

Two New, Overlooked Species of *Bactris* Endemic to the Colombian Chocó

RODRIGO BERNAL

GLORIA GALEANO

*Instituto de Ciencias Naturales,
Universidad Nacional de
Colombia, Apartado 7495,
Bogotá, Colombia
rgbernal@gmail.com*

JUAN CARLOS COPETE

*Programa de Biología,
Universidad Tecnológica del
Chocó, Cra.22 N°18B –10
Quibdó, Chocó, Colombia*

AND

RODRIGO CÁMARA-LERET

*Departamento de Biología, Área
de Botánica, Universidad
Autónoma de Madrid, Campus
de Cantoblanco,
Calle Darwin, 2,
28049 Madrid, Spain*

Recent palm exploration in the Pacific lowlands of Colombia has revealed two species of *Bactris* that had been overlooked so far, having been mistaken for the sympatric and strikingly similar *Bactris hondurensis*. However, both species differ from *Bactris hondurensis* and from each other in many respects. They both grow side by side in Central Chocó, where they can be easily contrasted.

Bactris chocoensis R. Bernal, Galeano, Copete & Cámara-Leret, **sp. nov.** Small, slender clustering palm with simple leaves, differing in the combination of large, simple, cuneate, membranaceous leaf blades that have prominent and conspicuous cross-veins and are white pilose below, the small inflorescence

with recurved peduncle, and the small fruits. Type: COLOMBIA. CHOCÓ: Corregimiento de Puerto Povel, on trail to Guapandó, 5°23'N, 76°43'W, 63 m, 10 November 2010, R. Cámara-Leret & J.C. Copete Maturana 1733 (holotype: COL; isotypes: CHOCHO, FMB); (Figs. 1–4, 11, 12).

Solitary or cespitose. Stem 0.4–1.2 m tall, 2 cm diameter, with scattered to dense black spines 2–4 cm long. Leaves 8–10, simple. Sheath 18–21 cm long, densely armed with black spines to 6 cm long; ocrea 2 cm long; petiole up to 69 cm long, 1.5 cm wide when fresh, 6 mm wide when dry, unarmed, grooved adaxially, with scattered, minute, reddish scales; blade cuneate, membranaceous, 71–105 cm long, 27–29 cm wide, bifid for ca. 1/3 its length, the lobes acute; rachis 48–70 cm long, unarmed; primary veins 23–25, forming with the rachis an angle of 20°, cross-veins numerous, conspicuous; surface softly white-pilose below, the margins toward apex provided with scattered, appressed, black spines 2.5 mm long. Inflorescence interfoliar; prophyll 7–10 cm long, 2–3 cm wide, with deciduous, brown scaly tomentum; peduncle 7–11 cm long, 0.4–1 cm wide, recurved, with scattered to dense black spinules; peduncular bract 21–22 cm long, with scattered black spines to 8 mm long; rachis 1–2 cm, covered, like the rachillae, with whitish or brownish moniliform trichomes; rachillae 16–24, 3.5–9 cm long, 1 mm diam. Staminate flowers solitary along the distal half of the rachilla, 2–2.5 mm long; calyx lobes triangular, cucullate, acuminate 1 mm long; petals elliptic, 2–2.4 mm long; stamens not seen; pistillate

1. Habit of *Bactris chochoensis*. Puerto Pavel, Chocó, Colombia.



2. Cross-veins of *Bactris chochoensis*. Puerto Pavel, Chocó, Colombia.

flowers restricted to the proximal half of the rachillae, 3–4 mm long; calyx cupular, 1.5 mm long, with three short lobes; corolla tubular, 3–4 mm long, with three short lobes; staminodes absent. Fruits obovoid, 9 mm long, including a beak 1 mm long, 5 mm diam.; endocarp obovoid, 8–9 mm long; endocarp fibers few. Fruiting corolla with three cleft lobes.

