

A MONOGRAPH OF *SABAL* (ARECACEAE: CORYPHOIDEAE)

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ABSTRACT

This monographic study of the New World genus *Sabal* (Arecaceae: Coryphoideae) recognizes 15 species. In addition to defining species limits and distributions, the study addresses broader questions concerning likely modes of speciation in the group and biogeographic radiation. The systematic treatment incorporates results from extensive field work and studies of leaf anatomy and flavonoid phytochemistry, ecology and biogeography, and morphology. Distribution maps and a key to the taxa are provided. Solutions are offered for the many nomenclatural problems that existed in the genus. A phylogenetic hypothesis, the first for the genus, is proposed. Moreover, phytochemical and anatomical features are examined in an ecological perspective, and hypotheses about their function and evolutionary significance are presented.

Key words: anatomy, Arecaceae, Caribbean, Mexico, morphology, Palmae, phytochemistry, *Sabal*.

INTRODUCTION

One of the most common genera of palms in and around the Caribbean basin is the genus *Sabal* (Arecaceae: Coryphoideae). It is widespread and often weedy, thriving in anthropogenic habitats from Bermuda to Sonora, from Texas to Trinidad. Likewise, it is common in the southeastern United States and is likely one of the palms best known to north temperate botanists. *Sabal* is widely cultivated as an ornamental in gardens around the world; in its native habitats, it sustains thatch, basketry, and hat-making industries. Yet despite its familiarity, *Sabal* has remained poorly studied and poorly understood.

Previous workers (Bailey 1934, 1944; Beccari 1907) confined their efforts to morphological taxonomic studies of genus. Faced with the general morphological sameness of the species and confounded by inadequate collections, they were most concerned with defining species boundaries. *Sabal*, the sole member of the subtribe Sabalinae of the tribe Corypheeae (Uhl and Dransfield 1987), was clearly circumscribed at the genus level, but species boundaries were ill-defined. At the root of much of the past taxonomic confusion lay narrow species concepts in which nearly every separate population was recognized as a distinct species. Only with an appreciation for the ease with which *Sabal* has dispersed over long distances do we begin to develop a meaningful species concept for this group.

The present monograph has incorporated morphological, anatomical, and phytochemical data in an evolutionary and ecological framework. In addition to a key to the taxa, distribution maps, species descriptions and full synonymies, a phylogenetic hypothesis is provided. It is the first phylogeny proposed for the genus. Three additional questions are addressed: What has been the likely mode of speciation in the group? What can the phylogenetic hypothesis and present day distribution reveal about past biogeographical events and patterns? What adaptations are present in *Sabal* that allow it to succeed so well in a variety of environments in and around the Caribbean?