

A NEW SPECIES OF *ZEPHYRANTHES* HERB. S. L. (AMARYLLIDACEAE, HIPPEASTREAE), WITH NOTES ON THE GENUS IN COLOMBIA

by

José Luis Fernández-Alonso* & Jeroen P. Groenendijk**

Abstract

Fernández-Alonso, J. L. & J. P. Groenendijk. A new species of *Zephyranthes* Herb. s. l. (Amaryllidaceae, Hippeastreae), with notes on the genus in Colombia. *Rev. Acad. Colomb. Cienc.* **28** (107): 177-186, 2004. ISSN: 0370-3908.

A new species of *Zephyranthes* (Amaryllidaceae), growing in semi-arid areas of the High Plain of Bogotá, Colombia, is described and illustrated. We give notes on five other species present in Colombia: *Z. albiella* Traub, *Z. carinata* Herb., *Z. puertoricensis* Traub., *Z. robusta* (Sweet) Baker y *Z. rosea* (Spreng.) Lindl. The last four were registered for the first time for Colombia. We include a key for the identification of the species.

Key words: Amaryllidaceae, Colombia, *Habranthus*, Hippeastreae, new species, taxonomy, *Zephyranthes*.

Resumen

Se describe e ilustra una nueva especie de *Zephyranthes* (Amaryllidaceae) que crece en zonas áridas de la Sabana de Bogotá, Colombia. Se comentan otras cinco especies presentes en Colombia (*Z. albiella* Traub, *Z. carinata* Herb., *Z. puertoricensis* Traub., *Z. robusta* (Sweet) Baker y *Z. rosea* (Spreng.) Lindl., de las cuales, las últimas cuatro se registran para Colombia por primera vez. Se incluye una clave para la separación de las especies tratadas.

Palabras clave: Amaryllidaceae, Colombia, *Habranthus*, Hippeastreae, nueva especie, Taxonomía, *Zephyranthes*.

* Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Apartado 7495, Bogotá D. C., Colombia. jlfernandez@unal.edu.co.

** Institute for Biodiversity and Ecosystem Dynamics (IBED), Universiteit van Amsterdam, The Netherlands. j.groenendijk@science.uva.nl

Introduction

Zephyranthes Herb. (Amaryllidaceae) is an American-Antillean genus with about 60 species, currently placed in the mostly American tribe Hippeastreae (Dahlgren & al., 1985; Meerow & Snijman, 1998; Meerow & al., 1999). Many *Zephyranthes* species are appreciated ornamentals, and are traditionally known as "rain lilies", due to their tendency to flower shortly after rainy periods (Christian, 1999; Fellers, 1996; Mabberley, 1997). A part of the species formerly treated within *Zephyranthes* have now been transferred to the other Hippeastrea genera *Habranthus* Herb. (about 40 species distributed around subtropical South America), *Pyrolirion* Herb. (four species from Peru and Bolivia), and *Aidema* Ravenna (six species from Central and South America). Nevertheless, generic limits within this plant group are still unclear (Sealy, 1937; Uphof, 1946; Traub, 1958; Huzinker, 1967; Ravenna, 1971; Arroyo, 1990; Arroyo & Leuenberger, 1996; Lopes-Ferrari & Espejo-Serna, 2002; Ravenna, 2003).

The very subtle differences between genera are based on spathe characters, the position of the flower (erect, sub-erect or declinate), the - sometimes not very obvious - (a)symmetry of the corolla, the insertion of the anther filaments either at the corolla tube base (*Habranthus*) or above the tube (*Zephyranthes*), the number of different anther filament lengths (two or four, with the anthers either linear or arched), the either declinate or recurved style, and the number of seeds per locule in the capsule. In order to facilitate the recognition, and for practical reasons, we treated all the taxa of this group as species of *Zephyranthes*, in some cases indicating the combinations associated to generic transfers in the synonymy.

Zephyranthes in Colombia

From Colombia, only the publication of *Z. albiella* was known, described from plants of Cundinamarca (Traub, 1950). Furthermore, a few imprecise references exist of "*Z. tubispatha* Herb.", without indication of herbarium collections (Bailey, 1939; Standley & Steyermark, 1952). From the neighboring countries, nine species have been registered from Peru (Macbryde, 1936; Brako & Zarucchi, 1993), three or four from Panama (Woodson & Schery, 1965; Spencer, 1986; D'Arcy, 1987), and a single one for both Ecuador and Venezuela (Traub, 1958; Meerow, 1990).

