

Status of *Pseudophoenix sargentii* on Elliott Key, Florida

TRACY MONIQUE MAGELLAN¹

AND

M. PATRICK GRIFFITH

Montgomery Botanical Center,
11901 Old Cutler Road, Coral
Gables, Florida 33156 USA

¹Corresponding Author:
tracym@montgomerybotanical.
org

1. One of three surviving adult *Pseudophoenix sargentii* on Elliott Key. Inflorescence/Infructescence branch can be seen in the canopy of this individual.



The last Florida population of Buccaneer Palm is barely surviving.

The only wild U.S. population of *Pseudophoenix sargentii* H.Wendl. is struggling on an off-shore island in Miami-Dade County, Florida, called

Elliott Key. Elliott Key is a small island about 8 mi (12.8 km) long by 1 mi (1.6 km) wide in the upper Florida Keys (Ledin et al. 1959,

Lippincott 1992, Zona 2002), only accessible by boat. The vegetation on Elliott Key has weathered many hurricanes. In February of 1968, a bulldozer operator widened Elliott Key Highway to 125 feet, destroying more than 120 acres of hammock in what is now called Spite Highway (Lippincott 1992), in an attempt to prevent the island from being acquired by the National Park Service. The attempt was unsuccessful and Elliott Key is currently part of Biscayne National Park in the National Park Service Bureau of the U.S. Department of the Interior.

On Elliott Key, *Pseudophoenix sargentii* (Fig. 1) is found in coastal hammocks with *Agave decipiens*, *Bursera simaruba*, *Caesalpinia major*, *Chiococca alba*, *Coccoloba uvifera*, *Conocarpus erectus*, *Eugenia axillaris*, *Laguncularia racemosa*, *Metopium toxiferum*, *Nectandra coriacea* and *Thrinax radiata* (Fig. 3). *Pseudophoenix sargentii* has been associated with *Thrinax radiata* in the Yucatan, Mexico (Quero 1981, Johnson 1996), and in some areas of Elliott Key it appears as if there are a large number of young *Thrinax radiata* in the understory and very few *Pseudophoenix sargentii*. This last remaining wild U.S. population is listed as Endangered in the State of Florida (Duran 1995, Coile and Garland 2003).

In an interesting account of *Pseudophoenix sargentii*, Sargent (1886) noted finding a relatively small population of six individuals in two localities approximately 2 or 3 miles (3.2–4.8 km) apart. He mentioned immature orange or red fruit were observed in April. Sargent (1888) later mentioned about 200 *P. sargentii* were found on Long Key, but these no longer remain on that island (Lippincott 1992 & 1995, Zona 2002). Britton (1904) and Small (1922) found only one adult *P. sargentii* on Elliott Key, which supported the low number of *P. sargentii* reported by Sargent. More recently, in 1992, Lippincott described dozens of eroding *Pseudophoenix sargentii* stumps on Elliott Key as a sign that hurricanes, excessive salt, disease and old age may contribute to a high natural mortality (Lippincott 1992). This is a similar conclusion to what is now seen, 23 years later. The last published count listed eight living adults on Elliott Key (Fotinos et al. 2015).

Tracy Magellan and Jeremy Schnall set sail on February 11, 2015 and reached Elliott Key in 5.5 hours from Florida City. On the first day, GPS points were tested and the first adult individual was found on the island, in an area



2. Two dead *Pseudophoenix sargentii*. One with dead leaves still attached.

called Scorpion Bite. The individual found had no fruit or flowers. After observing the palm, we returned to camp and prepared our plan to visit the remaining adults the next day. The mosquitoes were swarming in dense clouds; on Elliott Key mosquitoes are active in all seasons, including winter.

On February 12th, we began our trek to visit the remaining known adults on the island and collect data. The first stop was a location called "Predator South." The second adult found also had no fruit, but did have an old infructescence/inflorescence still attached (Fig. 1). A voucher collected from that individual was deposited at the South Florida Collections Management Center (FNPS). The third adult was standing dead with no leaves (Fig. 2). The fourth individual was standing dead with wilted leaves remaining (Fig. 2). The fifth individual was also dead, but the top half of the trunk had broken off and was on the ground next to what remained of the standing dead trunk. The sixth individual was found alive, but had no flowers or fruit. The seventh, eighth, ninth, tenth, and 11th individuals were standing dead with no leaves.



3. Young, planted *Pseudophoenix sargentii* with black discoloration on the crownshaft.

In summary, during the expedition to Elliott Key three living adults were observed with no flowering or fruiting in February 2015. It is unknown whether Hurricane Sandy (2012) affected this population by killing off many of the remaining adults, whether the remaining adults are reaching senescence, or whether there is a greater pest or pathogen issue involved. This conclusion parallels strikingly the conclusions of Lippincott (1992); 23 years later the same issues are repeating themselves. Sargent (1886) only observed six individuals 130 years ago. It appears as if *Pseudophoenix sargentii* populations continue to remain low, though from 1990–1992, before Hurricane Andrew, a high estimate of 47 wild individuals of all age classes were observed with at least 20 noted adults (Lippincott 1995, Lippincott personal communication) and ongoing restoration projects aim to increase the island population.

The number of wild adults in the latest survey is worrying, particularly because the three remaining adults do not show current signs of reproduction. There are a few planted juveniles that appear to be healthy and some

small grass-like wild seedlings that appear to have been flagged as part of a 2012 survey by Fairchild Tropical Botanic Garden (Joyce Maschinski, pers. comm.). Those wild seedlings appeared to be very small for 3 years old. A juvenile *P. sargentii* planted near the visitor center appeared to have a blackened crownshaft, possibly due to fungus or another issue (Fig. 3). Edelman and Richards (2013) recently discussed this mysterious ailment but the darkening of the crownshaft does not appear to be a new concern, as it or something similar can be seen in historic black and white photos of *P. sargentii* (Ledin et al. 1959, Read 1968, Lippincott 1992).

Pseudophoenix sargentii can take approximately 30 years to mature (Maschinski & Duquesnel 2006), so let us hope that in the next few years the restoration project funded by the South Florida chapter of the International Palm Society establishing juvenile seedlings on Elliott Key in 1991 (Lippincott 1995, Maschinski & Duquesnel 2006) from seeds collected by Biscayne National Park in 1984 (Lippincott 1995) leads to a viable, healthy and reproductive restocked adult population adding genetic diversity to the existing wild population.

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