

The Type Locality of *Copernicia hospita* Located 198 Years after Poeppig Collected It in Cuba

La localidad tipo de *Copernicia hospita* ubicada 198 años después de que Poeppig la colectara en Cuba

CELIO E. MOYA LÓPEZ

Abstract

The rediscovery of the Poeppig type locality of *Copernicia hospita* Mart. is reported and its lectotype is designated.

Resumen

Se informa el redescubrimiento de la localidad tipo de Poeppig de *Copernicia hospita* Mart. se informa y se designa su lectotipo.

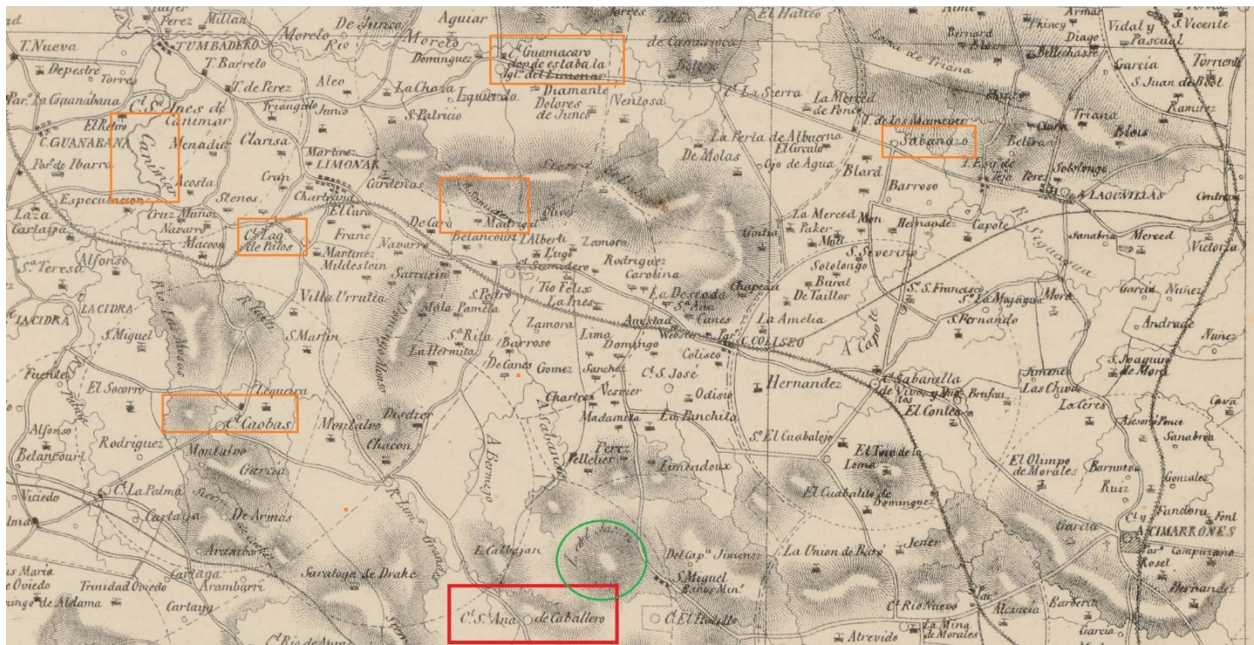
Copernicia hospita was the first Cuban species of the genus to be described. It was one of three that Martius mentioned in 1838 (Dahlgren and Glassman 1963).

Eduard Friedrich Poeppig (Plauen, Germany, 16 July 1798 – Leipzig, Germany 4 September 1868) was a German naturalist, explorer, pteridologist, zoologist, ornithologist, botanist, university teacher, and mycologist.

Poeppig visited Cuba from 1822 to 1824. He arrived in Havana on July 1, 1822 and departed Cuba on May 22, 1824. In Matanzas he was on the “banks of the three rivers Rio Canimar, Yumury and San Juan, which flow into the Bay of Matanzas, also Laguna de Palos east of Matanzas, Limonar (Lemonal) and the Lomas de Caverna, Sumidero, mons Sabanasso, Cahoba [Caoba], S. Anna-Cavalleros [Santa Ana de Caballeros], S. Elena [Santa Elena], lagoons of las Piedras” (Urban 1896).