In this paper, we report on the recent sampling of an unknown species of *Zephyranthes* in a semi-arid enclave of the high plain of Cundinamarca. Moreover, we included

information about the distribution of *Z. albiella*, *Z. carinata*, *Z. puertoricensis* y *Z. rosea*, which are present on Colombian territory, either native or subspontaneously naturalized. Another species occasionally cultivated in Colombia, and incorporated in this work, is *Zephyranthes robusta* (Herb. ex Sweet) Baker, frequently treated as *Habranthus robustus* Herb. ex Sweet, and of an aspect very similar to that of *Z. carinata*.

Key for the species of *Zephyranthes* s. l., present in Colombia (including two extra species, related to the studied ones)

- 1- Perigone sulfur yellow on the interior, brick red to vinaceous on the exterior 2
- 1'- Perigone white, pink or lilac 3
- 2- Spathe 15-25 mm long; pedicel 21-28 mm long; perigone tube ca. 1mm, tepals 6-8 mm wide; anthers 3 mm long; style up to 13 mm long **1. *Z. susatana***
- 2'- Spathe 25-40 mm long, pedicel 26-53 mm long, perigone tube ca. 3 mm, tepals 10-16 mm wide, anthers more than 5 mm long, style ca. 16 mm long ***Z. tubispatha***
- 3- Perigone white 4
- 3'- Perigone pink or lilac 6
- 4- Spathe split on one side over ca. 2/3 of its length, with one appendix (lobe) of 14-16 mm; perigone tube ca. 10 mm long; anther filaments 9.5 and 11 mm long; anthers more than 7 mm long ***Z. nervosa***
- 4'- Spathe split over 1/2 or less of its length, bifid; perigone tube 3-4 mm long, anther filaments more than 12 mm long; anthers up to 6 mm long 5
- 5- Spathe split over ca. 1/2 of its length, 15-26 mm long; pedicel up to 20(25) mm, perigone 30-35 mm long; anthers 3-4 mm long **2. *Z. albiella***
- 5'- Spathe split over 1/3 of its length, 25-30 mm long; pedicel more than 30 mm, perigone 35-50 mm long; anthers 6 mm long **4. *Z. puertoricensis***
- 6- Leaves glaucous; pedicel (40)45-60 mm; flowers declinate; corolla pale pink; stamens of four different lengths; anthers 4-5 mm, crescent-shaped **5. *Z. robusta***
- 6'- Leaves intensely dark green; pedicel less than 40 mm; flowers sub-erect; corolla pink or magenta; stamens

of two or three different lengths; anthers more than 5 mm, straight 7

7- Spathe 35-50 mm long; perigone 60-75 mm long with a tube of 15-20 mm; tepals 12-20 mm wide; anthers 15-22 mm long..... **3. *Z. carinata***

7'- Spathe up to 17-22(25) mm long; perigone 30-35 mm long with a tube of less than 5 mm; anthers 6-7 mm long **6. *Z. rosea***

1. *Zephyranthes susatana* Fern. Alonso & Groenendijk
sp. nov. Figures 1 a-d, 2 a-b.

TYPE: COLOMBIA. CUNDINAMARCA. Municipio de Suesca, Valle del río Checua, Hacienda Susatá, prados secos en zonas alteradas de bosque de *Condalia thomasiana*, 2650 m, 24-III-2001, fl. J. P. Groenendijk 1389 (holotype COL-446156, 446171 (2/2), isotype U).

Ab omnibus speciebus generis differt a subsecuentibus combinatio characteribus: bulbo subgloboso 1,8-2 cm diametro, tunicae externae griseo-rubescens, foliis 4-5, non coaetanea cum scapo florifero, inaequaliter in longitudine, glaucas, usque ad 13,5 cm longis et 2,5-3 mm latae; scapo ad 7,5-10(13) cm longo et 1-1,5 mm diametro (in sicco); spatha bifida cum tubo 12-16 mm longis et lobis apicalis 4-8 mm longis; pedicello 21-26 mm longis et c. 1 mm diametro; flos erecta vel suberecta, ad 24-30 mm longa et ca. 20-25 mm lata in initio anthesis; vinoso-lutescens, extus communiter vinoso-rufescens, intus lutescens et longitudinaliter rufo-vinaceus striatus; cum tubo inconspicuo, usque ad 1 mm, et tepalos ad 21-26 x 7-8 mm, spathulatus, apice subobtusum et apiculatus, apiculo ad 1 mm longis; stamina 6, filamentis tria ad 11 mm longis et tria ad 6-8 mm longis, antherae ad 3 x 1 mm anguste ellipticas; ovario ad 3-4 x 2 mm, stylus erectus ad 13 mm longis et stigma tripartitum ad 2,5 mm latus, ramis recurvatis conspicue papilloso-verrucosae; fructo, glauco-viridis, globosus-compressus, ad 6-7 mm longis x 6,5-10 mm latus; loculos 8-9 seminatus, semina plana, subovata, nitido-nigrescens, ad 3-4 x 2,5-3 mm.

