

**Begonia Goldingiana L. Kollmann & A. P. Fontana  
(Begoniaceae), a New Species from the Atlantic Forest  
of Southern Bahia, Brazil**

Authors: Charles Kollmann, Ludovic Jean, and Fontana, André Paviotti

Source: Candollea, 65(2) : 185-188

Published By: The Conservatory and Botanical Garden of the City of  
Geneva (CJBG)

URL: <https://doi.org/10.15553/c2010v652a1>

---

BioOne Complete ([complete.BioOne.org](https://complete.BioOne.org)) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](https://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

# Begonia goldingiana L. Kollmann & A. P. Fontana (Begoniaceae), a new species from the Atlantic Forest of Southern Bahia, Brazil

Ludovic Jean Charles Kollmann & André Paviotti Fontana

## Abstract

KOLLMANN, L. J. C. & A. PAVIOTTI FONTANA (2010). *Begonia goldingiana* L. Kollmann & A. P. Fontana (Begoniaceae), a new species from the Atlantic Forest of Southern Bahia, Brazil *Candollea* 65: 185-188. In English, English and French abstracts.

*Begonia goldingiana* L. Kollmann & A. P. Fontana, a new species, sect. *Pritzelia*, from the Atlantic Forest of the counties of Garatinga and Itamaraju, Bahia, Brazil, is described and illustrated. This species resembles *Begonia novalombardiensis* L. Kollmann, *Begonia aguiabrancensis* L. Kollmann, *Begonia umbraculifera* Hook. and *Begonia fellereriana* Irmsch., with which it is compared. Comments on its geographic distribution and conservation status are also provided.

## Key-words

BEGONIACEAE – *Begonia* – Brazil – Bahia – Atlantic Forest – Taxonomy

## Résumé

KOLLMANN, L. J. C. & A. PAVIOTTI FONTANA (2010). *Begonia goldingiana* L. Kollmann & A. P. Fontana (Begoniaceae), une nouvelle espèce de la Forêt Atlantique du Sud de Bahia, Brésil. *Candollea* 65: 185-188. En anglais, résumés anglais et français.

*Begonia goldingiana* L. Kollmann & A. P. Fontana, une nouvelle espèce de *Begonia*, sect. *Pritzelia*, de la Forêt Atlantique des municipalités de Guaratinga et Itamaraju, Bahia, Brésil, est décrite et illustrée. Cette espèce est proche de *Begonia novalombardiensis* L. Kollmann, *Begonia aguiabrancensis* L. Kollmann, *Begonia umbraculifera* Hook. et *Begonia fellereriana* Irmsch., avec lesquelles elle est comparée. Sa distribution géographique et le statut de sa conservation sont présentés.

Addresses of the authors: JCK: Museu de Biologia Prof. Mello Leitão (MBML), Av. José Ruschi, 4, CEP 29650-000 Santa Teresa, ES, Brazil. Email: [Ludovic@limainfo.com.br](mailto:Ludovic@limainfo.com.br)  
APF: Projeto Cores "Conservação das Orquídeas em Risco de Extinção" Museu de Biologia Prof. Mello Leitão (MBML), Av. José Ruschi, 4, CEP 29650-000 Santa Teresa, ES, Brazil

Submitted on May 18, 2009. Accepted on August 19, 2010.

Edited by P. Bungener

## Introduction

The *Begoniaceae* contains two genera, *Hillebrandia* Oliv. with one species in the Hawaiian Islands and *Begonia* (CLEMENT & al., 2004), pantropical except in Australia, with about 1500 species (TEBBITT, 2005). About 230 species of *Begonia* L. are known in Brazil (SMITH & al., 1986; DOORENBOS, 1998; GOLDING & WASSHAUSEN, 2002), mostly along the Atlantic Forest (DUARTE, 1961), and represented in all ecosystems except mangrove forest.

Southern Bahia in Brazil is an area of extremely high biological importance due to its high numbers of species (AMORIM & al., 2005; THOMAS & al., 2008) and high degree of endemism (THOMAS & al., 1998).

