



## ***Besleria macropoda* (Gesneriaceae): lectotypification, distribution, functional epiphyllly and discordant fruit morphology of a rare Costa Rican endemic**

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### Abstract

*Besleria macropoda*, a rare and poorly known gesneriad endemic to Costa Rica, was recently collected for the first time on the southern slopes of the Fila Costeña (Puntarenas Province, SE Costa Rica). The collection considerably widens the geographic distribution to the southeastern part of Costa Rica. Moreover, the following unique characters not previously addressed in the literature were observed and are documented here: (1) The elongate peduncles of the inflorescences are clamped in a channel formed by the sunken midrib of the leaf, rendering the flowers and fruits positioned in the center of the leaf blade. The epiphyllous appearance of the inflorescence on the leaf surface enhances contrasting colors that may aid the pollination and/or fruit dispersal. (2) The fruits split open irregularly, with the fleshy carpel lobes becoming reflexed. This fruit dehiscence deviates from the indehiscent berries that typically characterize *Besleria*. This results in displaying a globose head of red placental tissue covered by tiny, red seeds. A preliminary survey of *Besleria* fruits suggests that this peculiar fruit type is present in at least 15 species representing almost 8% of the genus. Fruit morphology of *Besleria* is therefore less uniform than previously recognized and the “indehiscent berry” can no longer serve as a distinctive generic character of *Besleria*, which necessitates consideration in floras and identification keys. In addition, a list of herbarium specimens, lectotypification, a distribution map, IUCN red list assessment and an amended key to diagnose *Besleria* relative to *Gasteranthus* are provided.

### Introduction

The neotropical genus *Besleria* Linnaeus (1753b: 619) comprises an estimated number of 200+ species, with centers of diversity in the Andes of Colombia and Ecuador. It is the type genus of the monophyletic (but morphologically heterogeneous) tribe Beslerieae within the subfamily Gesnerioideae (Roalson & Clark 2006, Clark *et al.* 2010, Weber *et al.* 2013). A remarkable flower and fruit diversity is found within the Beslerieae which has led to confusion on the circumscription of some genera included therein. The genus *Besleria* was last revised by Morton (1939) who used an overly broad generic concept that included *Gasteranthus* Benth (1846: 233), which was later segregated from *Besleria* based on an improved understanding of fruit characters (Wiehler 1975, Skog & Kvist 2000). Subsequent generic circumscriptions within the tribe have been confirmed by phylogenetic studies (Smith 2000, Roalson & Clark 2006, Clark *et al.* 2010). Nevertheless, the genus is in need of a modern revision and much work remains to be done, especially concerning the circumscription of currently recognized species and the description of many new species.

The present paper refers to the rare species *Besleria macropoda* Donnell Smith (1898: 155–156), a population of which was recently discovered on the southern slopes of the Fila Costeña range (Puntarenas Province, SE Costa Rica). It is one of the least collected species of Gesneriaceae in Costa Rica and is considered to be endemic there (Kriebel 2006, 2010). The recent collection widens the known distribution range of the species considerably. Moreover, *in vivo* observations revealed two peculiar characters: (1) The peduncles are clamped in a channel formed by the sunken midrib of the leaf, resulting in a (functionally) epiphyllous position of the flowers and fruits (fig. 2). (2) The fruits rupture at maturity resulting in exposing the colorful placentae and seeds (figs. 2 C, 4 A, B). The contrasting colors are typical of the display fruits in the traditional tribe Episcieae (now Gesnerieae-Columneinae, Weber *et al.* 2013)