Etymology: The species is named after the local Muisca indigenous name "Susatá", currently given to the landed estate where the plants were collected.

Vernacular name: "Papa de marrano". Meaning "pig's potato", we speculate that it might refer to the consumption of the bulbs by domestic pigs.

Plant with a subglobose bulb of 1.8-2 cm diameter, tunics reddish grey. Leaves 4-5 (not concurrent with flow-

ers, or rarely a few young ones), unequal, glaucous, up to 13.5 cm long and 2.5-3 mm wide. Scape thin, 7.5-10(13) cm long and 1-1.5 mm in diameter (when dry). Spathe 17-22 mm long, bifid, the tube 12-16 mm long, and the apical lobes 4-8 mm long. Pedicel 21-28 mm long and ca. 1 mm in diameter. Flower erect or sub-erect, 24-30 mm long and ca. 20-25 mm wide (at the start of the anthesis), vinaceous-rufous or vinaceous-yellow; the exterior generally vinaceous with darker longitudinal stripes, and the interior dark yellow. Perigone tube inconspicuous, up to 1 mm long; tepals 21-26 x 6-8 mm, spatulate, with a subobtusum-apiculate apex; apicule ca. 1 mm long. External tepals slightly broader than internal tepals, with 13-16 longitudinal whitish veins, and the internal ones with 9-11 veins. Stamens 6; three with filaments 11 mm long, two with filaments of 7-8 mm, and one ca. 6 mm long; anthers 3 x 1 mm, narrowly elliptic. Ovary 3-4 x 2 mm; style erect, up to 13 mm long; stigma trifid, 2.5 mm wide, with recurved, conspicuously papillose-verrucose lobes of ca. 1.2 mm. Fruit pedicel 2.5-3 cm x 1.5 mm. Fruit greenish glaucous, compressed-globose, 6-7 mm long, 6.5-10 mm wide; locules with 8-9 seeds. Seeds flat, ovate to subrhombic, black, shiny, 3-4 x 2.5-3 mm.

Phenology. In three years, we observed flowering from February to April, and November to December. Fruiting occurred during the flowering period and in the subsequent month. When clusters of plants were found flowering, the scapes were mostly not accompanied by leaves of the same bulb. Individuals with only leaves were found; these were probably juvenile plants. When fruiting, plants were observed either with or (still) without well-developed leaves. Under cultivation conditions, with a regular water supply, plants do have leaves together with floral scapes (Fig. 1a).

Habitat, distribution and dispersal. The species was found in a semi-arid enclave of the high plain of Bogotá (around 2650 m.a.s.l.), where the annual precipitation is about 600 mm and the potential evapotranspiration exceeds 1000 mm (Claro-Rizo, 1995). In this zone, remnants are found of dwarf forest characterized by *Condalia thomasiana* Fern. Alonso (Rhamnaceae), an endemic treelet of this particular zone. The *C. thomasiana* community was relatively recently described by Van der Hammen (1997; see also Fernandez-Alonso, 1997, and Groenendijk et al., in prep).

Z. susatana is locally abundant in open, dry grasslands, which are severely disturbed by man and cattle, and often dominated by *Pennisetum clandestinum* Hochst. ex Chiov. It forms patches of 5-20 m in diameter, with hundreds of individuals. Other species commonly found



Figure 1. *Zephyranthes susatana*. a- Habit (cultivated plant). b- Scape with flower in lateral view. c- Flower from above, showing stigma lobes. d- Detail of the outer tepals (Photographs: a-c: J. L. Fernández; d: L. Tikovský).

at these sites are *Schkuhria pinnata* (Lam.) Kuntze, *Selaginella sellowii* Hieron., *Ophioglossum nudicaule* L.f., *Evolvulus bogotensis* Ooststr., *Verbena trifida* H.B.K., and *Stenandrium dulce* (Cav.) Nees.

The stiff fruit pedicel and the (sub)apically dehiscent capsule suggest that seed dispersal takes place over rather short distances, in spite of the flat seeds. Probably, the seeds are released from the capsule after agitation of the pedicel and capsule by wind, or probably animals, and fall nearby the mother plant.

