



## **Herbertia Amabilis Deble & F. S. Alves (Iridaceae), a New Species from Brazil**

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# Herbertia amabilis Deble & F. S. Alves (Iridaceae), a new species from Brazil

Leonardo Paz Deble & Fabiano da Silva Alves

## Abstract

DEBLE, L. P. & F. S. ALVES (2013). *Herbertia amabilis* Deble & F. S. Alves (Iridaceae), a new species from Brazil. *Candollea* 68: 133-137. In English, English and French abstracts.

A new species, *Herbertia amabilis* Deble & F. S. Alves (Iridaceae), is described and illustrated from Rio Grande do Sul State, Brazil. *Herbertia* Sweet is a predominately South American genus, now comprising 8 species with 7 of them occurring in southern Brazil. *Herbertia amabilis* is closely related with *Herbertia lahue* subsp. *amoena* (Griseb.) Goldblatt, but can be distinguished principally by robust habit, narrowly linear leaves, style arms recurved at the apex, and smaller obovate-clavate ovary. With just two known populations occurring in central Rio Grande do Sul State, with an extent of occurrence comprised in less than 100 km<sup>2</sup> and the populations size being smaller than 10 km<sup>2</sup> the new species is preliminary considered as critically endangered. The geographic distribution of the new species is presented as well as the key for the Brazilian species of *Herbertia*.

## Key-words

IRIDACEAE – *Herbertia* – Brazil – Taxonomy – Conservation

## Résumé

DEBLE, L. P. & F. S. ALVES (2013). *Herbertia amabilis* Deble & F. S. Alves (Iridaceae), une nouvelle espèce du Brésil. *Candollea* 68: 133-137. En anglais, résumés anglais et français.

Une nouvelle espèce, *Herbertia amabilis* Deble & F. S. Alves (Iridaceae), est décrite et illustrée de l'Etat du Rio Grande do Sul, Brésil. *Herbertia* Sweet est un genre principalement sud-américain, qui contient actuellement 8 espèces, 7 d'entre elles se rencontrant dans le sud du Brésil. *Herbertia amabilis* est étroitement apparentée à *Herbertia lahue* subsp. *amoena* (Griseb.) Goldblatt, mais s'en distingue principalement par son port robuste, ses feuilles étroitement linéaires, son style à ramifications recourbées au sommet, et un ovaire obové-claviforme. Avec seulement deux populations connues dans le centre de l'Etat du Rio Grande do Sul comprises dans une aire d'occurrence de moins de 100 km<sup>2</sup> et présentant une taille inférieure à 10 km<sup>2</sup>, la nouvelle espèce est considérée en première approximation en danger critique. La distribution géographique de la nouvelle espèce est présentée ainsi qu'une clé d'identification des espèces brésiliennes d'*Herbertia*.

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## Introduction

*Herbertia* Sweet (*Iridaceae*) is a small genus comprising seven species, occurring on grasslands and stony grasslands in temperate North and South America (ROITMAN & CASTILLO, 2008; DEBLE, 2010). The genus is characterized by the following features: small habit, distinctly dissimilar tepals series, androgynocium filaments entirely united in a column or free only apically, horizontal or ascending linear anthers, and style branches straight or recurved, each stigmatic and forked apically.

In Brazil, *Herbertia* is restricted to southernmost portion of the country, in Rio Grande do Sul and southeast Santa Catarina States, where it is represented by the following species: *H. crosae* Roitman & J. A. Castillo, *H. darwinii* Roitman & J. A. Castillo, *H. lahue* subsp. *amoena* (Griseb.) Goldblatt (= *H. fucata* (Klatt) Ravenna), *H. pulchella* Sweet, *H. quareimana* Ravenna, and *H. zebrina* Deble.

*Herbertia crosae* and *H. darwinii* occur on grasslands and stony grasslands in southwest Rio Grande do Sul, northwest Uruguay and northeast Argentina. *Herbertia pulchella* grows on stony grasslands in northeast Uruguay and western Rio Grande do Sul. *Herbertia quareimana* is restricted to grasslands close to the border between Uruguay and Brazil. *Herbertia zebrina* is narrowly endemic on stony grasslands in a small area in eastern Rio Grande do Sul. *Herbertia lahue* subsp. *amoena* displays relatively ample distribution: Argentina, Brazil (Rio Grande do Sul and southeast of Santa Catarina), Uruguay and Paraguay (RAVENNA, 1989; ROITMAN & CASTILLO, 2004; ROITMAN & CASTILLO, 2008; GOLDBLATT & MANNING, 2008; DEBLE, 2010).