During fieldwork on rocky outcrops in the counties of Guaratinga and Itamaraju in the mountainous region of Southern Bahia state, a species of *Begonia* was collected that we describe herein as a new species. This new species should be classified in sect. *Pritzelia* due to the presence of one placenta per locule with ovules on both sides of the placenta and anther connectives extended.

### *Begonia goldingiana* L. Kollmann & A. P. Fontana, *spec. nova* (Fig. 1)

**Typus: BRAZIL. Bahia:** Guaratinga, Corrego Jacutinga, 16°38'26"S 39°47'54.4"W, 370 m, 23.IV.2009, (fl., fr.), L. Kollmann, A. P. Fontana, E. Leme & C. Esgario 11571 (holo-: MBML; iso-: RB, CEPEC, NY).

*Species haec B. novalombardiensi, cui affinis, sed plantis minoribus, foliis late ovatis indumento lanuginoso et inflorescentia majore; a B. aguiabrancensi, proxima, sed plantis majoribus, indumento foliorum lanugino, stipula decidua et inflorescentia majore; a B. umbraculiferae, affinis, sed foliis late ovatis indumento lanuginoso et floribus masculinis tepalis quaternis; a B. fellererianae, affinis, sed plantis majoribus et floribus masculinis tepalis quaternis differt.*

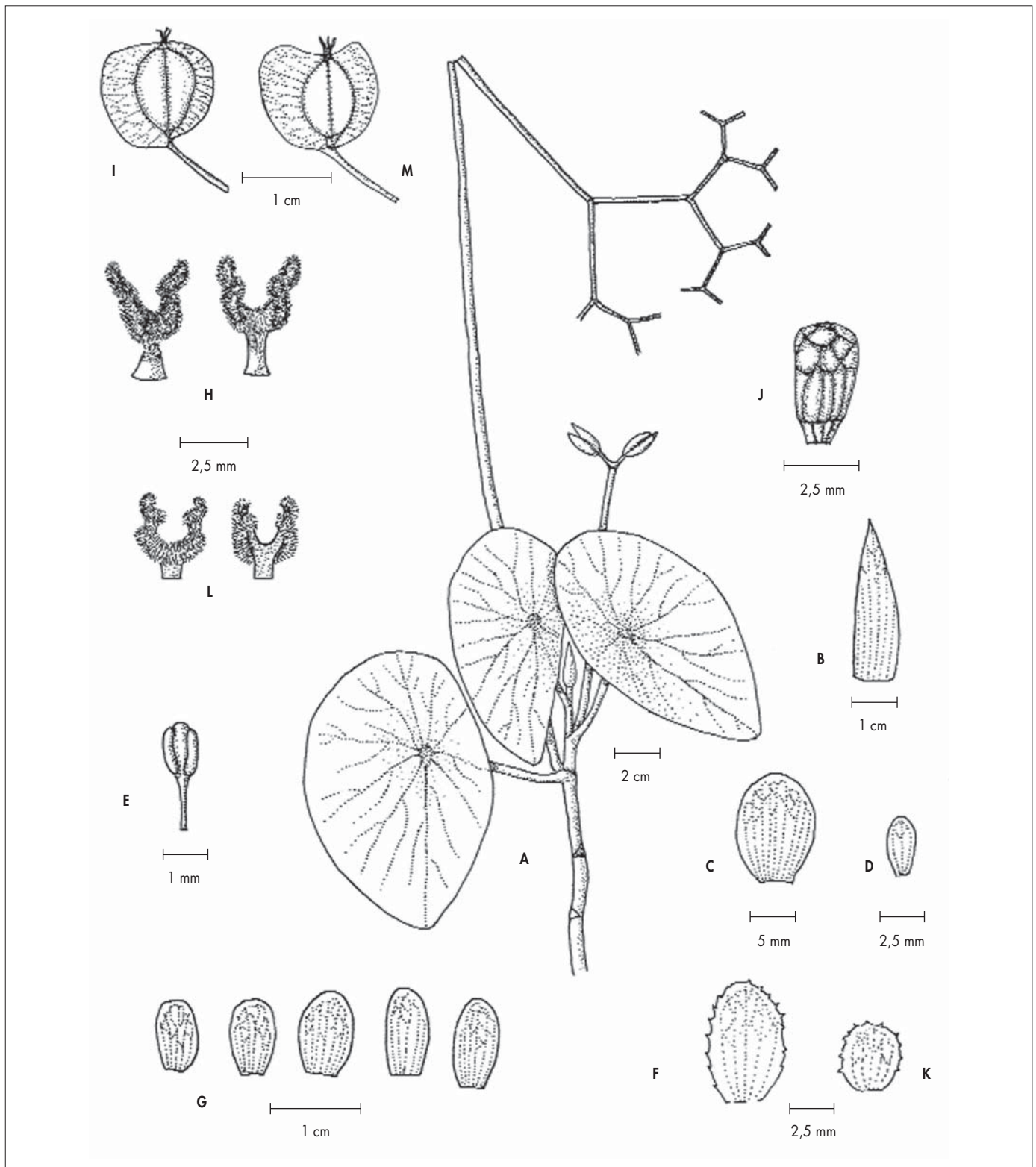
*Suffrutescent* herb 0.8-1.2 m tall, rupicolous to saxicolous, stellate trichomes on all parts except both sides of the inner tepals of the staminate flower and the inner surface of all other tepals. *Stems* 0.85-1.2(-2) cm in diameter, green, the older ones brown, internodes (0.5-)1.5-8 cm long, glabrescent, lenticels present. *Stipules* 2.5-3.5 × 0.5-0.9 cm, green, lanceolate to narrowly ovate, deciduous, slightly asymmetrical, apex acute, margins entire. *Leaves* alternate. *Petioles* 4.2-17.5 × 0.26-0.3 cm, green to reddish. *Lamina* 10-18.8 × 6.5-13 cm, green with whitish stellate trichomes, adaxial face glabrescent, shining when older, abaxial surface green covered by whitish indument, peltate, simple, asymmetrical, transversely ovate, apex obtuse to acute, base orbiculate, margins revolute, sinuate, hydathodes present, venation actinodromous, veins 9-10

