperm eaten raw or cooked, the leaves and midribs for fish net construction and the hard kernels of the fruit to make buttons and checkers (Mastaller 1997).

NOTES: The pollen is sticky and pollination appears to occur via drosophilial flies (Essig 1973). Uhl and Moore (1977) note that vasculature, histology and growth patterns of flowers support this mode of pollination. The fruit of *N. fruticans* are fibrous and air cavities in the seed testa and fruit coat aid water dispersal, however, Guppy (1906) reported that the fruit remain viable for only short periods in salt water. Van der Pijl (1969) hesitated to accept that *N. fruticans* is viviparous, however, Saenger (1982) considers *N. fruticans* viviparous.

Cronquist (1981) noted *Nypa* pollen in the fossil record from the Upper Cretaceous, 65–70 million years BP. *Nypa* would have been well represented in

the Australian flora in the early Tertiary period (Barlow 1981). Fossil fruits and pollen have been found in early Tertiary sediments of what are now cool temperate regions of the northern hemisphere (Morley & Toelken 1983).

Flowers occur in November and December while fruits have been observed in October, November and December. Further field studies are needed to document *N. fruticans* phenology in the NT. The fruit segments are commonly found washed up on beaches on the north coast of the NT, which have probably originated from south-east Indonesia and these can be viable. For viable fruit to reach suitable habitats that receive strong, perennial freshwater flow, they would probably require strong winds and tidal surges associated with cyclonic conditions.

The Maxwell Creek *Nypa* population on Melville Island occurs over about 2 km of winding upper tidal creekline near the Yapilikka forestry area, the Tjipripu Creek population occurs over about 3.5 km of upper tidal winding creekline. The Maxwell Creek population consists of several thousand individuals; the Tjipripu population is significantly larger. Both populations are very healthy with many juveniles, young plants and fruiting adults being present in 1983 and 2001 (pers. obs.).

The Trepang Bay population on Cobourg Peninsula occurs in a flattish spring-fed area on the downstream edge of a paperbark swamp, *Melaleuca leucadendra*. This population is smaller and consists of about several hundred plants. In 1995 there were a significant number of dead plants and the population appeared unhealthy (pers. obs. 1983, 1995). Recent observations suggest this population has improved in health (Alan Withers pers. comm. 1999, Lea Farinola pers. comm. 2004), though it may have suffered damage from Cyclone Ingrid in March 2005.

A population of *Nypa* has been established in the Darwin Botanic Gardens that has produced flowers and fruit, but has proven difficult to maintain in good health. Anecdotal reports suggest that fresh *Nypa* seeds germinate easily and grow quickly in well-watered, cultivated situations in the NT. *Nypa* has been successfully propagated and cultivated for long periods in tropical Queensland.

Reference: Covacevich 1981.

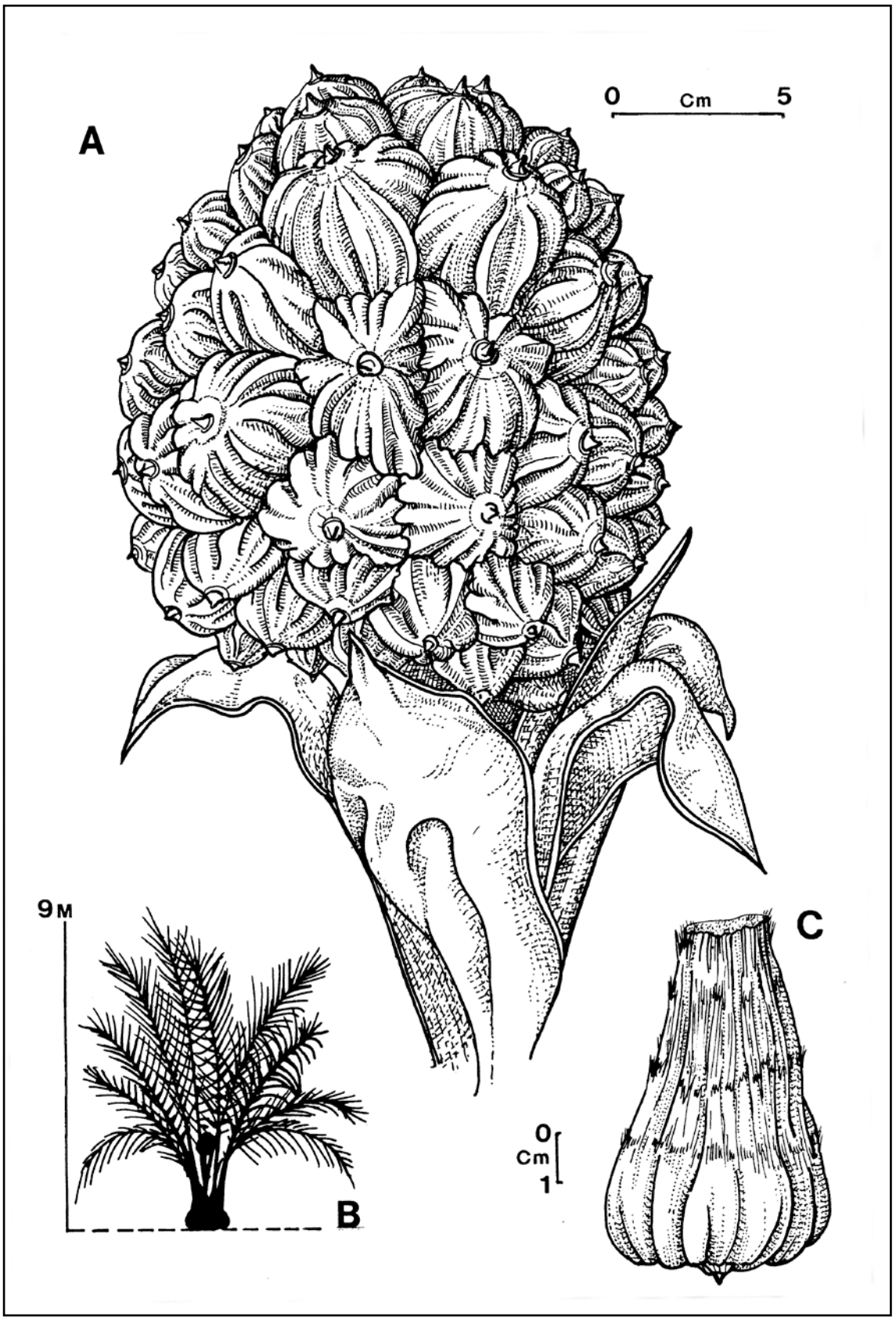

Figure 32. ***Nypa fruticans***. A, fruiting head; B, habit; C, single fruit (A–C, J. Waldeck s.n., DNA 10662).