Overlooked diversity in Brazilian Cypella (Iridaceae, Iridoideae): four new taxa from the Río de la Plata grasslands

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Abstract

Three new species and one subspecies of Cypella are described for Rio Grande do Sul (RS), Brazil: Cypella altouruguaya from northern RS, C. amplimaculata widely distributed across the state and C. rivularis restricted to southern RS, in grassland streams of the Pampa biome. Cypella hauthalii subsp. minuticristata is found in a central area of Rio Grande do Sul. The different taxa are described, illustrated and compared with related species. The resulting taxonomic framework shows that most of the species described for Cypella occur in the Río de la Plata grasslands, with various infrageneric taxa characterised by a high level of endemism, especially in the Subtropical Grasslands of Southern Brazil.

Key words: Campos eco-region, endemism, Rio Grande do Sul, Subtropical Grasslands, taxonomy

Introduction

Iridaceae is divided into seven subfamilies and comprise about 2030 species distributed among 65 to 75 genera (Goldblatt et al. 2008). The Iridoideae, with more than 900 species, represent one of the two major evolutionary branches of the family and make up about 44% of the species richness of the Iridaceae (Goldblatt & Manning 2008). Among the five tribes of this subfamily, the New World tribe of Tigridieae forms a monophyletic lineage of about 15 genera and 160 species (Goldblatt & Manning 2008, Chauveau et al. 2012). Cypella Herbert (1826: t. 2637), with 30 species and four subspecies accepted by the World Checklist of Iridaceae (WCI), is one of two largest genera of the tribe in South America (Goldblatt & Manning 2008, Barker 2014). The taxonomic delimitation of this genus phylogenetically closely related to Calylorea and Herbertia remains controversial (Chauveau et al. 2012, Deble et al. 2012). Indeed, among the species accepted by the WCI in Cypella, three species present the distinctive morphological features of Phalocallis Herbert (1839: t. 3710): C. boliviana Huaylla (2012: 297), C. geniculata (Klatt 1871: 517) Ravenna (1964: 53) and C. oreophila Spegazzini (1917: 44). The former species is considered morphologically strictly related to the type species of Phalocallis, P. coelestis (Lehmann 1826: 17) Ravenna (1977: 9) and is only distinguished by small variations of floral traits (Huaylla & Wood 2012). Cypella geniculata and C. oreophila were included by Ravenna (2009) in Phalocallis based on the same distinctive floral traits than the type species of the genus. Furthermore, the latest comprehensive phylogeny of Tigridieae confirmed that Phalocallis should be regarded as a separate genus from Cypella (Chauveau et al. 2012). The resulting circumscription of Cypella shows that 80% of the species and subspecies are found in the Rio de la Plata grasslands (RPG), one of the most extensive biogeographic units of the grassland biome in the world (Medan et al. 2011). Indeed, this is the largest complex of subtropical and temperate grassland ecosystems in South America (Soriano et al. 1992, Miñarro & Bilenca 2008). These grasslands include the eco-regions of Pampas in North Eastern Argentina, and the Campos eco-regions in Uruguay, Northern Argentina, South East Paraguay and Southern Brazil, where most of the Cypella species are distributed (Di Giacomo & Krapovickas 2005, Overbeck et al. 2007, Paruelo et al. 2007). In Southern Brazil, the grassland vegetation is included in two separate biomes according to the current official classification (IBGE 2004): the Pampa and the Atlantic Forest (Overbeck et al. 2007). The RPG is perhaps one of the regions in the world with highest rates of land use and land cover changes related to human activities.
more than 85% of the taxa currently described for the genus occur in the Río de la Plata grasslands, 80% are endemic to this biogeographic unit and 65% are only found in the Campos eco-region, mainly in the state of Rio Grande do Sul (Southern Brazil) where 14 species and two subspecies are presently registered. These observations suggest that the centre of diversity of *Cypella* is located in the Río de la Plata grasslands, mostly in the subtropical Campos grasslands, and that local endemism is not uncommon at the infrageneric level.

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**References**


http://dx.doi.org/10.5962/bhl.title.327


http://dx.doi.org/10.1007/s10531-011-0118-9


http://dx.doi.org/10.1016/j.ppees.2007.07.005


http://dx.doi.org/10.1111/j.1756-1051.1981.tb00714.x


http://dx.doi.org/10.1016/j.agee.2009.07.011