at base, stomata in groups, upper epidermis multi-layered. *Inflorescence* 32.5-61 cm long, dichasium, 5-6-times dichotomous, red when mature, bracts greenish, deciduous, soon falling, 3.5-16 × 2.7-7 mm. *Staminate flower*; pedicels 4-6 mm long, reddish; tepals four, the outer 0.7-1.1 × 0.6-0.7 cm, white, reddish base, obovate to orbicular, rounded apex, the inner 4-5 × 2 mm, white, oblong to obovate, concave, glabrous, apex obtuse; stamens 24-42, yellow, on a short column, filaments 0.5-2 mm long, anthers ca. 1 mm long, rimose, ovate to oblong, apex obtuse to rounded, the connective projecting. *Pistillate flower*; pedicels 0.75-1.63 cm long, red; prophylls 2, inserted on apex pedicel, 5-7.4 × 3-5.5 mm, white, ovate to orbiculate, deciduous, apex obtuse to rounded, margins entire to erose; tepals five, 5.5-10 × 3.5-6 mm, white, base reddish, unequal, obovate, apex obtuse; style three, 2.8-4.5 mm long, yellow, reddish at base, trifid, bifurcate, united at base, style branches spirally twisted, with band of stigmatic papillae, the rest of the style with minute papillae, occasionally stigmatic papillae covering entire surface of style branches. *Ovary* 3-locular, placentation axial, one placenta per locule, ovules on both sides of the placenta. *Capsules* ca. 7.5 × 4.5 mm, white to reddish, basally dehiscent, chartaceous and opaque when dry, wings three, ascending, rounded, larger wing 9.7-16 × 5-8 mm, smaller wings 7.3-1.1 × 2-4 mm, stigma persistent when dry. *Seeds* ca. 0.4 × 0.2 mm when dry, cylindrical, oblong, apex obtuse.

*Etymology.* – The epithet is a posthumous tribute to Jack Golding, who has greatly contributed to the knowledge of *Begoniaceae*.

