

# The Native Palms of Dominica

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1. *Coccothrinax barbadensis* in the village of Tête Morne. (Photo S. Zona)

The Lesser Antillean island of Dominica in the Eastern Caribbean is home to nine indigenous palms. Recent field work by the authors brought together information on their natural history, use by local people and conservation status.

Dominica is a small island of 754 km<sup>2</sup> located in the Lesser Antilles, between Martinique and Guadalupe, in the Eastern Caribbean. Dominica is mountainous, and consequently, much of the natural vegetation is still intact. Because of the mountains, there is a pronounced rain shadow on the western (lee) side of the island, so it is the drier side. Dominica has a lush interior of rainforests, waterfalls, lakes, hot springs and more than 200 rivers, many of which cascade over steep cliff faces en route to the coast. The island is home to the highest mountain in the English-speaking islands of the Eastern Caribbean, Morne Diablotin, which reaches 1447 m above sea level. It is also home to a small but diverse palm flora.

The first publication dealing strictly with the palm flora of Dominica was that of Hodge (1942), who made several field trips to the island in 1937, 1938 and 1940, and who had a special interest in palms. Hodge was president of the Palm Society, the forerunner to the IPS, in 1957–1960. His account was noteworthy for its inclusion of *Geonoma hodgeorum*, newly described by L.H. Bailey, who visited the island in 1922. At the time, the known palm flora comprised seven species in five genera. Of these seven, only *Acrocomia aculeata* had been previously recorded for the island. Hodge again published an account of the palms in his flora of Dominica (Hodge 1954), in which eight species in seven genera were recorded. In this publication, the genus *Aiphanes* is recorded from the island for the first time. The next most significant palm discovery was made by R.W. Read in 1968 when he discovered an apparently indigenous population of *Pseudophoenix sargentii* growing on the western side of the island, near Mero (Read

1969). Read provided an up-dated account of the palms for Howard's flora of the Lesser Antilles (Howard 1979), in which ten species in nine genera are given for Dominica. The last-named publication included *Roystonea oleracea* as being indigenous; we believe it to be introduced and naturalized. In this current account, we follow the taxonomy of Henderson et al. (1995). The changes to the Dominican palm flora are summarized in Table 1.

Because Dominica's palms are useful indicators of the main vegetation zones (Hodge 1942) and because of their importance to the people of the island, we surveyed populations of palms on the island to assess their health and conservation status, as well as to address taxonomic questions that remain.

### Methods

Field work was conducted in August, 2002. The health and well-being of palm sites in Dominica was assessed in the field using visual estimates of population size and structure. Owing to time constraints, actual counts of individual palms and a complete survey of the range of each species were not possible. Because the distributions of most palm species in Dominica are small, our results can be extrapolated to the island in general, according to the distribution and availability of habitat. Threats to palm populations were determined from field evidence, interviews with local people and discussions with Forestry personnel.

Conservation status was assigned using categories of the IUCN Red List, <<http://www.iucn.org>

**Table 1. The palms of Dominica as treated by various authors.**

Hodge 1942	Hodge 1954	Read in Howard 1979	this paper
<i>Coccothrinax martinicensis</i>	<i>C. martinicensis</i>	<i>C. barbadensis</i>	<i>C. barbadensis</i>
<i>Rhyticocos amara</i>	<i>R. amara</i>	<i>R. amara</i>	<i>Syagrus amara</i>
<i>Acrocomia aculeata</i>	<i>A. aculeata</i>	<i>A. aculeata</i>	<i>A. aculeata</i>
<i>Euterpe dominicana</i>	<i>E. dominicana</i>	<i>E. dominicana</i>	<i>E. broadwayi</i>
<i>Euterpe globosa</i>	<i>E. globosa</i>	<i>Prestoea montana</i>	<i>P. acuminata</i> var. <i>montana</i>
<i>Geonoma dominicana</i>	<i>G. dominicana</i>	<i>G. martinicensis</i>	<i>G. interrupta</i> var. <i>interrupta</i>
<i>G. hodgeorum</i>	<i>G. hodgeorum</i>	<i>G. dussiana</i>	<i>G. undata</i>
	<i>Aiphanes</i> cf. <i>minima</i>	<i>A. luciana</i>	<i>A. minima</i>
		<i>Pseudophoenix sargentii</i>	<i>P. sargentii</i>
		<i>Roystonea oleracea</i>	(omitted)

/themes/ssc/redlists/ssc-rl-c.htm>. It should be noted that the categories assigned apply only to the species as they occur in Dominica. The global category of threat is not known for most of the species.

