

New distribution records of *Catasetum confusum* G.A. Romero-González (Cymbidieae, Epidendroideae, Orchidaceae) from Brazil

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Abstract. Until now, *Catasetum confusum* G.A. Romero-González was known from the states of Goiás, Mato Grosso and Tocantins. The present study extends the distribution of this species to the states of Bahia and Piauí, as well as the Federal District, based on herbarium specimens deposited at CEN, RB, UFMT and UPCB. Following IUCN criteria, *C. confusum* is Endangered due to its area of occupancy, geographic distribution and habitat quality, showing the importance of these new records.

Key words. Caatinga species; Catasetinae; Cerrado species; expansion of distribution; conservation status

The genus *Catasetum* Rich. ex Kunth is represented in Brazil by ca. 100 species (BARROS et al. 2015) and has been recorded in diverse biomes and the various phytophysiognomies within these biomes. In this genus the species have high morphological plasticity and many easily adapt to new areas and environmental changes (PETINI-BENELLI 2012).

Most of the species are epiphytic herbs and many occur in specific habitats where they are restricted to small areas with unique characteristics. *Catasetum confusum* G. Romero-González (ROMERO-GONZÁLEZ 1993) is in this category because, until now, it was rarely recorded and known only from small fragments (e.g., in Goiás and Mato Grosso) and preserved areas (e.g., Lagoa da Confusão, in Tocantins) of the Cerrado.

While preparing a monograph of *Catasetum* for Mato Grosso state and a phylogeny of this Neotropical genus, the distributions of species were revised based on collections made throughout the state, material collected by collaborators, and specimens from national and international herbaria that were studied in person or online.

The material collected was compared to herbarium specimens deposited at CEN, HB, HUTO, MBM and UFMT (acronyms according to THIERS 2016), and voucher specimens were pressed according to PETINI-BENELLI (2016) and deposited at MBM, RB, UFMT and UPCB. The geographic distribution

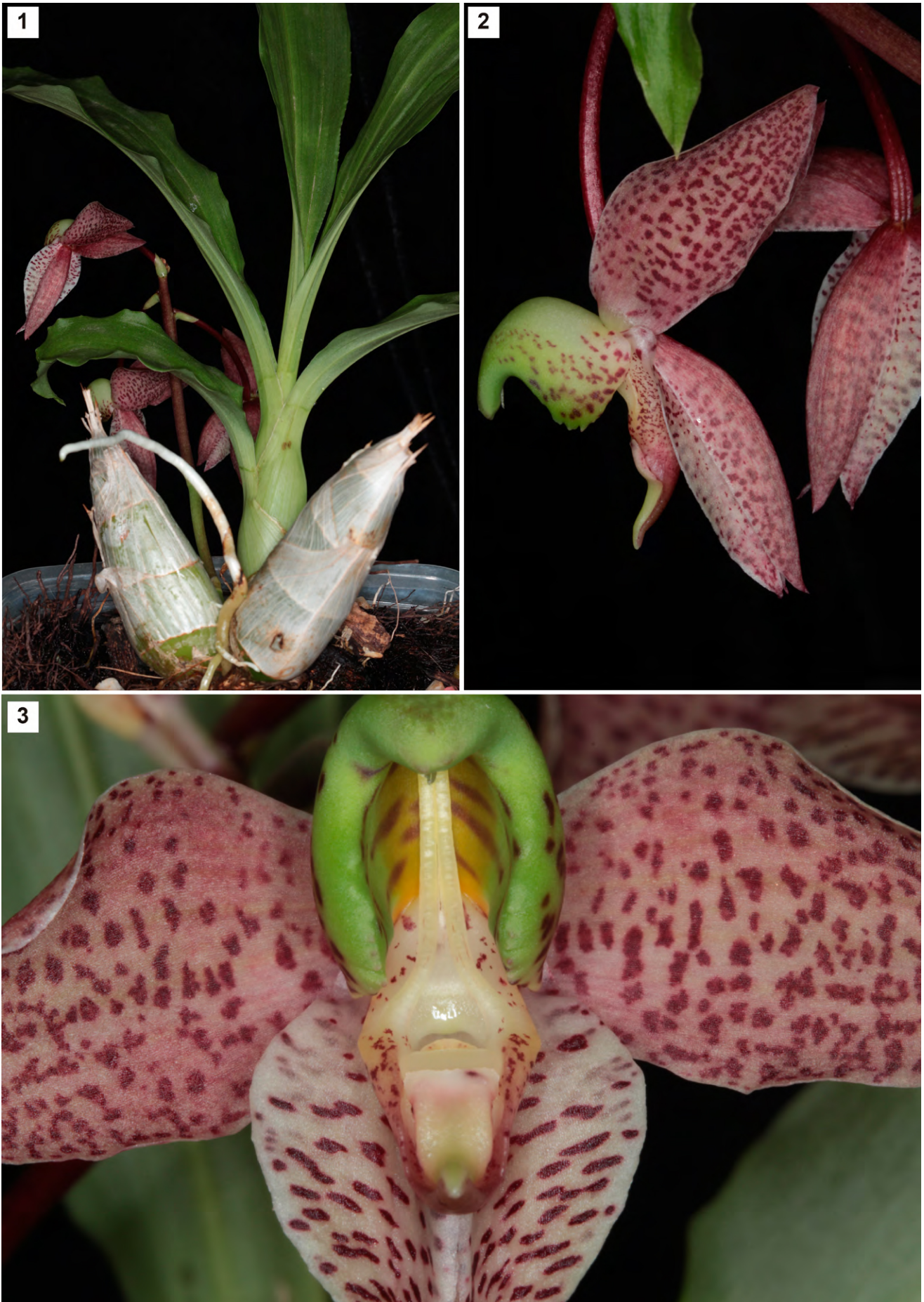
of *C. confusum* was made using the program DIVA-GIS 7.5 (HIJMANS et al. 2012). The conservation status of the taxon was assessed following IUCN (2001) criteria, and considered the number of locations, area, extent and quality of habitat. The extent of occurrence (EOO) and area of occupancy (AOO) were calculated using the software Geospatial Conservation Assessment Tool (GeoCAT), where the AOO was based on a defined cell width of 2 km (BACHMAN et al. 2011).