3. Inflorescence of *Bactris chochoensis* with pistillate flowers. Puerto Pavel, Chocó, Colombia.





4. Ripe fruits of *Bactris chocoensis*. Puerto Povel, Chocó, Colombia.

COLOMBIA. CHOCÓ: [Munic. Cantón de San Pablo], Corregimiento de Puerto Povel, on trail to Guapandó, 5° 23'N, 76° 43'W, 63 m, 10 November 2010, R. Cámara-Leret & J.C. Copete Maturana 1714 (CHOCO, COL, HUA), 10 November 2010, R. Cámara-Leret & J.C. Copete Maturana 1733 (COL, CHOCO, FMB); 3 km S of Quibdó, 70 m, 9 January 1979, A. Gentry & E. Rentería 23865 (COL, MO, n.v.); Munic. Quibdó, km 7 on rd. to Yuto, 5°39'N, 76°38'W, 105 m, 23 April 2011, J.C. Copete Maturana & S. Arias Guerrero 7 (CHOCO); Munic. Acandí, Vereda Coquitall, 150–200 m, 23 May 1989, R. Fonnegra et al. 2868 (CHOCO, HUA, n.v.).

Etymology. The specific epithet refers to the Department of Chocó, Colombia.

Distribution. Known only from a few localities in the central and northern Chocó Department (Fig. 5), where it has been found in rainforest, between 5°23' and 8°20' N.

Conservation status. According to the IUCN criteria (IUCN 2011) *Bactris chocoensis* is considered as Least Concern (LC), because it has a large distribution in a region where there are still many forested areas.

Bactris chocoensis belongs to Henderson's (2000) 'orange-fruited species group'. It appears to be related to a group of species distributed in Central America and the Pacific coast of Colombia, including *B. grayumii*, *B.*

hondurensis, *B. kunorum*, *B. manriquei* (described below as new), *B. neomilitaris* and *B. panamensis*. It differs from these species in the combination of large, simple, cuneate, membranaceous leaf blades that have prominent and conspicuous cross-veins and are white pilose below, the small inflorescence with recurved peduncle, and the small fruits.

A sterile duplicate of Gentry 23865 (MO) was studied by Henderson (2000), who considered that it might belong to *Bactris coloradonis*. However, the latter is a completely different species, differing from *B. chocoensis* in its larger habit (stems 1.5–10 m tall vs. 0.4–1.2 m), its usually pinnate leaves with 17–38(–80) pinnae per side, the densely white wooly petiole, the glabrous blade undersurface, the more numerous rachillae (20–51 vs. 16–24), which are much longer (14–29 cm vs. 3.5–9 cm), and the smaller fruits (1.5(–2.5) × 1.4–1.7(–2) cm vs. 0.9 × 0.5 cm). A duplicate of Gentry's specimen at COL is fairly complete, with an inflorescence and loose fruits, and it had been filed under *Bactris hondurensis*. Although the latter is reminiscent of *B. chocoensis* in its simple leaves and the pilose blade undersurface, the two species are quite distinct. To begin with, the simple leaves of *B. chocoensis* are much larger than those of *B. hondurensis* (blade 71–105 cm long, 27–29 cm wide vs. blade 36–71 cm long, 26–39 cm wide), and are cuneate instead of obovate. On the other hand, the cross-veins of *B. chocoensis* are abundant and conspicuous (vs. scarce and inconspicuous). Additionally, the inflorescence has a recurved peduncle (vs. erect or arched), and more rachillae (16–24 vs. 3–7) that are longer on average (3.5–9 cm vs. 2–5 cm), and the fruits are smaller (9–5 mm vs. 12–15 mm).

5. Distribution of *Bactris chocoensis*.





6. Individual of *Bactris manriquei* (Bernal 4839) with simple and partially divided leaves on the same stem. Bahía Málaga, Valle del Cauca, Colombia.

