

Fiji's Sago Palm

"A palm under threat"

by Isaac Rounds



The sago palm, *Metroxylon sagu* is endemic to Fiji and only found on Viti Levu and Ovalau, a land bridge island. Known locally as sago or niu soria, it has always been a species with a very restricted distribution – a 60 km coastline and its hinterland in southeast Viti Levu. Sago was once widespread throughout the Navua and Rewa River deltas but today only 12 isolated populations survive, mainly in pockets on the coastal plains. There are however, three significant inland populations along the Navua River. The recent completion of a comprehensive MSc project by the author at the University of the South Pacific, has confirmed that the current exploitation of the sago, *Metroxylon vitiense*, is totally unsustainable and that this endemic Fijian palm now seriously faces extinction.

Sago is normally found in dense stands on alluvial, poorly drained plains landward of coastal swamps, although there are also some inland populations adjacent to major rivers. All populations are below 30 m.a.s.l with the exception of Nabukelevu, which is situated above the Navua gorge at over 100 m.a.s.l. Sago is a monocarpic palm, which differs from most palms in the manner in which they produce fruit. None are produced during the normal lifespan of the palm, only when 15-20 years old does it produce a large flowering structure above its crown on which the fruit develop. As the fruit mature, all the leaves die, the fruit drop and then the adult palm dies. The fruit are large, typically nine cm in length and float, so they are readily dispersed by water. Flying foxes (*Pteropus* spp.) and large parrots (*Prosopiea personata*) are also dispersal agents. Rats (*Rattus* spp.) prey on the fallen fruit and seeds especially when seeds are germinating.

The long life span, late maturity and reproductive method of sago renders even large populations vulnerable to sudden and dramatic disturbance. Removal of the normal closed canopy can allow weeds and creepers to

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establish and compete with germinating seedlings and young palms trying to establish themselves. Drainage dramatically increases the ability of invasive weeds and creepers to out-compete young sago palms.

The distribution of sago has decreased dramatically to its current relict populations primarily through the gradual drainage of coastal swamps and clearing of coastal forests for agriculture, gardens and pastures. Until relatively recently however, these threats acted at a gradual rate on a steadily diminishing stock of sago. Within the last twenty years dramatic new threats have arisen in the form of: 1) large scale coastal drainage schemes, 2) new residential and agricultural subdivisions, 3) the growth of a non-traditional 'palm-heart' trade; and, 4) the introduction of unsustainable leaf harvesting for thatching brought about by demand from the tourist industry

The detailed MSc study by the author documented the unsustainable harvesting of leaves for both palm heart and thatching industries. The demand for thatch from the tourist industry has increased exponentially over the past 10 years, and today villagers are sometimes resorting to killing the trees to obtain all the leaves. Heavy removal of leaves stunts the growth of palms and keeps them in a permanent juvenile condition. Excessive leaf removal and felling for palm heart opens up the canopy of sago stands and introduces a serious problem from weed invasion by *Merremia peltata* and other creepers, which can smother young palms and even kill adults before they fruit. These creepers and several competing trees and shrubs do not penetrate large swampy stands, but once drainage is installed and the area becomes drier, sago can be out-competed by invasive weedy species and they become vulnerable to the occasional fires.

Currently, sago shingles are sold exclusively to the tourism industry. Shingles sell for \$0.80 to \$2.00 each, mainly to middle men who supply resorts directly or to

contractors for the tourist industry. In 2007, families involved in the harvesting received between \$200- \$1500 every six to eight weeks and much of the preparation of the shingles is done by women. Currently four villages and two settlements are involved in selling thatch shingles.

The harvesting of palm heart is recent and is quite popular with Indo-Fijians, who have developed a taste for sago palm-heart curry and are the majority consumers. The local name for sago palm heart is 'seko' derived from the word sago. The harvesting of palm heart is very destructive. To obtain the palm hearts, a mature or nearly mature tree has to be felled using chain saws whereas before axes and cane knives were used. Previously these sold at the roadside for \$3-5 each, but today are costing \$15. Since sago are single stemmed palms, the extraction of palm heart is very destructive as it involves cutting down of the entire sago tree killing it. The harvesting of palm heart is very wasteful as only the palm heart is removed and not the leaves.

Sago was originally listed as Vulnerable (VU) in 1997 using the IUCN criteria; however, this recent data suggests that it should be reclassified as Endangered. This is due to an overall population reduction of greater than 50% in the last 10 years and having an area of occupancy <500 km² with continuing, observed and projected decline.

A draft species recovery plan has been drawn up to help protect this endemic species. This includes six options for both in-situ and ex-situ conservation of sago. They range from a confrontational approach of a complete ban, to a partial ban, to a compromise approach which includes moratorium replanting and using sago forest as wetland attractions. Protection of existing wild populations where there is potential; supplementary planting or restoration/rehabilitation where there is potential, insurance planting and distribution of planting to eliminate or reduce threats, heart palm substitution; thatch sustainable management are also options to protect this palm species.