1. Area visited in 2021, west San Miguel de los Baños, the Loma de Jacán (above), and the Lomas de Santa Ana (below). Silver green dots above road and green dots below are *Copernicia hospita*. (Google Maps 2021).



2. Map 21 from Pichardo (1875). In red *Copernicia hospita* type locality, in orange other Poeppig localities. © Catálogo de la Carpoteca del Instituto de Geografía Nacional de Cuba. http://www2.ign.es/MapasAbsysJPG/0812_S1-148-O-3_21.jpg



3. *Copernicia hospita*. Stand of mature trees in the Loma de Jacán, San Miguel de los Baños, Matanzas. First photograph of these palms in the area. From © Dahlgren and Glassman (1963), page 144, fig. 109.

Applying the lateral thinking method and helped along with a bit of good fortune and an auspicious alignment of the stars, I solved the mystery of the type locality of *Copernicia hospita* where Poeppig first collected it in 1823. It all started when I was searching for information on the distribution of *C. hospita* and I came across Kunze (1833), who discussed Poeppig's collections of ferns and related plants in the New World. Kunze listed some localities where Poeppig collected



4. The isolectotype of *Copernicia hospita*, Poeppig s.n. (BR 0000005639854). © Herbarium of Meise Botanic Garden (BR).

2. *COPERNICIA HOSPITA*. Tab. 50. A. Fig. 5.

C. caudice mediocri, basibus frondium tecto; petiolis aculeatis; laminis palmato- (?) multifidis, laciniis linearibus acutissimis, filis nullis interjectis; spadiceis ramis corollisque sericeo-tomentosis; ramulis floriferis simplicibus abbreviatis (semipollicaribus), floribus dense confertis, calycibus membranaceis subpubentibus; baccis globoso-oratis.

CAUDEX altitudine 12 ad 18 pedum, undique tectus basibus frondium superstitibus imbricatis, apice patenti-reclinatis, scariosis, margine aculeatis, saepe in fibras solutis, in infima parte fere pedem latis. FRONDES omnes terminales, alternae. Petioli 2 ad 3 pedes longi, triquetri, superne profunde canaliculati, aculeis in margine fere pollicaribus conicis recurvis. Lamina orbicularis, palmato- (?) multifida, laciniis linearibus acutissimis, filis nullis interjectis. SPADIX longe pedunculatus, tripedalis, deflexus, ramis secundis. BACCA (drupa) cerasi magnitudine. Haec cl. POEPPIGIUS. SPADICES decomposito-ramosi, arcte vaginati SPATHIS cylindricis, oblique truncatis, hinc carinatis, basi interdum transversim rugulosis. Rami et ramuli hinc planiusculi, inde convexi, sericeo-albido-tomentosi. Ramuli ultimi florigeri nonnullas lineas longi vel semipollicares, recurvi, floribus dense tecti. FLORES quam in praecedente specie robustiores, singuli a basi suffulti bractea coriacea subtriangulari, quae tamquam spathella in minimum compendium redacta neque omnem axeos diametrum occupans considerari potest. Hanc intra bracteam plerumque invenies bracteolam unam aut quoque alteram ejusdem figurae sed minores, dum duae sibi oblique oppositas, flori immediate subjectas, extus, uti bractea, sericeo villosas, intus glabras laevigatas, passim ciliolatas. CALYX campanulatus, obiter tridenticulatus, purpurascens-viridis, pilis subtilibus surrectis passim strigosulus. COROLLA campanulata, versus basin contracta, crassiuscula, laciniis ovato-triangularibus extus pilis appressis sericans; lacinae intus subtilissime pubentes, a pressione antherarum in foveolas quatuor, quarum laterales angustiores et profundiores, depressae. STAMINA in discum cupulaeformem connata, qui sursum adscendens inferiorem corollae parietem vestit, ideo perigyna. FILAMENTORUM pars libera perbrevis. ANTHERAE ovatae, obtusae, cordatae, fere basifixae. PISTILLA tria ex imo fundo floris, plus minus cohaerentia, facili tamen negotio a se invicem separanda. OVARIA in turbinatam formam conspirantia, singula extus convexa, intus bifacialia, vertice sulculis subtribus insculpta. STYLI breves subcoacti, STIGMATE simplici. OVULA clavata in basi ovarii, micropyle basilari ad unum latus.

