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NOMENCLATURAL AND TAXONOMIC NOTES IN PHYMATIDIIUM GEISELII (ONCIDIINAE, ORCHIDACEAE)

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Abstract. Phymatidium glaziovii is proposed as a new synonym for P. geiselii. A lectotype and an epitype are selected for P. geiselii. Illustrations and taxonomic discussions are also provided.

Key words: Brazilian endemic species, Caparão National Park, typifications

Introduction. Phymatidium Lindl. belongs to the Ornithocephalus group of subtribe Oncidiinae Benth. (Orchidaceae). It was established in 1833 based on two species, P. deliciatum Lindl. and P. falcifolium Lindl., the former the designated lectotype, which was selected by Angely in 1973. The genus has been extensively studied during recent years. Data on root anatomy (Porembski & Barthlott, 1988), leaf anatomy and seed morphology (Toscano de Brito 1988, 1999), vegetative and floral morphology (Toscano de Brito 2001, Pacek et al. 2012), phytochemistry (Williams et al. 1994, Reis et al. 2006), pollination (Reis et al. 2006), phylogeny (Chase & Toscano de Brito 2009, Royer 2013), distribution (Royer, 2013) and reproductive biology (Cabral & Pansarin, 2013) are available in the literature. A taxonomic revision was published by Toscano de Brito (2007). According to this last author, the genus comprises ten species and two varieties, which are mainly restricted to southeastern Brazil with one species recorded from Uruguay and another from Argentina.

While preparing an account of the genus Phymatidium in the state of Paraná (Royer et al., 2014), and performing a combined morphological and molecular analysis of the genus (Royer, 2013), the morphologies and identities of P. geiselii Ruschi et al. and P. glaziovii Toscano were investigated and elucidated. These species are discussed here.

Material and methods. This study is based on literature review, on examination of living and spirit collections, and herbarium specimens deposited in the following herbaria: AMES, BHCB, BR, C, HB, MBML, P and UPCB.

Results and Discussion


Phymatidium geiselii was described in 1976 based on a specimen collected in Caparão National Park, in the state of Espírito Santo, southeast Brazil. The specimen was collected by Antonio Francisco Marins de Albuquerque and later preserved in spirit at MBML.
The type species of *Phymatidium geiselii* has been reported as lost (Toscano de Brito, 2007), and a recent visit to MBML has confirmed this. According to MBML’s staff, the specimen MBML 6220 is actually a member of the Bromeliaceae (T. Callot, pers. comm. 2015). Three other collections named as *P. geiselii* exist at MBML. These have no provenance or collectors. According to A. Albuquerque (pers. comm. 2015), collector of the holotype of *P. geiselii* and one of the co-authors of this taxon, the additional specimens might have been collected sometime between 1975 and 1977 and may have the same provenance as the type. Unfortunately, we have been unable to find any further evidence confirming this assumption. These specimens possess immature fruits with flower remnants at their apices. An illustration based on one of them (nr. 29, MBML 6127) was prepared and published in Toscano de Brito (2007, fig. 2A–K). The floral remnants of that specimen are unfortunately somewhat shrunk and distorted, especially the tabula infrastigmatica, as noticed by Toscano de Brito (2007).

*Phymatidium geiselii* is a small plant up to ca. 7 cm tall. (Fig. 1A; 4L). The roots are glabrous; the spirally arranged, non-articulated leaves are obscurely sheathing and shortly decurrent at base, unifacial, somewhat twisted and variable in cross-section: subtriangular to semiterete (Fig. 4K). The flowers do not open widely (Fig. 1B; 4A–C) and are usually not resupinate, but resupinate and non-resupinate flowers can occur in the same individual and on the same inflorescence; they are white with green tabula infrastigmatica and callus (Fig. 1B). The lip varies from broadly ligulate to broadly lanceolate in outline and obscurely to distinctively three-lobed, with lateral lobes usually placed in the middle; the basal, fleshy, concave callosity is provided with trichome-eliaophores within, and the apex of the lip is usually markedly acuminate (Fig. 4G). The column (Fig. 4H) is curved and obscurely sigmoid in side view, the apex is auriculate and the auricles papillose; the anther is
operculate, narrowly ovate in outline, slightly beaked, and shortly recurved and emarginated at apex (Fig. 4I–J); the tabula infrastigmatica is conspicuous and nose-shaped in side view.

