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A revision of *Leopoldinia* (Arecaceae)

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Abstract

A taxonomic revision of the Neotropical palm genus *Leopoldinia* based on morphological data and morphometric methods was carried out. One hundred and sixteen herbarium specimens were scored for seven qualitative and 24 quantitative variables. Qualitative variables were divided into six characters and one trait. Using the Phylogenetic Species Concept, the six characters were used to recognize three species. These are widely distributed in the central Amazon region of Brazil and adjacent Venezuela and Colombia. Nomenclature, descriptions, illustrations, and distribution maps are provided for each taxon.

Key words: Palmae, morphometrics, Neotropics, Rio Negro

Introduction

The small, Neotropical genus *Leopoldinia* Martius (1823–1837: 58) comprises just three species confined to the central Amazon region. So different is the morphology of the genus from related genera, especially the elaborate leaf sheaths and trilocular, triovulate gynoecium, that the genus has been placed in its own tribe of the Arecoideae, the Leopoldinieae (Dransfield *et al.* 2008). This tribe, along with the Areceae, Euterpeae, Geonomateae, Manicarieae and Pelagodoxeae, make up the 'core arecoid clade' (Dransfield *et al.* 2008), although relationships amongst these tribes are not well resolved (Baker *et al.* 2009, Baker *et al.* 2011).

While there have never been any problems with generic delimitation, there are doubts over species boundaries in *Leopoldinia*. Martius described two species, *L. pulchra* Martius (1823–1837: 59) and *L. insignis* Martius (1823–1837: 60), both from the main Amazon river in Brazil. Martius' second species, *L. insignis*, was placed as a synonym of *L. pulchra* by Henderson (1995), and is based on a mixed collection (Bernal & Galeano 2010).

Wallace traveled up the Rio Negro, a river not visited by Martius, and from there described two additional species, *Leopoldinia major* Wallace (1853: 15) and *L. piassaba* Wallace (1853: 17). Wallace collected few palm specimens (Knapp *et al.* 2002) and these did not include any *Leopoldinia*. His descriptions are brief and provide little botanical detail. He illustrated *L. major* as having weakly clustered stems and pendulous pinnae. Wallace's second species, *L. piassaba* is easily distinguished from its congeners by its leaf sheaths, which have elongate fibers that cover the stems. These, known as *piassaba* in Brazil and *chiquichiqui* in Venezuela and Colombia, are fibers of commerce in this part of the Amazon (Wallace 1853, Spruce 1860, Putz 1979, Lescure *et al.* 1992, Guánchez 1997). Because *L. piassaba* is so distinctive there have never been any problems with specific identity. However, the other two species, *L. pulchra* and *L. major* have often been confused.

Spruce followed in Wallace's footsteps on the Rio Negro and collected both of Wallace's species. Subsequently he gave detailed botanical descriptions of the two (Spruce 1869) and correctly pointed out that *L. major* has strongly clustered stems and pendulous pinnae, thus distinguishing it from *L. pulchra* with weakly clustered stems and spreading pinnae. Spruce gave the distribution of *L. major* as "on the Rio Negro,

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