Catasetum confusum G.A. Romero-González. Brittonia 45: 237. 1993. Holotype: Brazil: Goiás: margem do Rio Tocantins. ♂, ex hort. *M. Brichta* s.n. (HB 66772!).

Figure 1.

Epiphytic herb. *Pseudobulbs* aggregated, fusiform, variable in size. *Inflorescence* basal, initially erect, later arched, with up to 20 non-resupinate flowers, to 50 cm long. *Pedicel* 27–29 × 2.8–3 mm, distally uncinatate, ovary sulcate. *Sepals* slightly concave, apex obtuse; dorsal sepal 26–30 × 10–13 mm, ovate; lateral sepals 26–30 × 11–14 mm, ovate to elliptic, reflexed. *Petals* 22–26 × 8–10 mm, connivent with dorsal sepal, narrowly ovate, apex slightly acute, apiculate, sparsely ciliate distally. *Labelium* 13–16 × 7–10 mm, saccate, the sac 10–12 mm deep, trilobed, lateral lobes rounded, generally green; interior of labellum with a keel along the surface, frontal lobe 2–3 mm long, margin with small teeth, apex generally acuminate, lateral lobes slightly revolute. *Column* 18–20 × 4–5 mm, trigonous. *Clinandrium* 5–6 mm long. *Antennae* 8–10 × 0.8–0.9 mm, parallel convergent, symmetrical. *Anther* 7–8 × 4.5 mm, whitish, margins vinaceous. *Pollinia* 2, yellow. Pistillate flowers and fruits not seen.

