

Zeitschrift: Candollea : journal international de botanique systématique = international journal of systematic botany
Herausgeber: Conservatoire et Jardin botaniques de la Ville de Genève
Band: 61 (2006)
Heft: 1

Artikel: The identity of *Attalea macrolepis* (Burret) Wess. Boer (Arecaceae)
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DOI: <https://doi.org/10.5169/seals-879243>

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The identity of *Attalea macrolepis* (Burret) Wess. Boer (Arecaceae)

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ABSTRACT

STAUFFER, F. W. & J. G. FARIÑAS (2006). The identity of *Attalea macrolepis* (Burret) Wess. Boer (Arecaceae). *Candollea* 61: 83-88. In English, English and French abstracts.

The most recent taxonomic treatments on Neotropical palms have sunk *Attalea macrolepis* (Burret) Wess. Boer, an economically important species, as a synonym of the widespread *Attalea butyracea* (Mutis) Wess. Boer. Visits to wild populations of *Attalea macrolepis* in the Venezuelan Guayana and a detailed study of the morphology of the species show that this palm has a unique combination of character states across the genus *Attalea*, and support its recognition as a distinct taxonomic entity. A neotype is proposed and images of the palm are for the first time provided.

RÉSUMÉ

STAUFFER, F. W. & J. G. FARIÑAS (2006). Identité d'*Attalea macrolepis* (Burret) Wess. Boer (Arecaceae). *Candollea* 61: 83-88. En anglais, résumés anglais et français.

Attalea macrolepis (Burret) Wess. Boer, une espèce d'importance économique, est incluse dans les traitements taxonomiques de palmiers néotropicaux les plus récents comme synonyme d'*Attalea butyracea* (Mutis) Wess. Boer., une espèce à large distribution. Des observations sur des populations sauvages d'*Attalea macrolepis* en Guyane vénézuélienne et une étude détaillée de sa morphologie montre que cette espèce possède une combinaison unique de caractères au sein du genre *Attalea* qui justifie sa reconnaissance comme entité taxonomique distincte. Un néotype est désigné et des photos de ce palmier sont publiées pour la première fois.

KEY-WORDS: ARECACEAE – ARECOIDEAE – *Attalea* – Taxonomy – Venezuela

Introduction

Fragmentary type collections are always difficult to interpret and classify, and this situation is especially true for the palm family, often characterized by species with large vegetative and reproductive organs. Further problems in systematics arise when the type collection of a species has been destroyed, as was the fate of many types deposited at the collection of the Botanical Museum Berlin-Dahlem (B) (HIEPKO, 1987). The case of the coroba palm, *Attalea macrolepis* (Burret) Wess. Boer, illustrates both situations: the type of this palm was composed of small fragments of a staminate inflorescence (BURRET, 1929), unfortunately destroyed during the World War II (GLASSMAN, 1999). The combination of these factors, together with a reduced number of modern collections, have strongly hindered our taxonomic understanding of the species. The accurate establishment of its taxonomic status is particularly relevant because of its current and potential economical value.

The coroba palm was first collected by the German geographer Siegfried Passarge during his expedition to the Río Cuchivero basin (Bolívar state, Venezuela), between 1901 and 1902 (PASSARGE, 1903; HUBER, 1995). During this expedition, Passarge collected up to 800 botanical specimens from different families that were afterwards sent to the Berlin Herbarium (KNUTH, 1928). All the palm collections were studied by Max Burret, who described two of them as new to science (BURRET, 1929). One of these taxa, *Attalea macrolepis*, has particularly raised contradictory points of view among Neotropical palm systematists regarding its taxonomic status. This palm has been recognized as a well defined taxonomic entity by WESSELS BOER (1988) and GLASSMAN (1999), the latter using the name of *Scheelea macrolepis* Burret. Other treatments such as the ones of HENDERSON (1995) and HENDERSON & al. (1995) have nevertheless sunk this name as a synonym of *Attalea butyracea* (Mutis) Wess. Boer.

With the aim to clarify the taxonomic status of this palm we have collected and studied individuals of several populations of the species. Our research demonstrates that *Attalea macrolepis* is indeed a well defined member of the genus *Attalea*, so far known only from of the North-Western Venezuelan Guayana. In this paper an extensive morphological description and taxonomic notes on the species are provided, and aspects of its ecology and economical importance are discussed.

***Attalea macrolepis* (Burret) Wess. Boer in Pittieria 17: 311. 1988 (Fig. 1A-D).**

≡ *Scheelea macrolepis* Burret in Notizbl. Bot. Gart. Berlin-Dahlem 10: 688. 1929.

Type: VENEZUELA. **Bolívar:** Yopal, Uferwald (riverine forest), 14.II.1902, S. Passarge 774 (holo-: B, destroyed fide GLASSMAN, 1999).

