

The History of a Hispaniolan Palm, *Zombia antillarum*

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The taxonomic history of the Hispaniolan palm *Zombia antillarum* is reviewed.

Between 1687 and 1694, the French monk and botanist Charles Plumier (1646–1704) made three trips to the Caribbean. His purpose was to study the plants and animals of the French colonies, and he spent much of his time in Haiti. Plumier published several books on the plants he had collected (e.g., Plumier 1693, 1703), and illustrated them with his own excellent drawings. In his 1703 book, *Nova plantarum americanarum genera*, Plumier listed several palms that he had come across on his travels. Botanists at that time used polynomials to name plants (this was before the start of the binomial nomenclature of Linnaeus, in 1753), and Plumier referred to a Haitian palm as *Palma dactylifera radiata, minor, aculeata*. Plumier also made colored drawings of the palm, but these were not included in his book (the drawings are labelled *Palma dactylifera radiata spinosissima et thoracibus aculeatis munita*).

Plumier died relatively young and left behind thousands of unpublished drawings. These were eventually gathered together and deposited in the library of the Natural History Museum in Paris. There they were bound

together into an eight-volume, unpublished work known as *Botanicon Americanum seu historia plantarum Americanis insulis nascentium*. In volume 7 there are 61 drawings of palms, some of them colored, including the two drawings of Plumier's Haitian palm (Figs. 1 & 2). Plumier's life and legacy have been the subject of several articles (listed in Stafleu & Cowan 1983); an entertaining account of his life is given by Pietsch (2018).

The second European to refer to the Haitian palm was the French doctor and botanist Michel Étienne Descourtilz (1775–1835). Descourtilz arrived in Haiti in 1799 and spent the next four years there. This was the time of the Haitian revolution, and Descourtilz was captured by the revolutionaries and was forced to act as their doctor. On his return to France, Descourtilz published a book on his adventures (Descourtilz 1809) and a second, eight-volume work on useful plants entitled *Flore médicale des Antilles* (Descourtilz 1821–1829). This must have been written mostly from memory because according to Stafleu and Cowan (1976) his collections and drawings were destroyed in Haiti. In volume one Descourtilz described and illustrated the Haitian palm, calling it *Latanier épineux ou hache* (Fig. 3).

At first sight, Descourtilz's painting looks like a reasonable representation of the Haitian palm. Based on the close resemblance of

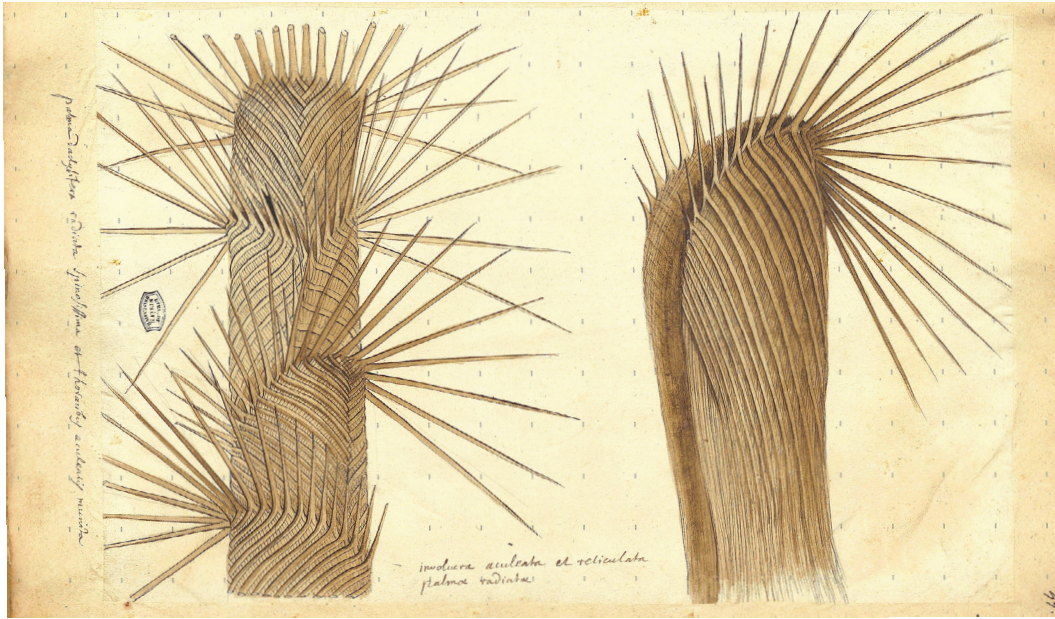
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1. Plumier's colored drawing of *Palma dactylifera radiata spinosissima et thoracibus aculeatis munita*. © Muséum national d'Histoire naturelle.