The type specimen of *Phymatidium geiselii* was collected in the Caparaó National Park, which is located in the border of the Brazilian states of Minas Gerais and Espírito Santo, and it is said to have been collected in the Espírito Santo side of the Park. However, places such as Rio São Domingos, Várzea dos Congonhas, and Macieira are located, as far as we can ascertain, in the Minas Gerais portion of the Park. The area where the type specimen of *P. geiselii* was collected has been the subject of an ongoing dispute between these two states and the exact limits are open for discussion (A. Albuquerque, pers. comm. 2015). For the purpose of this article, we accept Minas Gerais as the state where *P. geiselii* has been first collected. The German botanist Alexandre C. Brade (1881–1971) has extensively botanized in this area. According to him (Brade, 1942), localities such as Várzea dos Congonhas may reach ca. 2000 m above sea level. *Phymatidium glaziovii* was described by Toscano de Brito (2007) based on a collection by the French botanist Auguste F. M. Glaziou (1828–1906) in the city of Rio de Janeiro. Glaziou did not provide a precise locality or date for his collection. “Rio de Janeiro” certainly refers to what today is the city of Rio de Janeiro and its surroundings. The holotype of *P. glaziovii* is now deposited at BR (Fig. 2B) and an
isotype is at C (Fig. 3A). More recently, one of us (ALVTB) located and studied an additional duplicate from Glaziou 3633 at P (Fig. 3B).

The distorted floral segments of the \textit{P. geiselii} specimens at MBML misled Toscano de Brito (2007), who considered \textit{P. geiselii} and \textit{P. glaziovii} distinct species. This author described the fruits of \textit{P. geiselii} as “markedly 3-winged with alternating, usually less pronounced ridges”; and used this character, along with lip shape, to distinguish \textit{P. geiselii} from \textit{P. glaziovii}. The latter would have subglobose fruits that are slightly 3-angled in cross section. The type specimens of \textit{P. glaziovii} possess a few scattered, immature fruits that are still in an early stage of development. Therefore, correct size of ridges and wings of fully developed, mature fruits cannot be precisely determined and was misinterpreted in Toscano de Brito’s revision. One collection from Rio de Janeiro, \textit{J. Ferreira 1716}, with duplicates in several herbaria, carries fruits, which, although badly flattened in the drying process, are clearly ridged and apparently somewhat winged. The collection \textit{J. Ferreira 1716} was erroneously identified and illustrated as a variant of \textit{P. delicatulum} in Toscano de Brito (2007, fig. 1K–L). It actually refers to \textit{P. geiselii} and this error is corrected here. Likewise, the specimen \textit{O. Ames 108}, from Itatiaia, Rio de Janeiro, was also misidentified as a variant of \textit{P. delicatulum} in Toscano de Brito (2007). It is in fact a specimen of \textit{P. geiselii}.

We also studied eight additional collections, which fit well not only the fruiting specimens of \textit{P. geiselii} illustrated in Toscano de Brito (2007), but also the types of \textit{P. glaziovii}. Five collections come from the state of Rio de Janeiro: Two from the municipality of Itatiaia (\textit{J. Ferreira 1716}, \textit{O. Ames 108}), two from the municipality of Nova Friburgo (\textit{A. Bonnet and E. Caglioni 127}, \textit{F. Dungs s.n.}), and another from the municipality of Teresópolis (\textit{Bolson et al. 505}). A sixth collection comes from Caparaô National Park (\textit{G. Heringer et al. 295}) in the state of Minas Gerais. This last collection was found in the municipality of Espera Feliz, which is very close (if not the same) to the type locality of \textit{P. geiselii}. Two others come from Domingos Martins, state of Espírito Santo. They were based on cultivated material and their actual provenance cannot be correctly ascertained. Study of all these additional specimens, including living, spirit, and herbarium material, has proved that \textit{P. geiselii} and \textit{P. glaziovii} are...
With exception of the collections from Domingos Martins (R. Kautsky s.n.; F. Dungs s.n.) and the type specimens of *P. glaziowii* collected in Rio de Janeiro, which unfortunately lack precise location data and altitude range, the material studied seems to indicate that *P. geiselii* grows on higher altitudes up to 2200 m.

In the absence of an actual specimen, the only original, extant materials of *P. geiselii* are the published description and illustration in the protologue. The illustration that appeared in the protologue is here designated as the lectotype. However, this illustration is crude and misleading. It cannot be used alone to recognize this species. Therefore, we select as an epitype the specimen *G. Heringer et al*. 295, which is deposited at BHCB (Fig. 2A). This specimen was collected in Caparaó National Park, the same locality as the type. The selection of this collection against the three spirit specimens at MBML (6125, 6126, 6127), previously mentioned here, is justified as these have no collection data and are already in fruiting stage, bearing only floral remnants.


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**Literature Cited**