Neotype here designated: VENEZUELA. **Bolívar:** El Tigre, cerca del Río Cuchivero, 100 m, 15.VI.1940, Ll. Williams 13315 (VEN!; iso-: F!, US!).

Solitary, monoecious, unarmed, pleonanthic tree palm. Stems 0.5-5 m tall, 20-30 cm diam., gray. *Leaves* (12-)20-30, 3-5 m long; leaf sheaths frequently persistent throughout the stem, 20-26 × 22-27 cm, margin fibrous; petioles up to 20 cm, margin entire; rachis slightly arched in juvenile plants, almost erect in adults, 5-6 m × 0.5-5 cm, flat adaxially at the base, slightly keeled at mid-length and towards the apex, mostly convex in the abaxial side, sparsely brown-lepidote; pinnae 125-140 pairs, linear-lanceolate, with a long acute apex, green adaxially, gray-green abaxially, margins brown-tomentose, oriented in at least two different planes in young plants and more or less in one plane in adults, inserted in groups of 2-3 towards the base of the rachis, more evenly inserted towards the apex; basal pinnae 65-70 m × 1.7-3 cm, medial pinnae 60-70 cm × 3-4 cm, apical pinnae 30-40 cm × 3.5-4 cm, mid-vein prominent in the abaxial surface of the pinnae, secondary veins 4-6 at each side of the mid-vein. *Inflorescences* completely unisexual, racemose, interfoliar, erect at anthesis and pendant in fruit. *Staminate inflorescences* slightly fragrant; peduncle 50-55 × 1.3-1.5 cm, terete to dorsiventrally compressed in cross section, straight to slightly recurved, sparsely tomentose; prophyll not seen, peduncular bract persistent, 80-90 × 9-10 cm, woody, sulcate, base tubular, with an acute woody apex up to 15 cm long; floral rachis 35-40 cm × 1 cm, dorsiventrally compressed in cross section; rachillae 40-50, spread at anthesis, 9-12 × 0.2 cm, terete, with a sterile basalmost region, subtended by deltoid bracts of up to 4-5 mm, more or less spirally inserted and equally distributed in the adaxial and abaxial side of the rachis. *Pistillate inflorescences* (reported as androgynous by GLASSMAN, 1999) very fragrant at anthesis; peduncle 47-55 × 2.5-3 cm, dorsiventrally compressed in cross section, with up to 8 lanceolate subtending bracteoles, each of 1-2(-7) cm, inserted at 10, 25 and 28 cm from the base of the peduncle, brown tomentose; prophyll not seen, peduncular bract 90-100 × 9-10 cm, woody, sulcate, base tubular, with an acute woody apex up to 13 cm long; floral rachis 37-40 × 0.5-2.5 cm, covered with the same indumentum as the peduncle; rachillae 29-35, 5-7 × 0.5 cm, dorsiventrally compressed in cross section, spirally inserted in the rachis but clearly denser in the abaxial side of the rachis, each rachilla of 5-8 × 0.8-1 cm, containing 3-5 flowers, subtended by a bract of 0.5-4.0 cm. *Staminate flowers* yellow, spirally

inserted throughout the rachillae, 1.7-2.1 cm, subtended by a triangular bract up to 1.5 mm, sepals triangular, 0.6×0.6 mm, slightly fused at the base, petals free, linear-lanceolate, 1.9-2 cm \times 0.8-1 mm; stamens 6-9, filament 2.0 mm; anthers dorsifixed, 3.0-3.2 mm, slightly recurved, dehiscence introrse; pistilode 0.2-0.3 mm, trifid, occasionally bifid. *Pistillate flowers* yellow, mostly alternating in the rachillae, 2.1-2.4 \times 1.2 cm, subtended by a triangular bract up to 3 mm, sepals imbricate, united up to 1.5 mm at the base, at the apex free, 1.8-2.2 \times 1.2 cm, ovoid, margin entire; petals imbricate, 1.5-1.8 \times 1.2 cm, ovoid, margin slightly lacerate; gynoecium syncarpous, tricarpellate, rarely 4-carpellate, 1.8-2.0 cm; ovary ovoid, 0.6-0.7 \times 0.5 cm, densely brown tomentose, style 0.5-0.7 cm, stigmatic branches 3(-4), densely papillate in the ventral side and the margins, erect in bud, strongly reflexed at anthesis. *Fruits* single-seeded, but also observed with 2-3 seeds, 4-6 \times 2.5-3.5 cm, with a beak and stigmatic remain up to 0.6 cm, oblong-ovoid, green-brown immature, yellowish-brown when ripe, staminodial tube up to 0.5 cm, fruiting perianth persistent. Eophyll linear-lanceolate.