Selected material. Brazil: Bahia: São Desidério; Fazenda Palmeiral, 15-X-2006, ♂, Santos-Amaral, A. 2874 (CEN); Distrito Federal, 8-II-2014, ♂, Garcia, L.J. ADA579 (UFMT; spirit 579). Goiás: Iporá, 31-I-2015, ♂, Monteiro, N. ADA264, (UFMT; spirit 264). Mato Grosso: Tangará da Serra, 15-I-2014, ♂, Petini-Benelli, A. APB-TG05 (UPCB; spirit). Piauí: Santa



Figures 1–3. *Catasetum confusum*. **1.** Vegetative form of a blooming plant growing in a greenhouse. **2.** Male flower, lateral view. **3.** Male flower, close-up view of labellum focusing on the column-pollinarium-antennae set. Photos: ECS.

Catasetum confusum was originally described from the state of Goiás (ROMERO-GONZÁLEZ 1993). However, according to BARROS et al. (2015), it occurs in the states of Goiás, Mato Grosso and Tocantins, in areas of the Cerrado in riparian or gallery forest. The present study extends the distribution of this taxon to Bahia, Piauí and the Federal District (Fig. 4).

Catasetum is represented in Bahia by 13 species, some of which occur in Amazonia, such as *C. gnomus* L.Linden & Rchb.f. (AZEVEDO & VAN DEN BERG 2007, BASTOS & VAN DEN BERG 2012a, b, BUZZATTO & MACHADO 2011, VIEIRA et al. 2014, and TOSCANO DE BRITO 1995, 2005). The material recorded from Bahia is deposited in CEN and was collected in 2006 in an area of riparian forest in the municipality of São Desidério, in extreme western Bahia, which borders Tocantins state and is within the Cerrado biome. In relation to the original area, the new record extends the distribution of the species approximately 600 km. No records were found by us of *Catasetum* species that share the same habitat with *C. confusum* in São Desidério. Therefore, this is the first record of the genus for the municipality.

The collection from the Federal District was made in February 2014 in an area of Cerrado s.s. that is impacted by pastures, and was maintained in cultivation until it flowered. According to BARROS et al. (2015), there are 3 species in the Federal District, *C. barbatum* (Lindl.) Lindl., *C. fimbriatum* (C.Morren) Lindl. and *C. spitzii* Hoehne, all of which occur in various phytogeographies of the Cerrado biome. The occurrence areas cited for *C. confusum* in the state of Goiás and the Federal District are relatively close to each other (approximately 300 km). In addition, this distance is approximately 600 km southwest from the record made in Bahia.

The most relevant record of *C. confusum*, considering the large gap in the knowledge of *Catasetum*, is from the state of Piauí where there were only 2 known species. Located in the Caatinga and Cerrado biomes, this region is also a great transition zone between the Amazon forest and the Cerrado. According to AB'SÁBER (2001), the proximity and the combination of these 3 biomes introduces a surprising factor when considering the richness of species in the area, with probable new records. The municipality of Santa Filomena, where *C. confusum* was collected in Piauí, has an area less than 5,200 km² (IBGE 2016) and vegetation typical of Caatinga and Cerrado. In this municipality, the Estação Ecológica de Uruçuí-Una is in the northeastern part and Parque Nacional das Nascentes do Rio Parnaíba is at the southern limit (IBGE 2016). This collection extends the distribution of the taxon approximately 500 km and is the first record of the genus for the Santa Filomena region.

Using GeoCAT (BACHMAN et al. 2011), an area of occupancy (AOO) of 32 km² from 8 localities and an extent of occurrence (EOO) of 582,585.98 km² was calculated. Based on the new records, the extent of occurrence increased 221,044.25 km² and the area of occupancy increased 12 km². Following IUCN (2001) criteria, *C. confusum* can be classified as Endangered [EN B2ab(iii)] because of its area of occupancy, geographic distribution and habitat quality.

ACKNOWLEDGEMENTS

Thanks to Luciano de Bem Bianchetti for the support and access to the CEN collection and to the curators of all the herbaria consulted. APB thanks the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) for the research grant. ECS thanks the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the Bolsa de Produtividade em Pesquisa do CNPq-Nível 2 (process 311001/2014-9) and for the MCTI/CNPq No. 14/2013–Universal (process 485396/2013-0).

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Authors' contributions. APB collected the data, APB and ECS identified the specimens and wrote the text.

Received: 26 May 2016

Accepted: 8 April 2017

Academic editor: Mayara Caddah