Paratype: COLOMBIA. **CUNDINAMARCA.** Municipio de Suesca/Nemocón, Zona del río Checua, Finca Susatá y zonas aledañas, claros (prados) en bosque de *Condalia*, c. 2700-3000 m, 12-VI-1998, fr. J. L. Fernández. 15708 (COL-437918); ibidem, prados con *Pennisetum* en la Hacienda Susatá, fl. fr., 26-XII-2002, J. L. Fernández & J. Groenendijk 20154A (COL, U); Plantas cultivadas en maceta en Bogotá, (bulbos procedentes de la región del Checua, Nemocón), 30-XII-2002, fl., J. L. Fernández 20155 (COL 481297); ibidem, 28-II-2003, fl. J. L. Fernández 20532 (COL 484749); ibidem, Mpio de Suesca, Hacienda Susatá, matorral fuertemente intervenido de *Baccharis bogotensis* y *Dalea caerulea*, 2700 m, 16-III-2000, fr. J. P. Groenendijk 1377 (COL- 446172); ibidem, 2650 m; pajonal abierto con *Pennisetum clandestinum*, 11-XII-2001, fl. J. P. Groenendijk 1667 (COL, HUA, U); ibidem, Hacienda Susatá, 2700 m, 20-II-2002 J. Struik & M. van der Linden s. n. (COL, U).

Affinities. The general aspect of *Z. susatana* and the flower color show some affinity with that of the South-American species *Z. tubispatha* (L' Her.) Herb. ex Traub. This latter species has flowers ochre-orange colored on the exterior, and copper-orange on the interior. Moreover, it differs from the here described species by having a longer spathe (24-40 mm long), a larger pedicel (26-53 mm) and perigone tube (3 mm), clearly wider tepals (more than 10 mm), and larger anthers of up to 8 mm long.

Zephyranthes tubispatha (L' Her.) Herb. ex Traub. Species described from the collection *Commerson 3116* (P), found near Buenos Aires (= *Habranthus tubispathus* (L'Her.) Traub, Pl. Life 7: 42. 1951; = *Amaryllis tubispatha* L' Her. Sert. Anglic. 9: 1788). Various authors have treated this plant as conspecific of *Habranthus andersonii* Herb., -Edwards' Bot. Reg. 16. tab. 1345. 1830- based on a collection from Montevideo (**Uphof**, 1946; **Ravenna**, 1970; **Huzinker & Di Fulvio**, 1973; **Traub**, 1975; **Holmes & Wells**, 1980; **Arroyo**, 1990).

2. *Zephyranthes albiella* Traub. Pl. Life 6: 51. 1950.

TYPE: COLOMBIA. **CUNDINAMARCA.** Bogotá, (Cultivated bulbs) 30-IX-1949 *Traub 41* (MO 3158259).

= *Aidema albiella* (Traub) Ravenna Onira 8(1): 3. 2003.

Vernacular name «lirio» (in Guayaquil, Ecuador).

Plant generally presenting leaves simultaneously with flowers. Scapes of about 2 mm thick. Pedicel up to 20-25 mm long. Spathe bifid, equal to or longer than pedicel (15-26 mm); spathe lobes as long as the united part. Perigone 30-35 mm long, white, with a greenish base; tube ca. 3 mm long. The 3 major stamen filaments ca. 21 mm long, with anthers of 3-4 mm long. Style 30-35 mm long. Seeds 1-3 per locule, flat, 7 x 5 mm.

Habitat and distribution: Species described from the high plain of Cundinamarca, in central Colombia, based on cultivated bulbs, its origin being unclear. The plant was not collected afterward in Cundinamarca. Later, it was registered in the pacific lowlands of Ecuador (**Meerow**, 1990), and also in Panama, Puerto Rico and Jamaica, by **Ravenna** (2003). The last author considered *Z. puertoricensis* a conspecific of *Z. albiella*, a view not shared in this paper. More recently, a specimen collected in 1960 in the lower parts of the department Bolívar was studied, which might suggest that the type plants originated from the Colombian lowlands.

Studied material: COLOMBIA. **BOLIVAR.** Arenas, 9 Km WSW San Jacinto, prados, 350 m, 23-IV-1962, fl., *A. Beuther 97* (COL 492043). ECUADOR. **GUAYAS.** Guayaquil, 6 m.a.s.l., cultivada, muy frecuente, s.f. (fl.), *F. de Valverde 95A* (COL-163150).