*Ecology and geographical distribution.* – *Begonia goldingiana* was found growing in leaf litter and humus on inselbergs in Itamaraju county in association with *B. lossiae* L. Kollmann, *B. reniformis* Dryand., *Alcantarea* sp. (*Bromeliaceae*), *Stillingia* sp. (*Euphorbiaceae*) and *Tibouchina* sp. (*Melastomataceae*). It was also found growing in low canopy forest on sandy soil on a granitic formation, in association with *Anthurium* sp. and *Philodendron* sp. (*Araceae*), *Cryptanthus* sp., *Hohenbergia* sp., *Neoregelia* sp. (*Bromeliaceae*), *Pseudobombax* sp. (*Malvaceae*), *Smilax* sp. (*Smilacaceae*) and *Syagrus* sp. (*Arecaceae*).

*Discussion.* – Within *Begonia* sect. *Pritzelia*, *B. goldingiana* L. Kollmann & A. P. Fontana most closely resembles *B. umbraculifera* Hook. due to its suffrutescent habit, peltate leaves, inflorescence size and having undivided placentae. Nevertheless, it can be distinguished by having an indument of stellate trichomes (vs. glabrous), obovate leaves (vs. orbiculate), entire leaf margins (vs. denticulate), auricles not present on the abaxial face of the leaf (vs. present), unisexual flowers (vs. unisexual and bisexual flowers) (bisexual flowers were reported by the author of *B. umbraculifera* from cultivated material) and staminate flowers with four tepals (vs. two tepals).



**Fig. 1.** – *Begonia goldingiana* L. Kollmann & A. P. Fontana. **A.** Habit; **B.** Stipule flattened, front view; **C.** Outer tepal of the staminate flower; **D.** Inner tepal of the staminate flower **E.** Stamen, front view; **F, K.** Prophyll flattened; **G.** Tepals of the pistillate flower; **H, L.** Style branches, front view, right; back view, left; **I, M.** Fruit; **J.** Seed.

[**A-J:** Fontana & Brahim 4145, MBML; **K-M:** Kollmann & al. 11571, MBML] [Drawn by the author]

*Begonia goldingiana* also resembles *B. fellereriana* Irmsch. which has peltate leaves and undivided placentae. Nevertheless, the new species can be distinguished by being a suffrutescent (vs. rhizomatous) herb, by having longer petiole (4.2-17.5 vs. 1.5-2.5 cm), obovate leaves (vs. sub-orbiculate), larger leaves (10-18.8 × 6.5-13 vs. 5 × 4.5 cm) and staminate flowers with four tepals (vs. two tepals). *Begonia goldingiana* also resembles *B. novalombardiensis* L. Kollmann and *B. aguiabrancensis* L. Kollmann. These latter two taxa are endemic to Espírito Santo State, and share with *B. goldingiana* a suffrutescent habit, peltate leaves, stellate trichomes and undivided placentae. However, the new species can be distinguished from *B. novalombardiensis* by its size (0.8-1.2 vs. 1.5-2 m high), leaf shape (broadly ovate vs. narrowly ovate), adaxial surface of leaves glabrescent (vs. persistent trichomes), leaf indument (flattened stellate trichomes vs. erect) and inflorescence size (32-45 vs. 10-25 cm long). *Begonia goldingiana* differs from *B. aguiabrancensis*, by its size (0.8-1.2 vs. 0.4 m high), leaf size (10-17 vs. 6.5-8.5 cm long), adaxial surface of leaves glabrescent (vs. persistent trichomes), leaf indument (flattened stellate trichomes vs. erect), deciduous stipules (vs. persistent) and by its inflorescence size (32-45 vs. 18-36 cm long). Finally, *B. goldingiana* resembles *B. lealii* Brade and to *B. ibitiocensis* E. L. Jacques & Mamede by its stellate trichomes and peltate leaves. However, neither of these taxa are classified in sect. *Pritzelia* since they have bifid rather than entire placentae.

**Conservation.** – Due to the apparent endemic distribution of *Begonia goldingiana* in the Atlantic Forest of Southern Bahia with an extent estimated to be less than 500 km<sup>2</sup> (B2), a habitat that is severely fragmented (B2a), and with continuing decline observed in area, extent, and quality of suitable habitat (B2b(iii)), this new species should be considered at least an endangered species (EN) (IUCN, 2001).