Crescit in Cubae australis campis montosis aridis copiose. Frondibus tecta teguntur: cl. E. Poeppig.

ICON. EXPL. Tab. 50. A. Fig. V. 1. Ramulus floridus, magnitudine duplo auctus. 2. Flos, corolla aperta, magnitudine decies aucta. 3. Pistillum et 4. idem, apertum, magnitudine aucta.

5. Martius (1838), page 243, description of *Copernicia hospita* including reference to the associated illustration considered original material.

near the current Limonar in the province of Matanzas. I began to check on Google Maps each locality around Limonar that Poeppig had noted in his correspondence with Kunze. Only one location, on the margin of the Loma de Jacán and a little further south of there, offered a possible site for this species, which needed more work to confirm its presence (**Fig. 1**).

I returned to Kunze (1833,) who noted one of Poeppig's collection sites as "Sa. Anna-Cavalleros." Pezuela (1867) referred to this area as "Sierra de Santa Ana," south of Limonar and running east and joining with the hills of Jacán and Cabalján. Pichardo (1875) supported this possibility when he identified a site, "C^t. S. Ana de Caballero," in the vicinity of the before-mentioned sierra and south of "L. [Loma] de Jacán y L. Calbaján" (**Fig. 2**).

Strangely, Dalhgren and Cutler collected *Copernicia hospita* in 1947 and 1948 in the Loma de Jacán (Dalhgren and Glassman 1963) (**Fig. 3**), a locality that I visited in 2019 with colleagues Mabelkis Terry and Yasiel Hernández. However, somewhat more southwest of Jacán is where Poeppig likely first collected *C. hospita* in 1823 (**Fig. 4**), which Martius (1838) used as the type when he described the species (**Fig. 5**). On June 6, 2021, complying with the COVID-19 pandemic restrictions, Yasiel Hernández (**Fig. 6**) traveled to the area and confirmed the presence of *C.*



6. Yasiel Hernández with *Copernicia hospita* at the type locality, Lomas de Santa Ana, 12 June 2021. © *Serie Moya 2101* (Photo by Yasiel Hernández).



7. Separated by the current path, the southern slope of Loma de Jacán (right) and the Lomas de Santa Ana (left), 12 June 2021. © *Serie Moya 2101, 2102* (Photo by Yasiel Hernández).



8. *Copernicia hospita* at the type locality, Lomas de Santa Ana, 12 June 2021. © Serie Moya 2101 (Photo by Yasiel Hernández).



9. *Copernicia hospita* at the foot of the Loma de Jacán (hill on the left is Lomas de Cabaljan), 12 June 2021. © Serie Moya 2102 (Photo by Yasiel Hernández).



10. *Copernicia hospita* makes an impressive presence in the Lomas de Santa Ana, 12 June 2021. © Serie Moya 2101, 2102 (Photo by Yasiel Hernández).



11. *Copernicia hospita*, green and silver forms, Lomas de Santa Ana, San Miguel de los Baños, 12 June 2021. © *Serie Moya 2101* (Photo by Yasiel Hernández).



12. *Copernicia hospita*, the blackened trunk and leaf bases are evidence of fire. 12 June 2021. © Serie Moya 2101 (Photo by Yasiel Hernández).



13. *Dichrostachys cinerea* and *Sansevieria hyacinthoides* are invasive weeds and compete with *Copernicia hospita*, Lomas de Santa Ana, 12 June 2021. © Serie Moya 2104 (Photo by Yasiel Hernández).



14. Generation recruitment of *Copernicia hospita*, Lomas de Santa Ana, 12 June 2021. © Serie Moya 2101 (Photo by Yasiel Hernández).