## Results

### *Coccothrinax barbadensis* – *Latannyé*, *Natannyé*, *Balyé*, *Silver Thatch Palm*

As a result of over-exploitation for the manufacture of brooms, *Coccothrinax barbadensis* has become very uncommon in the wild, restricted to small, inaccessible sites away from major human populations. In fact, more palms appear to exist in cultivation in the village of Tête Morne than in the forest we surveyed near the village (Fig. 1). This is a case where domestication may save this species from complete extirpation.

We saw no evidence of seedling regeneration at the survey site, although the palms flower and fruit. The absence of seedlings cannot be explained. Based on the fact that populations of this palm are likely to be reduced by 50% over the next three palm generations due to actual or potential levels of exploitation, the category of Endangered is assigned to *Coccothrinax barbadensis* in Dominica. Although the category of threat is not known with certainty outside of Dominica, we are aware of reports of dwindling populations of this palm in St. Lucia and Barbados, also as a result of over-exploitation.

The leaves of *Coccothrinax barbadensis* are widely used in several communities along the windward side of Dominica, and this is one of the two most widely used species of indigenous palm on the island. The healthy mature leaves of juvenile, sub-adult and adult palms are used for making brooms for household use, and this activity provides an important source of income for villagers in the south-east and extreme north of the island (the local name “Balyé” is also the Creole word for broom). The sword leaves are used for making hats, while place mats and coasters are fashioned from the expanded leaves.

*Coccothrinax barbadensis* is reported from Puerto Rico, the Lesser Antilles, Trinidad and Tobago, the Virgin Islands and an island off the coast of Venezuela (Henderson et al. 1995).

### *Euterpe broadwayi* – *Palmist* (Fig. 2)

This palm is relatively common at sites above 750 m elevation. Much of the extent of its occurrence lies within the Northern Forest Reserve, and the Morne Trois Pitons and Morne Diablotin National Parks. We found abundant evidence of seedlings and juveniles at the site we visited in the heights

of Morne Rchette, a finding that suggests the palms are reproducing and regenerating. We assigned this palm to the category of Lower Risk—least concern

The Dominican population of this species was previously thought to represent an endemic species, *Euterpe dominicana* L.H. Bailey (Tab. 1). Henderson and Galeano (1996) synonymized the name under *E. broadwayi*, a species that also occurs in Trinidad, Tobago, Grenada and St. Vincent. Oddly enough, Henderson and Galeano reported that *E. broadwayi* usually has clustering stems and is rarely solitary. All of the individuals observed by us had solitary stems.

In Dominica, the edible bud of *E. broadwayi* is referred to as “chè-palmis” which literally means “heart of Palmist.” The leaves of this palm are used in some of the north-eastern villages for broom-making.

### *Geonoma interrupta* var. *interrupta* – *Yanga*

As with the preceding species, *Geonoma interrupta* var. *interrupta* (Fig. 3) is common at the site we visited, which lies above 750 m elevation. It too grows in areas that lie within the Northern Forest Reserve, the Morne Diablotin National Park and the Morne Trois Pitons National Park. We found abundant evidence of seedlings and juveniles at the site, a finding that suggests the palms are reproducing and regenerating. We categorized it as Lower Risk – least concern.

Although we encountered thousands of seedlings, a very small percentage survives to adulthood. We were unable to ascertain what factor(s) caused mortality of seedling palms of this species, although the foraging activities of feral pigs may play some role. This species is described by Henderson et al. (1995) as solitary or clustering with few stems. Our observations confirm that this palm is weakly clustering. Clearly, reproductive potential is both sexual via seeds and asexual via suckering.

A second species of *Geonoma*, *G. undata*, occurs at high elevations in Dominica. We were unable to visit these sites and assess its conservation status. Outside Dominica, *Geonoma undata* occurs in Central and north-western South America. *Geonoma interrupta* var. *interrupta* is equally widespread (Henderson et al. 1995).

### *Acrocomia aculeata* – *Glou-glou*, *Gougrou*

This palm is confined to drier sites on the western side of Dominica. Although we found adult palms with fruits (Fig. 4), the fruits were dropping to the ground and were not being dispersed. The agent of dispersal is presumed to be animal, but animals



large enough to handle the fruits of *Acrocomia* are few in Dominica. We saw no seedlings or evidence of regeneration. Moreover, the site is heavily degraded and invaded by lemon grass or mulch (*Cymbopogon citratus*). As *Acrocomia* requires light for establishment, it is likely that the dense cover of lemon grass is preventing palm seedling growth and regeneration.

