



## Shedding light on a species from the shadows: the case of *Paepalanthus macaheensis* (Eriocaulaceae)

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### Abstract

Open grasslands are the usual habitats of Eriocaulaceae, but a few species also grow in forest understory. *Paepalanthus macaheensis* grows exclusively in shaded habitat, and has broad morphological variation and a confusing taxonomy. Here, the nomenclatural history associated with this species is clarified, the name is formally reestablished, and a second-step lectotype for the name is designated. *Paepalanthus euryphyllus* is proposed as a new synonym of *P. macaheensis* and comparisons with morphologically similar species are presented. A detailed description, the first line drawings of *P. macaheensis*, photographs, and a distribution map are provided. An official conservation status of endangered was assessed by the Brazilian National Center for Flora Conservation (CNCFlora).

**Key words:** Paepalanthoideae, Poales, Nomenclature, Systematics, Taxonomy

### Introduction

*Paepalanthus* Martius (1834: 28) *nom. cons.* consists of ca. 450 species distributed in the Neotropics, with only a few species growing in Africa (Giulietti & Hensold 1990, Stützel 1998, Giulietti *et al.* 2012). It is the largest genus of Neotropical Eriocaulaceae and one of the largest genera of Angiosperms in Brazil. The 337 Brazilian species are mainly distributed in the open grasslands of the Espinhaço Range, but the species diversity in other areas of the Cerrado and the Atlantic Forest domains is also significant (Forzza *et al.* 2010, Sano *et al.* 2015). The great species diversity encompasses a wide range of morphological diversity, which was the basis for establishing the infrageneric classification of *Paepalanthus* (Koernicke 1863, Ruhland 1903).

*Paepalanthus* ser. *Paepalanthus* (= *Paepalanthus* [unranked] *Variabiles* Ruhland (1903: 123)) comprises almost half of the *Paepalanthus* species, and is usually recognized by possessing trimerous flowers and scapes arising from a basal rosette (Ruhland 1903). The group is polyphyletic and such a circumscription is clearly artificial (Andrade *et al.* 2010, Giulietti *et al.* 2012, Trovó *et al.* 2013). The seeming morphological uniformity of species within the group may hide deeper complexity. Some characters traditionally used in taxonomy are poorly understood, and may vary according to the environment (Stützel 1984, Stützel & Trovó 2013).

*Paepalanthus macaheensis* Koernicke (1871: 311) has broad morphological variation and a confusing nomenclatural and taxonomic history. The species consists of sparsely distributed populations growing exclusively in the understory of Brazilian Atlantic coastal forests in the states of Espírito Santo, Minas Gerais, and Rio de Janeiro. The forest understory habitat of the species is quite rare within Eriocaulaceae (Giulietti & Hensold 1990, Stützel 1998, Sano *et al.* 2015). In order to resolve the nomenclatural and taxonomic inconsistencies associated with *P. macaheensis*, the species is here evaluated and formally reestablished and a second-step lectotype is designated. A detailed description, the first line drawings, photographs, comments, and a distribution map are provided. An official conservation status was assessed by the Brazilian National Center for Flora Conservation (CNCFlora). Comparisons with morphologically similar species are also presented. The name *P. euryphyllus* Ruhland (1903: 130) is proposed as a synonym of *P. macaheensis*.