15. *Copernicia hospita* (left) with *Coccothrinax miraguama* (right) Lomas de Santa Ana, 12 June 2021. © Serie Moya 2103 (Photo by Yasiel Hernández).

hospita in the famous but little known Lomas de Santa Ana. Yasiel, after 198 years, returned to walking the trails that Poeppig had walked (**Fig. 7**), just to the north of the Lomas de Santa Ana, type locality of *C. hospita*. Curiously, figure 7 shows how the current path divides both geographical features, to the left the Lomas de Santa Ana (**Fig. 8**) and to the right the southern hillside of Loma de Jacán (**Fig. 9**).

In the Lomas de Santa Ana area, *Copernicia hospita* (**Fig. 10**) is impressive in its silver and green forms growing together (**Fig. 11**) with slight damage from occasional fires (**Fig. 12**) and competition from invasive plants like *Dichrostachys cinerea* and *Sansevieria hyacinthoides* (**Fig. 13**) yet still defending its territory with juvenile specimens, which demonstrates the regeneration of the species (**Fig. 14**). A companion species is another Cuban endemic palm, *Coccothrinax miraguama* (**Fig. 15**).



16. The lectotype of *Copernicia hospita* is this illustration, Table 50.A, Fig. V. 1, 2, 3 and 4, in Martius (1824).

Stafleu and Cowan (2020) determined that the publication date of *Historia Naturalis Palmarum* Vol. 3, when Martius (1838) described *Copernicia hospita* on page 243 was September 23, 1838, and associated plates 50.A, Fig. 5 of volume 2, was “prob. after” April 13, 1824.

***Copernicia hospita* Mart., Hist. Nat. Palm. 3: 243. 1838.**

Type. CUBA. [Matanzas province, Jovellanos municipality], “*Crescit in Cubae australis campis montosis aridis copiose*” [Lomas de Santa Ana], 1823, *Poeppig s.n* (lectotype, [first step], Dahlgren & Glassman 1963: 135, BR, [second step], designated here, (icon, Table 50.A, Fig. V.

1, 2, 3 and 4, in Martius 1824; isoelectotypes: BH 000280999 photo of BR5639854, BR 0000005639854, F [photo, n.v.].

Copernicia hospita (**Fig. 3**) was validly published solely by reference to the description associated with an illustration with analysis, “Icon. Expl. Tab. 50. A. Fig. V.,” cited by Martius. Thus, the lectotype can only be the associated illustration (Icon. Expl. Tab. 50. A. Fig. V. 1, in Martius Hist. Nat. Palm. 2. 1824), which is considered as original material because it was published as part of the protologue (Articles 7.8, 7.9, 8.1, 9.3, and 9.4 [Turland et al. 2018]). Here, I consider the designation of Dahlgren and Glassman (1963) as lectotype [first-step], I designate “icon, Table 50.A, Fig. V., in Martius 1824,” as lectotype [second-step] (**Fig. 12**); also, considering that Martius had available the specimen at BR at the time of preparation of the description and upon which he left a label of the “Herbarium Martii” in 1836, I designate as isoelectotypes the specimen at BR (**Fig. 3**) and the photos of this specimen at BH and F.

In Figure 5 in the analysis of the illustration in Martius (1838), Martius wrote “*ICON. EXPL. Tab. 50. A. Fig. V. 1. Ramulus floridus, magnitudine duplo auctus. 2. Flos, corolla aperta, magnitudine decies aucta. 3. Pistillum et 4. Ídem, apertum, magnitudine aucta,*” which translated means: 1. the distal partial inflorescences branches have the rachillae double their actual size; 2. the open floral corolla is 10 times its actual size; 3. pistil; 4. the pistil in actual size.

Acknowledgements

I sincerely thank Donald R. Hodel for carefully reviewing and improving the English of the manuscript; Ann Bogaerts of BR, herbarium of Meise Botanic Garden, and Anna M. Stalter and Kevin C. Nixon of BH for making specimens available for study; plantillustrations.org, for allowing me to see the details of Martius's drawing. Many thanks to those who provided, perhaps sometimes unwittingly, the location of the type locality of *Copernicia hospita*, among others Kunze (1833) for listing the localities of Poeppig in Matanzas, Pezuela (1867) for indicating its location, Pichardo (1875) for providing the map location, the National Geography Institute of Cuba for their online information, Dahlgren and Cutler who collected *C. hospita* in the Loma de Jacán, Google Maps for providing satellite photos, to my friend Olivia Rivero for coordinating transportation from Varadero, to Isidro E. Méndez for providing me with the necessary literature, and to colleague Yasiel Hernández who managed to rediscover the typical locality and send me his excellent photos. Also, I thank an anonymous reviewer for checking the manuscript and providing helpful suggestions. Funding for this research comes from the author's personal funds, as part of the Serie Moya.