Common name. – Coroba.

Distribution and ecology. – So far known only from the lowlands of the northwestern Venezuelan Guayana (States Amazonas and Bolívar). This palm tends to form large stands known as “corobales” in the open savannas of the state Bolívar, whereas it grows in scattered populations in the riverine savannas of the northern Amazonas state. The presence of this palm in the Department of Vichada in the Eastern llanos of Colombia is very likely, but so far no collections of this species have been reported for that region. In the State Bolívar populations of this palm grow in sandy, well drained, acid soils (pH 4.1-4.5) (FARIÑAS & al., 2004).

Other specimens studied. – **VENEZUELA. Estado Amazonas:** Río Manapiare, tramo entre San Juan de Manapiare y el poblado de Laja Pelada, 5°07'29"-5°19'37" N, 66°03'14"-66°06'23" W, 100-200 m, 5-12.VII.1999, *Stauffer, Betancourt, Melgueiro & Alvarez 791* (VEN, Z); Río Parucito, bosques entre la boca del río y la comunidad Yaravana de Majagua, (5°20'11"-5°27'21" N, 65°54'26"-66°03'02" W), 100-150 m, 5-12.VII.1999, *Stauffer, Betancourt, Melgueiro & Alvarez 810, 811, 815* (VEN, Z). **Estado Bolívar:** Municipio Cedeño, alrededores de Santa Rosalía, 7°30'18.5" N, 65°49'14.4" W, 0-77 m, 20.I.2004, *Fariñas s.n.* (G); llanos near Parmana, in pasture, 30.I.1978, *Smith 6038* (US); 15 km desde Caicara del Orinoco en la vía hacia Los Pijiguaos, 50 m, 19.I.1997, *Stauffer, Huber & Riina 274* (VEN, Z); sabanas de Cuchivero, 22.I.1948, *Tamayo 3418* (VEN).

The specimen *Delascio 2236* (CAR), collected on the km 167 of the Caicara del Orinoco-San Juan de Manapiare road (Amazonas State) may be also attributed to this species; however, the material is too fragmentary to provide an accurate identification.

Taxonomic notes

The description published by BURRET (1929) was restricted to characters associated to the male inflorescence and only provided an incomplete definition of the species. However, the large subtending bract in the male flowers observed in the modern collections allows us to establish an accurate link with the original material described by Burret. Other descriptions of the species (e.g. WESSELS BOER, 1988; GLASSMAN, 1999), based on the study of several collections and photos made in the same locality as the type (particularly *Williams 13315*, F, US, VEN), have completed our knowledge of this palm. These publications and collections, as well as our visits to several populations of the species, provide enough arguments to link our definition of *A. macrolepis*, and the neotype selected, with the original description of the taxon. *Attalea macrolepis* can be diagnosed by its relatively short vegetative organs (stems and leaves), pinnae fewer than 140, short peduncular bracts, staminate rachillae up to 50 and evenly distributed on both sides of the rachis (Fig. 1C), pistillate rachillae up to 35 (Fig. 1B), stamens 6-9, pistilode well differentiated, and fruits normally shorter than 6 cm (Fig. 1D). This combination of character states is unique across the

genus *Attalea* and supports the recognition of *A. macrolepis* as a valid taxonomic entity. Some morphological characters (e.g. stems well developed and aerial, petioles short, stamens in a low number and shorter than petals) suggest certain affinities of *A. macrolepis* with *A. butyracea*, one of the five *Attalea* species reported by STAUFFER (1999) for the Venezuelan palm flora, and *A. phalerata* Spreng., from the southern and western periphery of the Amazon region and the *planalto* of Brazil (HENDERSON & al., 1995).

The other species of *Attalea* collected by Passarge in the Venezuelan Guayana was described by BURRET (1929) under the name of *A. passargei* Burret. At first we believed that this species could also be attributed to *A. macrolepis*, but the description provided by BURRET (1929), based only on fruit material, undoubtedly matches *A. butyracea*, as already indicated by HENDERSON (1995) and HENDERSON & al. (1995).

Economic importance

The coroba palm has been largely and traditionally used among native communities in the north-western Bolívar State in Venezuela. Leaves of this palm are used for thatching and ripe fruits have been employed in human alimentation, especially for the production of flour from the mesocarp and the extraction of edible oil from the endosperm (CLAASEN & al., 1949). The fruits have been also traditionally used for animal feed. The oil obtained from the ripe fruits has been subject of increasing interest among Venezuelan agronomists, who explore the potential commercial use its products and sub-products. A program coordinated by the second author, and supported by the Venezuelan National Institute of Agronomic Research (INIA), aims to promote the current utilization of this palm among local populations.