During trips in central areas in Rio Grande do Sul State, Brazil, we found an attractive new species, evidently closely related to the well-known *H. lahue* subsp. *amoena*, but with predominately white flowers and larger size. With the addition of this new species, the genus comprises eight species, seven of them occurring in Brazil.

## Results

*Herbertia amabilis* Deble & F. S. Alves, **spec. nova** (Fig. 1, 2).

**Typus:** BRAZIL. Rio Grande do Sul: Júlio de Castilhos, “no campo, entre gramíneas, no solo argiloso, flores brancas”, 29°18'43”S 53°49'39”W, 23.XII.2010, fl. fr., L. P. Deble 12721, A. S. de Oliveira-Deble, J. N. C. Marchiori & F. S. Alves (holo-: SI!; iso-: CTES!, ICN!).

*Species nova ab Herbertiae lahue subsp. amoenae affinis, sed magna statura (30-40 cm alta vs 8-15 cm alta), foliis longioribus et anguste linearis (18-35 cm longis, 0.3-0.5 cm latis vs 8-15 cm longis, 0.4-1 cm latis), ovarium obovato-clavatum, 3.5-5 mm longum (versus obovato-oblongum,*

*6-8 mm longum), tepala exteriora albida, (vs coeruleo-vio-lacea), tepala interiora albida et lutea (vs atro-violacea), optime distincta.*

*Plants* up to 30-40 cm high, subterranean stems 10-20 cm long. *Bulb* ovoid, 18-24 mm wide, sometimes prolonged in a short collar. *Leaves* 2, plicate, narrowly linear, 18-35 cm long, 0.3-0.5 cm wide. *Spathes* 2-4, herbaceous, pallid-green, bivalved, two-flowered, pedunculate, peduncles 4-8.5 cm long; lower valve 2.3-3.4 cm long, the upper 3.5-4.5 cm long, both with membranous edges; pedicel filiform, 4-5 cm long. *Flowers* predominately white, radially symmetrical, 3.5-4 cm diam. *Tepals* whorls sharply dissimilar: outer tepals obovate, 18-21 mm long, 9-12 mm wide, white, with yellow dots scattered in the proximal half, and a yellow medial stripe at the base; inner tepals oblanceolate, 5-6 mm long, 1.3-1.8 mm wide, white, with a yellow macula in medial portion, apex long attenuate, acuminate, reflexed. *Filaments* entirely united in a column, 4.2-4.8 mm long, yellowish along the column; anthers linear, yellow, curved at dehiscence, 7-7.5 mm long; pollen yellow. *Ovary* obovate-clavate, 3.5-5 mm long, 1.8-2.5 mm wide. *Style* 9-9.5 mm long; style arms channeled, 4.5-5 mm long, at the apex bifid for 1.8-2.2 mm, the divisions divaricate, recurved, apically stigmatic. *Capsules* broadly oblong-clavate, 9-11 mm long, 4.5-5 mm wide. *Seeds* oblong to obconical, angular, reddish-brown, epidermis striate, 1.5-2 mm long.