Literature Cited

- Dahlgren, B., and S. Glassman. 1963. A revision of the genus *Copernicia*. 2. West Indian Species. *Gentes Herbarum* 9: 43–232.
- Google Maps. 2021.
<https://www.google.com/maps/place/San+Miguel+de+los+Banos,+Cuba/@22.8491354,-81.3556149,575m/> Accessed: 26 May 2021.
- Kunze, G. 1833, publ. 1834. Synopsis plantarum cryptogamicarum ab Eduardo Poeppig in Cuba insula et in America meridionali collectarum. *Linnaea* 9(1): 1–111.
- Martius, C. F. P. von. 1831-1853. *Historia Naturalis Palmarum*. 1, 3. T. O. Weigel, Leipzig.
- Pezuela, J. 1867. *Diccionario geográfico, estadístico, histórico de la Isla de Cuba* 4. Imprenta Banco Industrial y Mercantil, Madrid.
- Pichardo, E. 1875. Isla de Cuba. Carta geotopográfica, escala 1:200 000, mapa 21, in *Catálogo de la Carpoteca*. Instituto de Geografía Nacional.
http://www2.ign.es/MapasAbsysJPG/0812_S1-148-O-3_21.jpg Accessed: 26 May 2021.
- plantillustrations.org. 2021. t. 50A [fig. V *Copernicia hospita*], in 278312 *Corypha cerifera* Mart., illustration by Missouri Botanical Garden.
http://www.plantillustrations.org/illustration.php?id_illustration=47416 Accessed: 26 May 2021.
- Stafleu R. A., and R. S. Cowan. 1976-1988. 2020. *Taxonomic Literature: A Selective Guide to Botanical Publications and Collections with Dates, Commentaries and Types* ed. 2. Vols. 94, 98, 105, 110, 112, 115–116. Utrecht, Antwerp, The Hague and Boston.
<https://www.sil.si.edu/DigitalCollections/tl-2/browse.cfm?vol=3#page/346> Accessed: 29 June 2020.
- Turland, N. J., J. H. Wiersema, F. R. Barrie, W. Greuter, D. L. Hawksworth, P. S. Herendeen, S. Knapp, W.-H. Kusber, D.-Z. Li, K. Marhold, T. W. May, J. McNeill, A. M. Monro, J. Prado, M. J. Price, and G. F. Smith (eds.). 2018. *International Code of Nomenclature for Algae, Fungi, and Plants (Shenzhen Code) adopted by the 19th International Botanical Congress, Shenzhen, China, July 2017*. Reg. Veg. 159. Koeltz Botanical Books, Glashütten:
<https://doi.org/10.12705/Code.2018> Accessed: 26 May 2021.

Urban, I. 1896. 5. Eduard Poeppig (1798-1868), *in*: Biographische Skizzen. IV. Beiblatt zu den Botanischen Jahrbuchern Nr. 53. Bot. Jahrb. Syst. 21(4): 1–27.

Celio E. Moya López is an independent researcher specializing in palm biology of the Cuban and Caribbean palms. celio.moya@gmail.com
<https://orcid.org/0000-0002-5033-483X>.

Text © 2021 by Celio E. Moya López.

Photographs © Yasiel Hernández Rivero or the named institution.

Publication Date: 21 June 2021.

PalmArbor: <http://ucanr.edu/sites/HodelPalmsTrees/PalmArbor/>

ISSN 2690-3245

Editor-In-Chief: Donald R. Hodel

drhodel@ucanr.edu

Hodel Palms and Trees: <http://ucanr.edu/sites/HodelPalmsTrees/>