ACKNOWLEDGEMENTS

The curators of the herbaria CAR, F, US and VEN are greatly acknowledged for the loan of critical specimens for this research. Field work of FWS in the Amazonas state of Venezuela was supported by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Alain Chautems and Scott Zona are thanked for the critical revision of an earlier version of this manuscript.

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Submitted on October 14, 2005

Accepted on February 7, 2006

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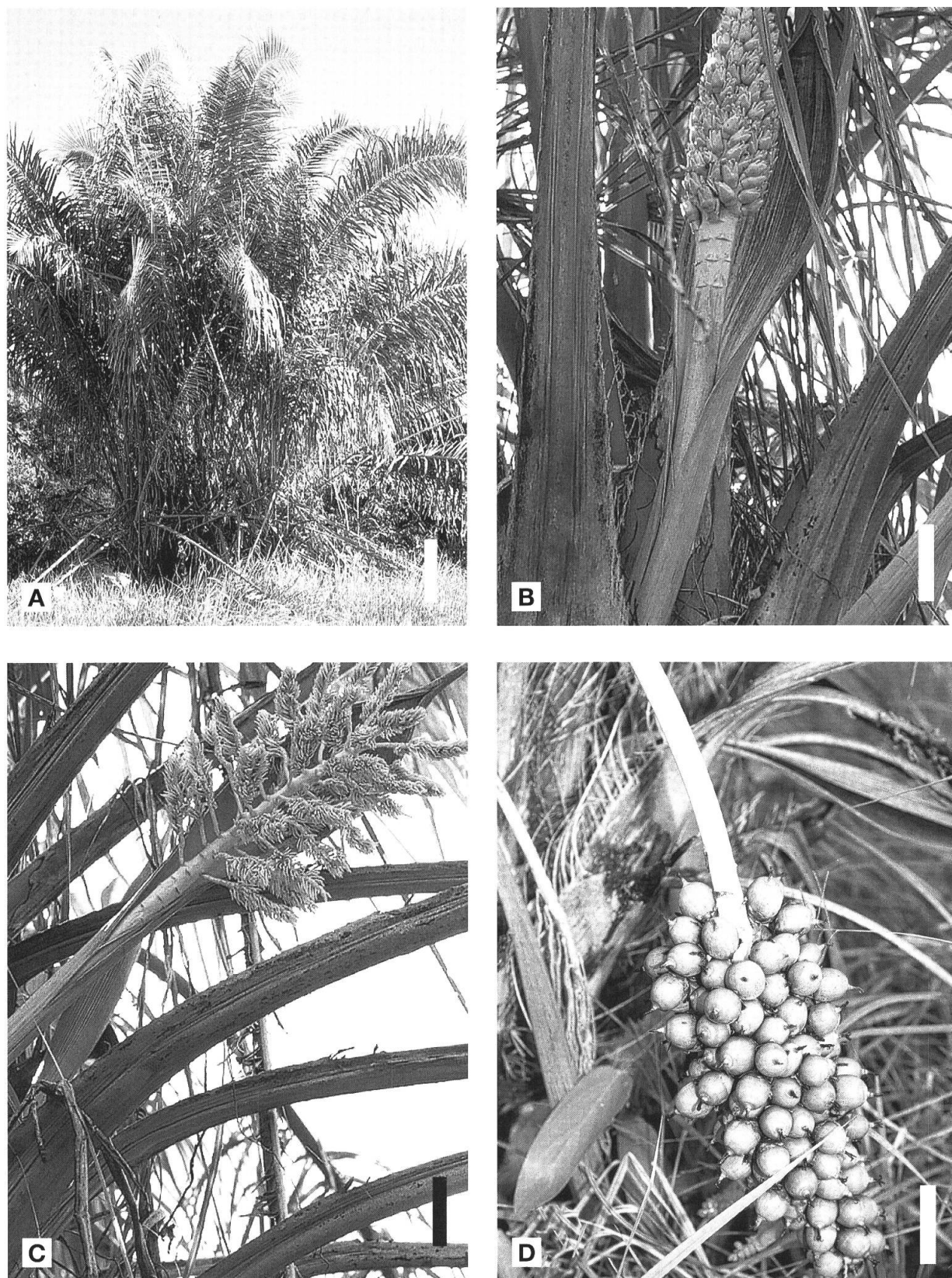


Fig 1. – Habit and details of reproductive organs of *Attalea macrolepis* (Burret) Wess. Boer. **A.** Adult exemplar in the riverine savanna of the Amazonas state [scale bar: 0.5 m]; **B.** Pistillate inflorescence at anthesis [scale bar: 13 cm]; **C.** Staminate inflorescence at anthesis [scale bar: 11 cm]; **D.** Infructescence with unripe fruits [scale bar: 9 cm].