Plumier's and Descourtilz's paintings, it is likely that the latter copied or at least adapted the former's work. Descourtilz was certainly

familiar with Plumier's work because he cited *Botanicon Americanum*. But on closer examination there is one discrepancy –



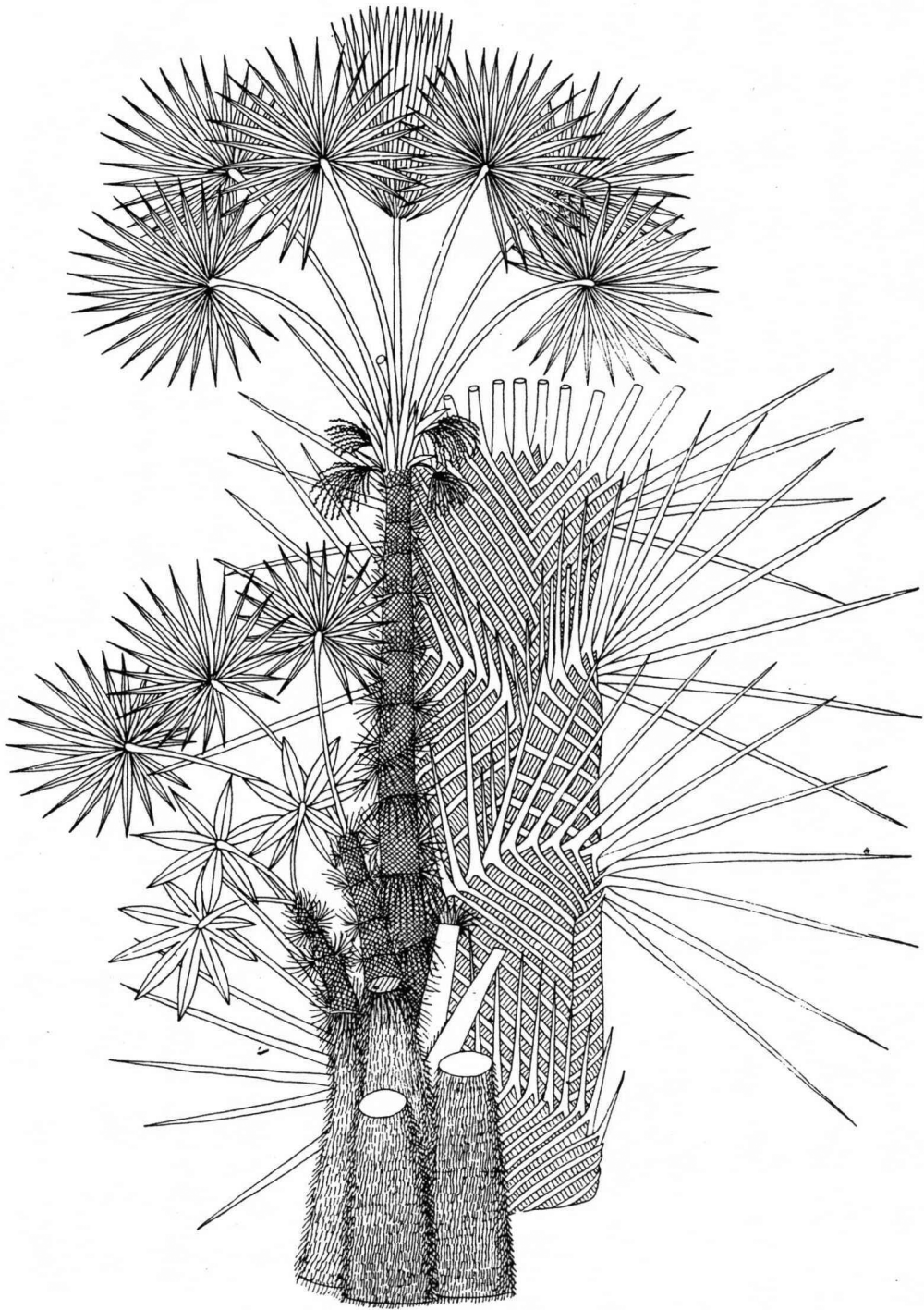
2. Plumier's colored drawing of the leaf sheaths of *Palma dactylifera radiata spinosissima et thoracibus aculeatis munita*. © Muséum national d'Histoire naturelle.

Descourtilz has added spines on one of the petioles in his copy. The reason for this becomes clear when we read Descourtilz's description of the palm. This is obviously based on several different species. He described the flowers as having a three-parted calyx and a corolla of three petals, and six stamens, and the fruits as the size of a lemon and reddish in color. As we shall see later, this is nothing like the Haitian palm. However, Descourtilz did one important thing. He referred to the name *Chamaerops antillarum*, and even though he listed this name under "Synonymie," it is not a synonym in the modern sense. Because Descourtilz's publication came after the work of Linnaeus, where binomials were used instead of polynomials, *Chamaerops antillarum* became the first binomial applied to the Haitian palm.