***Bactris manriquei* R. Bernal & Galeano sp. nov.** Small, slender clustering palm with simple or pinnate leaves, differing from *Bactris hondurensis* in its more robust habit, the petiole and leaf rachis with brown indumentum, the

leaves glabrous beneath, the inflorescence with short and broad, recurved, strongly flattened peduncle, the larger fruits and the fruiting corolla with scarcely cleft petals. Type: COLOMBIA. VALLE. Munic. de Buenaventura,



7. Pinnate leaf of *Bactris manriquei*. Bahía Málaga, Valle del Cauca, Colombia.

Bahía Málaga, Sector La Zanja, 4°3'41.9"N, 77° 11'11.5"W, 33 m alt, 24 February 2013, R. Bernal, H.F. Manrique & L. Mosquera 4864 (holotype: COL; isotypes: CUVC, FMB). (Figs. 6–9, 11, 12)

Cespitose, with 1–4 stems developed and several basal shoots. Stem 0.8–4 m tall, 1.5–3 cm diam., dark brown, with internodes 1.5–6 cm, unarmed or with a few black spines to 1 cm long. Leaves 4–9, simple or pinnate. Sheath



8. Inflorescences of *Bactris hondurensis* (left) and *Bactris manriquei* (right) at Bahía Málaga, Valle del Cauca, Colombia.

17–34 cm long, with scattered black spines to 1 cm long; petiole 22–53 cm, 5–6 mm diam., cylindrical, with a narrow central groove adaxially, covered in new leaves by a dense, deciduous, brown tomentum that extends along the rachis, unarmed; blade simple or pinnate; rachis 14–68 cm long, unarmed; simple leaves obovate, cuneate at base, 49–76 cm long, 26–34 cm wide, bifid for 1/2–2/3 of its length, glabrous beneath, with 10–17 primary veins; pinnate leaves with 2–12 pinnae on each side, sometimes one leaf side undivided and the other one with up to 4 pinnae; pinnae lanceolate to slightly falcate,

acuminate, with 1(–3) primary veins, the apical pair broader and with 5–11 veins; basal and middle pinnae 30–44 cm long, 2.4–2.8 cm wide, with a few minute, appressed spines along the margin near apex, membranaceous, with scattered, inconspicuous cross-veins visible under the lens, glabrous beneath. Inflorescence interfoliar, appearing in the sheath of old, persistent leaf; prophyll 2.7–7 cm long, 1.2–3 cm wide, unarmed; peduncle 4–7 cm long, 4–7 mm wide, strongly recurved, flattened, covered at anthesis, like rachis and rachillae, with a dense indumentum of brown and white moniliform trichomes, unarmed or

with a few, brown spines to 3 mm long; peduncular bract 10–15 cm long, with black spines 3–4 mm long, persistent in the infructescence and partially frayed with age; rachis 2–4.5 cm long, 3–4 mm diam.; rachillae 4–5, 2.5–4 cm long, ca. 2 mm diam.; flower triads densely arranged in the proximal one half of the rachillae, the distal half with staminate flowers. Staminate flowers 4–5 mm long; calyx 2 mm long, the lobes narrowly triangular, 1 mm long; petals elliptic, 4 mm long, 2 mm wide, strongly fibrous; anthers 1.5 mm long; pistillate flowers 5 mm long, with cupular calyx 1 mm long, and tubular corolla 3 mm long. Fruits globose and when fresh, obovoid when dry, 1.5–2.5 cm long, ripening from green to yellow, orange and finally red, with a scant, strongly acidic pericarp; endocarp turbinate, often tricuspidate, 1–1.3 cm long, without fibers. Fruiting corolla with three usually non-cleft lobes.

COLOMBIA. CHOCÓ: Munic. Acandí, vereda El Brillante, Río Muerto, 8°34'49.9"N, 77°24'26.2"W, alt. 171 m., 19 November 2013, *Bernal et al.* 4937 (COL); Munic. El Carmen, Vereda El Doce (carretera Medellín-Quibdó km 151), Río Atrato, 700 m, 10 January 1980, *R. Bernal & G. Galeano* 93 (COL); Munic. Quibdó, San Francisco de Ichó, 150 m, 11 July 1981, *G. Galeano & R. Bernal* 456 (COL); ca. 10 km NW of Las Animas, on Panamerican rd. ca. 100 m,