Because the extent of occurrence is estimated to be less than 100 km<sup>2</sup>, because the number of

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2 (upper left). *Euterpe Broadwayi* at Morne Rchette Heights in the Northern Forest Reserve. (Photo S. Zona). 3 (upper right). *Geonoma interrupta* var. *interrupta* growing in a remnant patch of forest at Syndicate. (Photo S. Zona). 4 (lower left). *Acrocomia aculeata* at Canefield. (Photo A. James). 5 (lower right). *Syagrus amara*, near Morne Espagnol. (Photo A. James).

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6 (below). *Aiphanes minima* at San Sauveur, on the east coast. (Photo K. Maidman). 7 (right, top). *Pseudophoenix sargentii* in the hills above Mero. (Photo A. James). 8 (right, bottom). *Prestoea acuminata* var. *montana* shrouded in mist near Freshwater Lake, above Roseau. (Photo S. Zona).



mature adults is expected to decline and because regeneration is prevented by lemon grass, the assigned category is Critically Endangered.

The pulp and kernel of the fruits of *A. aculeata* are eaten as a snack in Dominica, and the fruits can sometimes be purchased at the fresh produce market in Roseau.

This species is the most widespread of Dominica's palms. It grows from Mexico, through Central America and the Caribbean to much of South America (Henderson et al. 1995).

#### *Syagrus amara* – Kokoyé, Overtop Palm

Upon seeing these palms growing above the surrounding forest at Morne Espagnol, we knew how *Syagrus amara* (Fig. 5) acquired the common name "overtop palm." Mature palms easily rise above the low, seasonally dry forest in which they grow. We found no evidence of seed dispersal for *Syagrus*, so as with the preceding species (*Acrocomia*), we are concerned that the animal dispersal agent is missing or rare. Most seeds fall below the parent tree, but establishment and regeneration cannot occur in dense shade. Young plants were found in gaps in the forest. Disturbance of the forest by local people, who harvest wood for fuel, is probably beneficial for the palm, as long as the level of disturbance remains small.

*Syagrus amara* is one of the two most commonly utilized native species of palm on Dominica. The "straw" made from the boiled spear leaves of this palm are used for making hats, ladies' purses and side bags, as well as bottle wraps.

Because we estimate that more than 1000 mature adults of this palm remain on the island and because this population is relatively stable, we assign the category of Lower Risk – least concern.

*Syagrus amara* occurs in a few islands of the Lesser Antilles, viz. Martinique, Guadeloupe and St. Vincent, in addition to Dominica (Henderson et al. 1995).

#### *Aiphanes minima* – Gwigwi, Macaw Palm

This palm is confined to the wetter side of island; however, even there (Fig. 6), *Aiphanes minima* is uncommon, despite prolific seed production. Local people explained that seedlings and young plants are actively removed from trails, plots, and adjacent lands because the palm is dangerously spiny. Based on the limited area of occupancy and the active threat to the palms from humans, we assign the category of Endangered.

We recently encountered populations of *Aiphanes* in the rain forests in the heights of Bense Village

in the Northern Forest Reserve, and have learned of populations on Morne Turner Ridge in the Morne Diablotin National Park, at Stonefield in the Northern Forest Reserve, as well as on Morne Frazer. The palms are significantly less spiny and the trunks are more slender and shorter. The leaflets of seedlings, juveniles and adult palms do not bear spines. The average diameter at breast height (dbh) of 44 palms from two populations combined from Bense Heights was 7.4 cm, whereas the average dbh from 20 of the more spiny and larger palms at San Sauveur was 13.9 cm (maximum encountered dbh was 18.7cm).

These populations of the less spiny and more slender palms may represent a second species of *Aiphanes* in Dominica, although a recent monograph of the genus (Borchsenius & Bernal 1996) recorded only one species of *Aiphanes* from the Caribbean (excluding Trinidad). Alternatively, this population may represent a different morphological form of the highly variable *A. minima*. Its conservation status is unknown (Data Deficient [DD]), but if it is less spiny, it may not be actively removed by local people.

The ripe fruits of the larger and more spiny *Aiphanes* palm are eaten as a snack by children in the San Sauveur area.

*Aiphanes minima* is also known to occur in Hispaniola, Puerto Rico, Martinique, St. Lucia, St. Vincent and Barbados (Borchsenius & Bernal 1996).

#### *Pseudophoenix sargentii* – Buccaneer Palm

*Pseudophoenix* still occurs in the hills above Mero (Fig. 7), just as Read (1969) said they did. The palms at this site, the only site for the species in Dominica and the Eastern Caribbean, are under active study by Dominica's Forestry Division (James 2003). Although the range is not large, recent surveys of the palm population have documented over 3000 individuals of varying ages in several subpopulations (but fewer than 150 adults). Seed production is good and seed dispersal has been observed. Seedlings are well represented, an observation suggesting that the population as a whole is in good health (although certain subpopulations may not be in equilibrium).