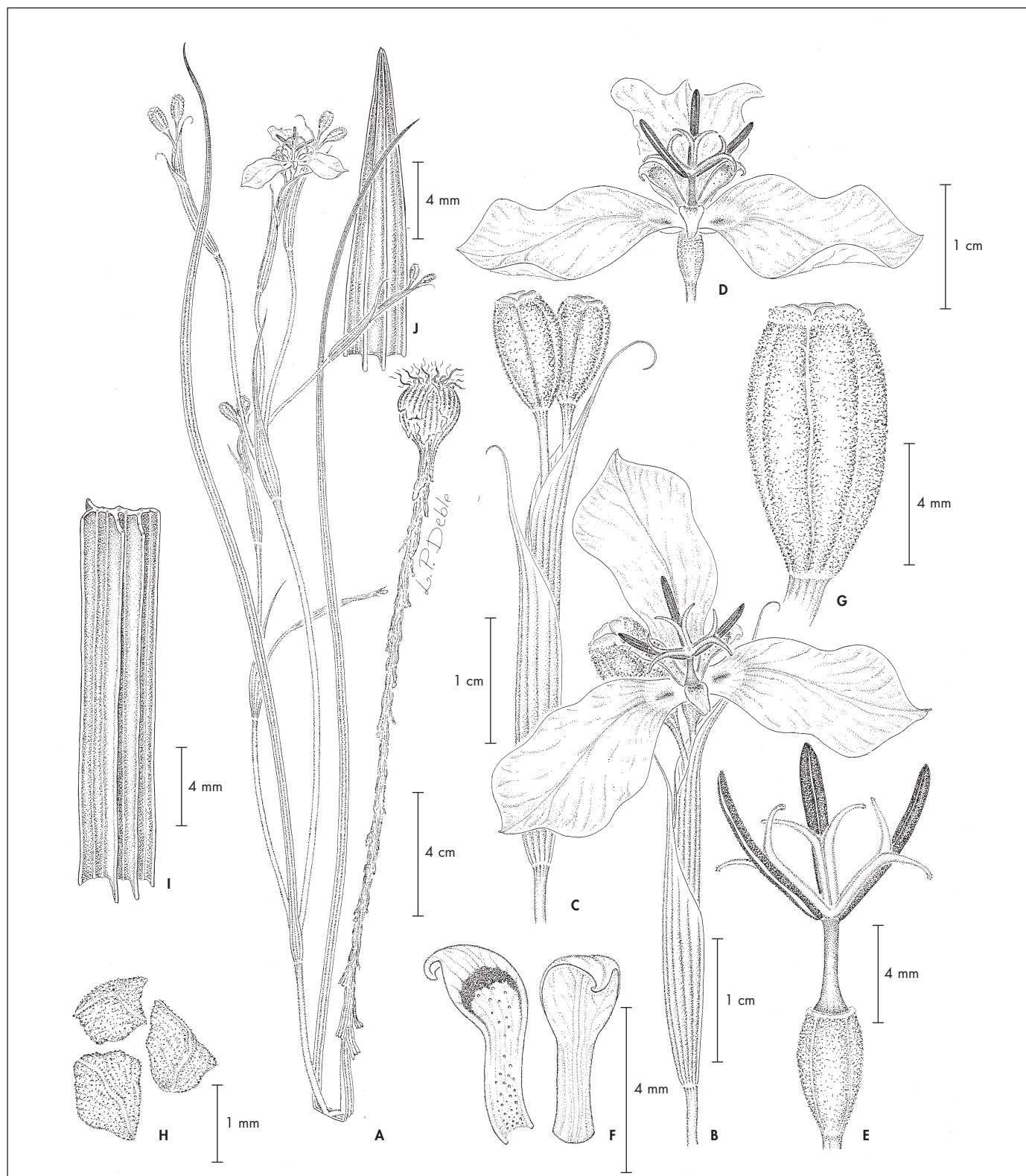
*Etymology.* – The specific epithet means kind, delicate and refers to the pretty and delicate flowers of the new species.

*Distribution and ecology.* – *Herbertia amabilis* is a narrow endemic of central Rio Grande do Sul State, where just two populations are known. Plants grow in grasslands on clay soils in the hydrographic basin of the Guassupi river southwest of Júlio de Castilhos city (Fig. 3).

*Phenology.* – Flowering and fruiting occur during December.

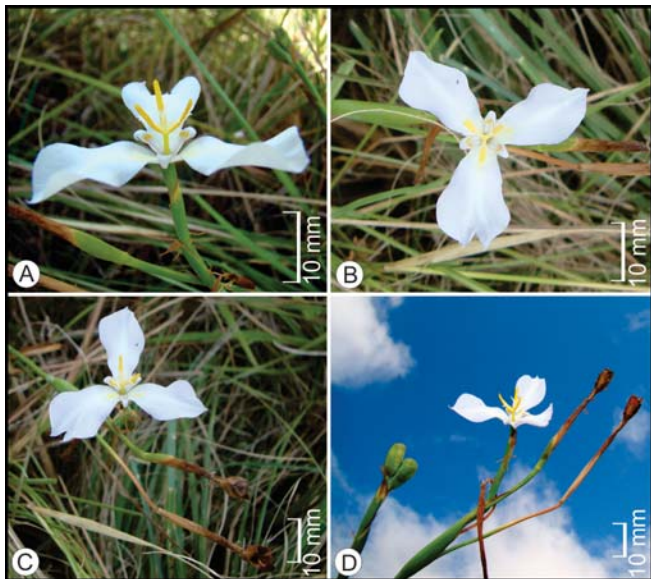
*Conservation.* – During the review of herbaria, no exsiccates of *H. amabilis* were found. The only known collections are those made by the authors and here cited. The extent of occurrence of *H. amabilis* comprises less than 100 km<sup>2</sup> and the populations size are smaller than 10 km<sup>2</sup>; only two populations are known and with few individuals. Furthermore, agriculture, and urban expansion affect directly the range of the species. Due to the rarity, fragmentation of populations, and observed threats, it seems prudent to include *H. amabilis* in a preliminary status of Critically Endangered category of the IUCN Red List of Endangered plant species according to the following criteria “CR B1, 2a, b; D” (IUCN, 2011).