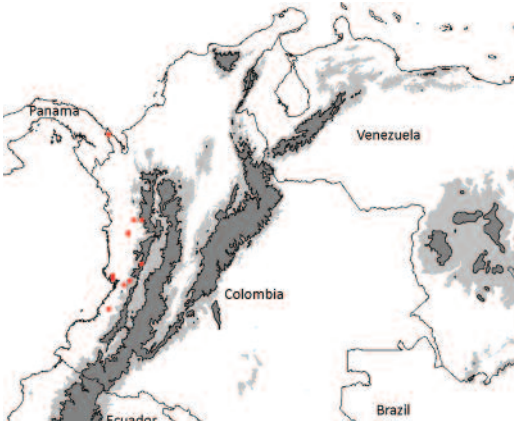
9 July 1986, *R. Bernal et al.* 1095 (COL, FTG); [Munic. Cantón de San Pablo], Corregimiento de Puerto Pervel, on trail to Guapandó, 5°23'N, 76°43'W, 63 m, 10 November 2010, *R. Cámara-Leret & J.C. Copete Maturana* 1712 (CHOCO, COL), 1720 (COL), 1724 (COL), 1734 (COL); Río Pichimá, Wounaan Indigenous community, 4°25'N, 77°17'W, 100 m, 11 November 1976, *L.E. Forero* 622 (COL). VALLE: Cordillera Occidental, Río Calima Basin, Quebrada El Chanco, 450–600 m, 16–19 February 1989, *R. Bernal et al.* 1530 (COL, TULV); Munic. de Buenaventura, Bahía Málaga, Sector La Zanja, 4°3'41.9"N, 77°11'11.5"W, alt. 33 m, 24 February 2013, *R. Bernal, H.F. Manrique & L. Mosquera* 4864 (COL, FMB); *ibidem*, Sector La Caleta de Paula, 4°2'12.06"N, 77°11'34.4" W, alt. 36 m, 21 February 2013, *R. Bernal, H.F. Manrique & L. Mosquera* 4839 (COL, CUVC, FMB); *ibidem*, Sector El Morro, 4°2'49.5"N, 77°10'25.4"W, alt. 4 m, 24 February 2013, *R. Bernal, H.F. Manrique & L. Mosquera* 4861 (COL); *ibidem*, Sector La Sierpe, 3°59'6.7"N, 77°12'47.1"W, alt. 75 m, 22 February 2013, *R. Bernal, H.F. Manrique & L. Mosquera* 4849 (COL), 4851 (COL, VALLE), 3°57'27.5"N, 77°11'12.1"W, alt. 62 m, 25 February 2013, *R. Bernal, H.F. Manrique & L. Mosquera* 4871 (COL, CUVC); *ibidem*, Sector Secadero, 3°59'34.1"N, 77°12'39.8"W, 41 m, 30 April 2011, *G. Galeano et al.* 8141 (COL); *ibidem*, Sector El Corozal, 77°16'6.4"W, 4°5'

9. Fruiting perianth of *Bactris hondurensis* (left) and *Bactris manriquei* (right) at Bahía Málaga, Valle del Cauca, Colombia.



Table 1. A comparison of *Bactris hondurensis*, *Bactris chocoensis* and *Bactris manriquei*.