Affinities. The nearest species *Z. puertoricensis* Traub., also found in Colombia, differs from *Z. albiella* by its spathe of 25-30 mm, shorter than the pedicel and with very short lobes of ca. 1/3 of its length, a bigger perigone (35-50 mm long), and the longer anthers (4.5-6.5 mm long).

3. *Zephyranthes carinata* Herb., Bot. Mag. 52: pl. 2594. 1825. Figure 2 c-d

= *Atamosco carinata* (Herb.) Standl. in Standl. & Calderón, Lista Pl. Salv. 51. 1925.

= *Z. grandiflora* Lindl., Bot. Reg. 11: pl. 902. 1825.

Vernacular name: «Lirio» (Cundinamarca).

Recognized by its bulbs of up to 3.5 cm in diameter, with wine-red tunics. Scapes 10-15 cm long. Spathe dark



Figure 2. a-b. *Zephyranthes susatana*. a- Detail of the perigone whorls, from above. b- Unripe fruit. c-d: *Zephyranthes carinata*. c- Cluster of plants growing in their natural environment, in San José de Suaita, Santander. d- Detail of the perigone, anthers and stigmas. (Photographs: a-b: J. Groenendijk; c-d: J. L. Fernández).

lilac, large (35-50 mm), always larger than pedicel which is 10-30 mm long. Perigone large, pink, with a tube of up to 20 mm long; tepals 60 mm long and 15-20 mm wide. Anthers erect, yellow, large (15-20 (22) mm long). Style 50-60 mm long, with three short lobes of 1.5-2 mm.

Habitat and distribution. Native from México and Guatemala, the species is nowadays widespread from southern USA to Costa Rica, the Antilles, and some isolated spots in South America (**Standley & Steyermark**, 1952; **Gereau**, 2001). In South America, it apparently only occurs cultivated and naturalized. It generally flowers after the rainy periods, but in humid pastures and under cultivation conditions, colonies show staggered flowering during the whole year. Occasionally, leaves appear together with flowers. It has been observed as a weed in sugar cane plantations in the subandine belt, and as a colonizer in pastures and open herb-covered slopes near villages (Cundinamarca, Santander). It is also frequently cultivated in gardens, mostly in colder regions above 2200 m.a.s.l.

Studied material. COLOMBIA: **ANTIOQUIA:** Medellín, *Archer 685* (MEDEL); **BOYACÁ:** Villa de Leyva, Cultivada en Jardines, 5-I-2002, *J. L. Fernández & R. Castillo 19765* (COL 474875, 474876). **CUNDINAMARCA.** Municipio de Susa, 2600 m, VI-1997, fl, hj, *R. E. Amaya 1* (COL 422388); Carretera de San Bernardo al Río Negro, en cultivos de caña de azúcar, 1700-1800 m, 2-VIII-1987, *J.L. Fernández & al. 7082* (COL 341145, MA); Bogotá, Jardín Botánico de Bogotá, 2600 m; creciendo como cultivada y subespontánea, fl., 31-X-1997, *J. L. Fernández & J.M. Idrobo 15024* (COL 406495); ibidem, 6-III-1998, *J. L. Fernández 15274* (COL 439086); ibidem, cultivada en antejardines en Bogotá, 15-V-2002, *J. L. Fernández 19840* (COL 476892); alrededores de Fusagasugá, 1780-1850 m, 15-IV-1946; fl. *H. García-Barriga 11957* (COL- 25707); Sasaima, Vereda Aposentos, 10-VII-1960, *H. García-Barriga 17258* (COL 102325); Municipio de San Francisco, 1800 m, *A. L. Hincapié 7* (COL); ibidem, Municipio de Choachí, c. carretera, 1-IV-1960, fl. *J. M. Idrobo s.n.* (COL- 408772, 445211). **SANTANDER.** Municipio de Suaita, San José de Suaita, creciendo silvestre o asilvestrada en taludes y prados, 4-IV-2003, fl. *J. L. Fernández 20200* (COL 483811, 484778); ibidem, prado húmedo, en predios de la Fundación San Cipriano, 2-X-2003, *J. L. Fernández 20990* (COL).

Affinities. The most resembling species to *Z. carinata* is *Z. rosea* (Spreng.) Lindl., being predominantly Antillean and Mesoamerican. It has pale pink flowers, and a spathe of 17-22 mm, clearly shorter than the pedicel which is 29-

33 mm long. Its perigone is 3-4 cm long, with a tube of less than 5 mm, and it has shorter anthers (6-7 mm).