Threats to the population include brush fires in disturbed areas invaded by lemon grass (*Cymbopogon citratus*) and housing construction; however, subpopulations in less disturbed woodland appear to be more secure. As the population is restricted in its area of occupancy and the number of mature adults is less than 250, we assign the category of Endangered.

In the 1960s, the spear leaves of *P. sargentii* were harvested by a small group of ladies, and the "straw" made from the dried, stripped leaves was used for hat-making (James 2003).

Dominica is the eastern-most and southern-most site for *Pseudophoenix sargentii*. Elsewhere, it is found in Mexico, Belize, Cuba, Florida, the Bahamas, Hispaniola and the island of Navassa (Zona 2002).

*Prestoea acuminata* var. *montana* – Palmist moutayn

The site in which we observed the palm (Fig. 8), Freshwater Lake, within the Morne Trois Pitons National Park, is protected and an important watershed for the city of Roseau. We were unable to assess regeneration for this palm, although seed production was high. Elsewhere in the Caribbean, *Prestoea acuminata* var. *montana* is a pioneer species. Under natural conditions, it rapidly colonizes landslides and tree fall gaps, and it is unable to regenerate in shade. This is a palm that benefits from disturbance (Frangi & Lugo 1998). We were unable to determine whether the Freshwater Lake area had suitable regeneration sites for this palm; however, natural disturbances (landslides, hurricanes) are likely sufficient for the maintenance of this palm. We classified it as Lower Risk – least concern.

This variety is also found in Cuba, Hispaniola, Puerto Rico and many islands in the Lesser Antilles (Henderson & Galeano 1996).

### Discussion

Although the palm flora of the island is small, the taxonomic composition is diverse, with only one genus, *Geonoma*, represented by more than one species. The diversity in the floristic composition reflects Dominica's position in the Caribbean, midway along the arc of volcanic islands comprising the Lesser Antilles. Not surprisingly, elements in the palm flora include those from the northern Caribbean, such as *Coccothrinax* and *Pseudophoenix*, and those from Central and South America (*Aiphanes*, *Euterpe*, *Geonoma*, *Prestoea*, *Syagrus*). The palm flora of Dominica is an aggregation of genera and species that migrated to the island from both the north and south.

Our conservation assessment of Dominican palms placed the nine taxa in the following IUCN categories:

Extinct: 0 species

Extinct in the Wild: 0 species

Critically Endangered: 1 species (*Acrocomia aculeata*)

Endangered: 3 species (*Coccothrinax*, *Aiphanes*, *Pseudophoenix*)

Vulnerable: 0 species

Lower Risk: 4 species

Data Deficient: 0 species (but see comments under *Aiphanes minima*)

Not Evaluated: 1 species (*Geonoma undata*)

The threats to palms in Dominica were identified as habitat loss, competition with exotic species (viz. *Cymbopogon citratus*), and over-exploitation. Loss of dispersal agents may also figure in the decline of some species, including the critically endangered *Acrocomia aculeata*.

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### LITERATURE CITED

- BORCHSENIUS, F. AND R. BERNAL. 1996. *Aiphanes* (Palmae) Flora Neotrop. 70: 1–95.
- FRANGI, J. L. AND A. E. LUGO. 1998. A floodplain palm forest in the Luquillo Mountains of Puerto Rico five years after Hurricane Hugo. *Biotropica* 30: 339–348.
- HENDERSON, A. AND G. GALEANO. 1996. *Euterpe*, *Prestoea*, and *Neonicholsonia* (Palmae: Euterpeinae). *Flora Neotrop.* 72: 1–90.
- HENDERSON, A., G. GALEANO AND R. BERNAL. 1995. *Field guide to the palms of the Americas*. Princeton University Press, Princeton, New Jersey.
- HODGE, W.H. 1942. A synopsis of the palms of Dominica. *Carib. Forester* 3(3): 103–109.
- HODGE, W.H. 1954. *Flora of Dominica*, B.W.I., part 1. *Lloydia* 17: 1–238.
- HOWARD, R.A. 1979. *Flora of the Lesser Antilles*. Vol. 3. Monocotyledoneae. *Arnold Arboretum*, Harvard University, Jamaica Plain, Mass.
- JAMES, A. 2003. *Pseudophoenix sargentii* in Dominica. *Palms* 47: 57–61.
- READ, R.W. 1969. Some notes on *Pseudophoenix* and a key to the species. *Principes* 13: 77–79.
- ZONA, S. 2002. A revision of *Pseudophoenix*. *Palms* 46: 19–38.