



Species of *Cyathea* in America related to the western Pacific species *C. decurrens*

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Abstract

The species allied to *Cyathea platylepis* are recognized as a distinct group among Neotropical *Cyathea*, and are regarded as closest relatives to the few Paleotropical members of the genus in the strict sense. All species have slender trunks that shed old petioles cleanly, inermous petioles with relatively few, ovate-lanceolate brown scales, relatively strongly dissected (to tripinnate-pinnatifid) laminae, and proximally positioned sori with hemitelioid indusia. Most of the remaining Neotropical species referred to as the *C. multiflora*-group fall into two distinct groups. The group of *Cyathea vilhelmii* differs from the *C. platylepis* group chiefly in having dense petiolar scurf, and bicolorous or concolorous white petiole scales. These species occur at high elevations in the Andes and Central America. The group of *Cyathea multiflora* is heterogeneous in habit and laminar dissection but is characterized by a medial to marginal position of the sori and a preference of lower montane and lowland forests. It includes the species allied to *C. multiflora* and *C. andina*, as well as some species formerly regarded as belonging to *Sphaeropteris*. All groups may have to include species that either have different types of indusia or lack them in order to represent natural taxa. Five names have been reinstated in the course of this study and replace commonly used names: *Cyathea austroamericana* (= *C. multiflora pro parte*), *C. boryana* (= *C. andina pro parte*), *C. leucolepismata* (= *C. amazonica*), *C. lindigii* (= *C. multiflora pro parte*), *C. traillii* (= *C. reginae*), and *C. vilhelmii* (= *C. heliophila*). *Cyathea vaupensis* is recognized at species level. A new name is chosen for *Cyathea panamensis* = *Cyathea rojasiana*. Keys to all species are included.

Key words: *Alsophila*, hemitelioid indusia, Neotropics, Paleotropics, provincialism, vegetative reproduction

Introduction

The scaly tree fern family Cyatheaceae comprises ca. 600 species distributed in the tropics and southern temperate regions (Smith *et al.* 2006). They display great ecological conservatism as most species are terrestrial plants of moist forests, and are intolerant to longer periods of drought or frost. Furthermore they show a greater provincialism and endemism than most fern groups (Tryon & Gastony 1975). Together with their good fossil record dating back to the lower Cretaceous they would be great study objects for retracing the evolution of the whole tropical rain forest biome. However, a well-resolved taxonomy, which would be the basis for such studies, is still unavailable (Holtum & Tryon 1977).

Holtum (1982) pointed out that some Cyatheaceae from the western Pacific are more closely related to South American taxa than to any other group from the Old World. He further indicated that these species, which he named the *Cyathea decurrens* (Hook.) Copeland (1929: 356)-group, have great affinity to the species of the *C. multiflora* Smith (1793: 416)-group (Tryon 1976), and among them especially to *C. platylepis* (Hook.) Domin (1929: 264). Both groups are characterized by the presence of hemitelioid indusia and fronds with bipinnate-pinnatifid or stronger dissection, but these characters alone have been proven to define only artificial groups in the family.

Recent phylogenetic studies (Conant *et al.* 1995, Korall *et al.* 2007) revealed that the *Cyathea decurrens*-group (eight species) is sister to all Neotropical *Cyathea* in the strict sense (ca. 200 species), including the