*Taxonomical note.* – *Herbertia amabilis* by its androgynocium filaments entirely united forming a column, its ascendant style arms, and the size of flowers is most closely related with *H. lahue* subsp. *amoena*, but can be segregated by the following features: robust habit (30-40 cm vs 8-15 cm), narrowly linear leaves, with 18-35 cm long, 0.3-0.5 cm wide



**Fig. 1.** – *Herbertia amabilis* Deble & F. S. Alves. **A.** Plant; **B.** Spathe with flower; **C.** Spathe with capsules; **D.** Lateral view of flower; **E.** Flower with tepals removed showing the androgynoecium; **F.** Inner tepals; **G.** Capsule; **H.** Seeds; **I.** Medial portion of leaf; **J.** Apical portion of leaf.

[Deble 12721 & al., S1] [Drawn by L. Paz Deble]



**Fig. 2.** – *Herbertia amabilis* Deble & F. S. Alves. **A.** Lateral view of flower; **B.** Upper view of flower; **C.** Flower, capsules and general habit; **D.** Distal portion showing spathe with flower and capsules.

[Deble 12721 & al., S1] [Photos: I. Paz Deble]

(vs linear-lanceolate leaves, with 8-15 cm long, 0.4-1 cm wide), style arms at the apex recurved (vs not or slightly recurved), and ovary obovate-clavate, 3.5-5 mm long (vs obovate-oblong, 6-8 mm long). Additionally, the flowers are predominately white (vs blue-violet, rarely white in atypical individuals occurring among normal ones), with a yellow macula in medial portion of inner tepals (vs without yellow macula). *Herbertia crosae*, another close species differs by purple dots along the column of androgynocium filaments (vs without purple dots), free apically up to 1 mm long (vs entirely united), and smaller anthers (4-5 mm vs 7-7.5 mm long). *Herbertia darwinii* has androgynocium features similar with the new species, but it differs by large 4-5.7 cm wide, blue-violet flowers, ovary 6-8.5 mm long, and leaves 1-2 cm wide.

*Paratypus.* – **BRAZIL. Rio Grande do Sul:** Júlio de Castilhos, “no campo, entre gramíneas, no solo argiloso, flores brancas”, 29°18'43”S 53°49'39”W, 23.XII.2010, fr, L. P. Deble 12722, A. S. de Oliveira-Deble, J. N. C. Marchiori & F. S. Alves (CTES!).

#### Key to the Brazilian species of *Herbertia*:

1. Inner tepals white and dark purple striped, apex rounded to truncate. Anthers less than 3 mm long. Flowers white ..... *H. zebrina*
- 1a. Inner tepals not striped, apex obtuse to acuminate. Anthers 4 mm long or more. Flowers pale lilac, violet or blue, rarely white ..... 2

2. Androgynocium filaments free for 3-5 mm long at the apex. Flowers blue or blue-violet. Outer tepals with a white to light blue streak ..... *H. pulchella*
- 2a. Androgynocium filaments entirely united, forming a column or free up to 2 mm long at the apex. Flowers white, pale violet, blue-violet or violet, without a white to light blue streak ..... 3
3. Flowers white or pale lilac. Outer and inner tepals with a yellow stripe at the base. Ovary 3.5-5 mm long ..... 4
- 3a. Flowers blue-violet or violet. Outer tepals whitish and dark violet spotted at the base. Inner tepals dark violet, without a yellow stripe at the base. Ovary 6-8.5 mm long ..... 5
4. Plant 8-22 cm high. Leaves 4-5 cm long. Anthers 4-5 mm long ..... *H. crosae*
- 4a. Plant 30-40 cm high. Leaves 18-35 cm long. Anthers 7-7.5 mm long ..... *H. amabilis*
5. Flowers 55-65 mm wide. Outer tepals without a yellow medial stripe at the base. Androgynocium filaments free for 1-1.5(-2) mm long at the apex ..... *H. quareimana*
- 5a. Flowers 30-55 mm wide. Outer tepals with a yellow medial stripe at the base (rarely absent). Androgynocium filaments entirely united, forming a column; anthers attached directly to the filament column ..... 6
6. Leaves 10-20 mm wide. Style arms channeled, secondary divisions recurved ..... *H. darwinii*
- 6a. Leaves 4–10 mm wide. Style arms not channeled, secondary divisions straight ..... *H. lahue* subsp. *amoena*

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Fig. 3. – Geographical distribution of *Herbertia amabilis* Deble & F. S. Alves.

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