The next botanist to concern himself with the Haitian palm was the Italian Odoardo Beccari (1843–1920). Beccari was the leading specialist in palms of his day (Moore 1981). In a paper published in 1908, Beccari described several new species of palm from the Caribbean. Amongst these was one that he called *Coccothrinax* (subgen. nov. *Oothisrinax*) *anomala*. The specimen on which this was based was sent from Haiti by a German collector, Wilhelm Buch, to the herbarium in Berlin, whence Beccari saw the specimen. This specimen did not include the distinctive leaf



3. Descourtilz's painting of *Latanier épineux*.



Coccothrinax anomala Becc.

4. Combination of Plumier's two drawings from the *Codex Boerhaave*.

sheaths of the Haitian palm, and Beccari did not associate it with the work of Plumier and Descourtilz. Beccari thought it was an unusual

species of *Coccothrinax*, hence his specific epithet, *anomala*. However, Beccari's new subgenus, *Oothrinax*, was not validly published



5. Leaf sheath fibers of *Zombia antillarum* (image by Eladio Fernández).

because it lacked a Latin diagnosis. Buch's specimen in the Berlin herbarium was destroyed in the bombing of the herbarium during the Second World War.

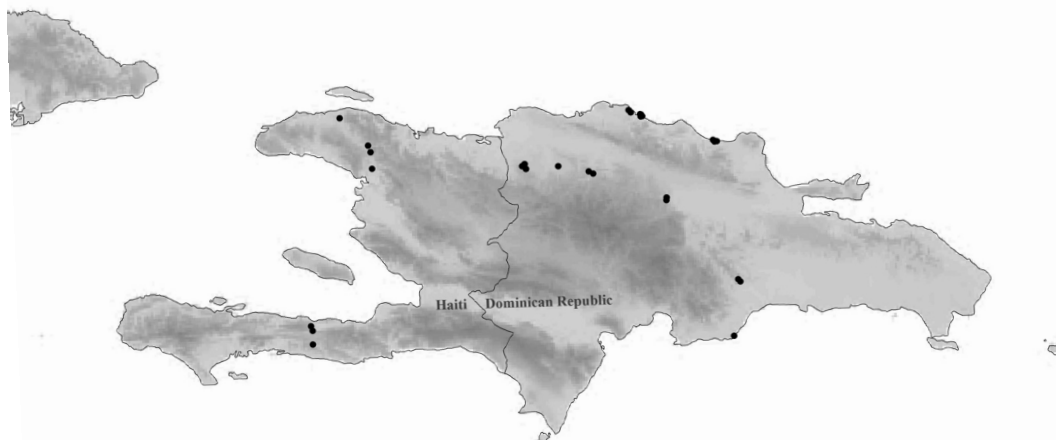
It was not only Buch's specimen that was destroyed in the war, but much of the whole herbarium, including a manuscript of the genera of palms by the German botanist Karl Ewald Maximilian Burret (1883–1964). Burret was one of the most prolific botanists who worked on palms, and he described more than 600 new species. Eva Potztal, a colleague of Burret's in the Berlin herbarium, wrote an article on Burret's life and work (Potztal 1965). In 1929 Burret published a paper describing new species of palm from the Caribbean collections of the Swedish botanist, Erik Leonard Ekman. Burret correctly recognized that one of these collections was Beccari's *Coccothrinax anomala*, and he also realized that this was the same as Plumier's *Palma dactylifera radiata*, *minor*, *aculeata*. However, Burret overlooked the earlier name for the palm, *Chamaerops antillarum*, and identified the specimen as *Coccothrinax anomala*.

Burret (1929) reproduced Plumier's drawing in his paper. But this was not an exact reproduction of Plumier's work. Because of the

importance of Plumier's unpublished drawings, they were studied, and in some cases copied, by several other botanists. Just over 500 drawings were copied in 1733 for a Dutch botanist, Herman Boerhaave. These copies are currently in the library of the University of Groningen in Holland, bound together in two volumes known as the Codex Boerhaave. Here it can be seen that the two Plumier drawings of the Haitian palm were artfully combined into one (Fig. 4), and it is this that Burret reproduced in his paper.