**Additional specimens examined.** – **BRAZIL. Bahia:** Itamaraju, Monte Pescoço, Fazenda Novo Horizonte, track to Colina, Prop. Sr. Carlos Mascarenhas, Atlantic Forest, 16°59'43.4"S 39°35'26.4"W, 464 m, 10.X.2007, fl. and fr., A. P. Fontana & K. A. Brahim 4145 (MBML, RB); Itamaraju, Monte Pescoço, Fazenda Novo Horizonte, 16°59'8.3"S 39°34'38.4"W, 125 m, 20.IV.2009, fl., L. Kollmann, A. P. Fontana, E. Leme & C. Esgario 11544 (MBML); Itamaraju, Fazenda Pau-Brasil, ca. 5 km a NW de Itamaraju, 19.IX.1978, fl., S. Mori, L. A. Mattos Silva & T. S. dos Santos s.n. (CEPEC, RB); Itamaraju, Fazenda Pau-Brasil, Monte Pescoço, afloramento rochoso, 250 m, 9.IV.1996, fl., G. Martinelli, S. Porembski & M. Leitman 14831 (RB).

## Acknowledgments

We acknowledge the staff of the Mello Leitão Biological Museum, especially Helio de Queiroz Boudet Fernandes, Director of the Museum and Curator of MBML Herbarium. We acknowledge the “Cores” project “Conservação das Orquideas em Risco de Extinção”. We also thank Elton Leme for the Latin diagnosis, Kingsley Langenberg for the English revision and the three reviewers.

## References

- AMORIM, A. M. A., P. FIASCHI, J. G. JARDIM, W. W. THOMAS, B. CLIFTON & A. M. CARVALHO (2005). The Vascular Plants of a Forest Fragment in Southern Bahia, Brazil. *Sida* 21: 1726-1752.
- CLEMENT, W. L., M. C. TEBBITT, L. L. FORREST, J. E. BLAIR, L. BROUILLET, T. ERIKSSON & S. M. SWENSEN (2004). Phylogenetic position and biogeography of *Hillebrandia sandwicensis* (Begoniaceae): a rare Hawaiian relict. *Amer. J. Bot.* 91: 905-917.
- DOORENBOS, J., M. S. M. SOSEF & J. J. F. E. DE WILDE (1998). The sections of *Begonia* including descriptions, keys and species lists. *Studies in Begoniaceae VI. Wageningen Agric. Univ. Pap.* 98-2.
- DUARTE, A. P. (1961). Considerações acerca do comportamento e dispersão de algumas espécies de Begônias do Estado da Guanabara. *Arch. Jard. Bot. Rio de Janeiro* 17: 57-105.
- GOLDING, J. & D. C. WASSHAUSEN (2002). *Begoniaceae*, Edition 2. Part I: Annotated Species List. Part II Illustrated Key, Abrigment and Supplement. *Contr. U.S. Natl. Herb.* 43.
- IUCN (2001). *IUCN Red List Categories and Criteria: Version 3.1*. IUCN.
- SMITH, L. B., D. C. WASSAUSEN, J. GOLDING & C. E. KAREGEANNES (1986). *Begoniaceae*. Part I: Illustrated key. Part II: Annotated Species List. *Smithsonian Contr. Bot.* 60: 1-5.
- TEBBITT, M. C. (2005). *Begonias: cultivation, identification, and natural history*. Timber Press.
- THOMAS, W. W., A. M. CARVALHO, A. M. AMORIM, J. GARRISON & A. L. ARBELÁEZ (1998). Plant endemism in two forests in southern Bahia, Brazil. *Biodivers. & Conservation* 7: 311-322.
- THOMAS, W. W., A. M. CARVALHO, A. M. AMORIM, J. GARRISON & T. S. DOS SANTOS (2008). Diversity of woody Plants in the Atlantic Coastal Forest of Southern Bahia, Brazil. *Mem. New York Bot. Gard.* 100: 21-66.