<i>Bactris hondurensis</i>	<i>Bactris chocoensis</i>	<i>Bactris manriquei</i>
Stem 0.5–1.5 m diam.	Stem 2 cm diam.	Stem 1.5–4 cm diam.
Leaf sheath usually without spines	Leaf sheath with black spines to 6 cm	Leaf sheath with black spines to 1 cm
Petiole green, glabrous or with scarce indumentum not hiding the surface	Petiole with scattered, minute, reddish scales	Petiole with dense brown indumentum that hides the surface
Leaves simple or with up to 8 pinnae per side	Leaves simple	Leaves simple or with 2–12 pinnae per side
Simple leaves bifid to 1/3–1/2 their length	Simple leaves bifid to 1/3 their length	Simple leaves bifid for 1/3–1/2 their length
Lamina white pubescent below	Lamina white pubescent below	Lamina scattered, inconspicuous
Lamina with cross-veins scattered, inconspicuous, but visible under the lens	Lamina with numerous, conspicuous cross-veins	Lamina with cross-veins scattered, inconspicuous, but visible under the lens
Peduncle straight	Peduncle recurved	Peduncle recurved
Peduncular bract deciduous in ripe infructescences	Peduncular bract persistent in ripe infructescences	Peduncular bract persistent in ripe infructescences
Fruiting corolla with lobes scarcely differentiated, irregularly cleft	Fruiting corolla with three cleft lobes	Fruiting corolla with three evident, rounded, non-cleft lobes
Fruits 12–15 mm long	Fruits 9 mm long	Fruits 15–25 mm long
Fruits ripen from green to red	Fruits ripen from green to red	Fruits ripen from red to yellow to orange and finally red



10. Distribution of *Bactris manriquei*.

25.7°N alt. 45 m, 18 August 2011, G. Galeano et al. 8164 (COL); *ibidem*, Sector Los Indios, 77°9'53.362''W, 4°3'49.23''N, 9–80 m, 21 August 2011, G. Galeano et al. 8204 (AAU, COL, CUVC), 8217 (COL); Bajo Anchicayá, 3°45'N, 76°50'W, 300 m, 19 October 1989, A. Gentry et al. 68561A (COL); Río Calima, La Trojita, 5–50 m, 24 February 1944, J. Cuatrecasas 16407 (COL); CAUCA: Munic. López de Micay, Indigenous community Playa Bendita, Quebrada Arenal, 12 September 2000, G. Reina et al. 745 (COL).

Etymology. *Bactris manriquei* is named after Héctor Favio Manrique, Director of the Jardín Botánico del Quindío, Calarcá, Colombia, who has traveled with the first author throughout much of Colombia in search of specimens for the Colombian National Collection of Palms, of which he is a fervent keeper.

Distribution. Known only from the Pacific region of Colombia, between 3° and 8°35' N and 76°17' and 77°24' W, in the departments of Chocó, Valle and Cauca (Fig. 10). It grows in rainforest, from sea level to 700 m. This species also probably occurs in Panama, as it has been collected just at the border.

Common names. *Chontaduro de tunda*, *sia* (epena saiya language) (Cauca); *chacarrá de cholo* (Chocó).

Conservation status. According to the IUCN criteria (IUCN 2011) *B. manriquei* is considered as Least Concern (LC), because it is known from many localities in a large, mostly forested area.

Bactris manriquei has been confused in the past with the similar *Bactris hondurensis*, and indeed specimens of the new species (*De Leon 122*, BH; *Moore 9474*, BH; *Bernal 1095*, COL; *Gentry 53649*, MO) were treated as that species by

11. *Bactris chochoensis* (left) and a simple-leaved individual of *Bactris manriquei* (right) at Puerto Pervel, Chocó, Colombia.





12. Leaf and infructescence of *Bactris manriquei* (left) and *Bactris choacoensis* (right) at Puerto Povel, Chocó, Colombia.

Henderson (2000), who, however, pointed out the densely brown tomentose petioles and rachis, and the larger simple leaves in some of them. There are other differences (see Table 1), and the two species are clearly distinct. Confusion arises in the small, compact inflorescences and infructescences, which at first sight look similar. Nevertheless, a closer inspection (Fig. 8) reveals clear differences in peduncle structure, persistence of peduncular

bract in the infructescence, and shape of the fruiting corolla (Table 1).

In Henderson's monograph of *Bactris*, specimens of *B. manriquei* key out to *Bactris hondurensis*. In the de Nevers et al. (1996) treatment of Mesoamerican *Bactris*, the new species cannot be keyed out.

None of the names included by Henderson under synonymy of *Bactris hondurensis* corresponds to *B. manriquei*; the long, slender peduncle is evident in all the type specimens or in the corresponding protologues.

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