It was the American botanist Liberty Hyde Bailey (1858–1954) who finally brought all the various references to the Haitian palm together. Bailey (1939) reviewed the work of Plumier, Descourtilz, Beccari and Burret and realized that all four were referring to the same palm, that its earliest validly published name was *Chamaerops antillarum* Descourtilz, and that the palm was not a *Chamaerops* but a new genus to which he gave the name *Zombia*. The Haitian palm thus became *Zombia antillarum* (Descourtilz) Bailey, and this is the name by which it is now known.

Bailey had a distinctive style of writing. The opening sentence of his article is: "A strange palm grows on the hills of Haiti." Bailey noted



6. Distribution of *Zombia antillarum* in Hispaniola.

how when preparing the manuscript of the *Zombia* paper he had some doubts about what he had written and decided to make another trip to Haiti (at age 81!) to check some details. He found the palm again on that trip ("I took the zombi again, in fruit") and was able to finish the paper. Bailey described the flowers and fruits in some detail so that we can now see that Descourtilz's description was completely erroneous.

Bailey's paper was not the last word on *Zombia*. This belonged to the American botanist Orator Fuller Cook (1867–1949). Cook was a prolific and somewhat eccentric botanist. He described an alarming number of new genera and numerous new species. There is a trio of papers on Cook published in *Principes* (Correll 1983, Read 1983, Rudd 1983). As Read diplomatically put it "Time and rules of nomenclature have been unkind to many of Cook's described species and genera." In 1941 Cook wrote a paper on the Haitian palm. In typical style, he rambled on at some length (31 pages), casually introduced a new family of palms, used confusing terminology (e.g., subligule, antiligule, etc.), discussed the philosophy of taxonomy and nomenclature, and included sly digs at "Professor Bailey" and "Herr Burret." Cook did not accept Bailey's name *Zombia antillarum*, and instead recognized Beccari's subgenus at the genus level, and thus used the name *Oothisrinax anomala*. He also did not accept the earlier name *Chamaerops antillarum*. He correctly pointed out the shortcomings of Descourtilz's (1821) work, considering that Descourtilz's description and illustration were based on several different palms, including

Sabal, *Copernicia* and *Mauritia*. But what he did not realize was that once the name *Chamaerops antillarum* was published, with a reference to Plumier's drawing, then this became the correct name for the palm, regardless of what else Descourtilz wrote. Cook also discussed the leaf sheath spines (Fig. 5) in some detail. He asked how such an elaborate system of spines evolved when there are no grazing animals in Hispaniola.

We now know that the Haitian palm is in fact widespread in Hispaniola, in both Haiti and the Dominican Republic (Fig. 6), and also that it is endemic to the island. There it grows in scrub or woodland on serpentine, rocky soil, and persists in disturbed areas, at 35–380 m elevation. According to Taylor and Timyan (2004), *Zombia antillarum* is clearly associated with serpentine soils although it is occasionally found on calcareous soils. It seems to occur in several discrete populations, two in Haiti and several in the Dominican Republic. It is not clear if these different populations are different morphologically, but it seems likely. The fruits from one of the Dominican Republic populations are considerably larger than others. A specimen from another Dominican population was described as a new variety of *Z. antillarum*, var. *gonzalezii*, and was said to have fruits differing in shape and color (Jiménez 1960). Unfortunately, the type specimen of this variety has not been located. In general, we have too few specimens with fruits to draw any definite conclusions, and it seems best to recognize one, widespread, variable species.

Joel Timyan (pers. comm.) has recently assessed the conservation status of *Zombia antillarum* and considers it to be threatened, mostly because of habitat loss and over-exploitation. This is unfortunate because there are several features of the palm about which we know nothing. Bailey (1939) made a few interesting observations on the natural history of *Zombia*. He wrote "It grows in separate or isolated clumps or stools of different ages, the older ones with two or more trunks..... The trunk dies and falls apparently after two or three fruiting periods....". He also commented on the unusual, spiny aerial roots that are produced at the base of the stems.

There remains one loose end to tie up concerning the taxonomy of *Zombia antillarum*. No type was ever designated, so here I designate Plumier's colored drawing (Fig. 1) as the lectotype:

Zombia antillarum (Descourtilz) Bailey (1939: 242). *Chamaerops antillarum* Descourtilz (1821: 135). Lectotype (designated here): Plumier, *Botanicon Americanum seu historia plantarum Americanis insulis nascentium*, vol. 7, plate 54.

Coccothrinax anomala Beccari (1908: 95). *Oothinax anomala* (Beccari) Cook (1941: 21). Type: HAITI. No locality, no date, *W. Buch s.n.* (B, destroyed).

Zombia antillarum var. *gonzalezii* Jiménez (1960: 236). Type: DOMINICAN REPUBLIC. Santiago, near Santiago Rodriguez, no date, *J. Jiménez 2590-B* (holotype ?).

Acknowledgments

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