4. *Zephyranthes puertoricensis* Traub, Pl. Life 7: 37. 1951. Figure 3 a.

TYPE: PUERTO RICO. cultivated bulbs, fl., fr., 30-III-1950, *Traub 151* (MO 3158255).

Species with bulbs of 1.5 cm in diameter, with linear leaves up to 35 cm long, and 6-9 mm wide, these generally absent during flowering. Scape 9-11 cm; spathe 25-30 mm long, scarcely divided distally. Pedicel (30) 35-50 mm. Perigone white, greenish in the throat, of intermediate size (35-50 mm), with a short tube of 3-4 mm. Tepals 3.8-4 x 1.5 cm. Stamen filaments of two sizes: 15 and 21 mm; anthers 6 mm long. Stigma trifid, the lobes filiform, ca. 3 mm long.

Studied material: COLOMBIA. **BOLÍVAR.** Islas de San Bernardo, Múcura, 18-IV-2003, *C. Flórez 110* (COL). **TOLIMA.** Purificación. Zonas arenosas, estación seca, 22-VII-1934 *E. Pérez-Arbeláez & H. García-Barriga 3102* (COL 3232).

Affinities. *Z. puertoricensis* was treated as a species of the genus *Habranthus* by some authors (**Traub**, 1951, 1958; **Flory**, 1959). On the other hand, plants belonging to this species were cited frequently as *Zephyranthes tubispatha* (Ker-Gawler) Herbert (= *Amaryllis tubispatha* Ker-Gawler, de Jamaica), a homonym of *Amaryllis tubispatha* L' Her., which is an Argentinean plant described before by L'Heritier (**Hume**, 1940; **Flori**, 1959), and is also treated in this paper.

Zephyranthes nervosa. *Z. puertoricensis* is related to the Venezuelan species *Z. nervosa* (Kunth) M. Mart. & Galeott., Bull. Acad. Roy. Sci. Bruxelles 10: 114. 1843 (= *Amaryllis nervosa* Kunth) the type of which is from Venezuela, Valle de Aragua, *Humboldt 742* (Holótipo 3115 - P). Like the species presented here, it has white flowers, and has a similar aspect, but differs by its spathe split over 2/3 of its length, the perigone tube of 10 mm, and the shorter filaments (9.5 and 11 mm).

5. *Zephyranthes robusta* (Sweet) Baker Handb. Amaryll. 35. 1888.

= *Habranthus robustus* Herb. ex Sweet, Brit. Fl. Gard. 4: pl. 14. 1838.

Illustrations: Bot. Magaz. 152, tab. 9126 (1926).

Vernacular name: "Cebollita" (Antioquia)



Figure 3. a- *Zephyranthes puertoricensis*. Plants growing in their natural environment, on the Islas de San Bernardo, Bolívar.
b- *Zephyranthes rosea*. Detail of the scape with the flower. (Photographs: a- from the voucher C. Florez- 110 (COL);
b: from the voucher J. L. Fernández 21.202 (COL).

Big plants, with bulbs 3-4 cm in diameter, with various large leaves of up to 30-40 cm x 5-10 mm, generally glaucous. Scape 15-30 cm, relatively thick (3-4 mm). Spathe 25-40 mm, bifid in the upper third part. Pedicel (40)45-60 mm, generally larger than the spathe. Perigone declinate, large, 60-80 mm long, pale pink or lilac, with a tube of 2-4 mm long. Tepals oblanceolate, acuminate. Stamens with declinate filaments of 4 different lengths: two of ca. 40 mm, two of ca. 20 mm and two intermediate to the others. Anthers 4-5 mm long, lunar-shaped. Stigma lobes recurvate, 3 mm long.

Habitat and distribution. This species has long been considered native of Argentina and Uruguay, and more recently found to originate from Río Grande do Sul, Brazil (Traub, 1958; Ravenna, 1967; Arroyo, 1990). At

present, it is widely cultivated in the USA and various South American countries, where it occasionally behaves as a naturalized species. It has been treated usually within the genus *Habranthus*, because of its declinate flowers and stamens of four different lengths (Stapf, 1926; Sealy, 1937; Fabris, 1969; Ravenna, 1970).

Studied material: COLOMBIA. ANTIOQUIA. Medellín, 1470 m, 24-III-1995, R. Fonnegra & F.J. Roldán 5424 (HUA, MO); ibidem, 1740-1830 m, 16-III-1986, F. J. Roldán & O. Marulanda 240 (HUA, MO).

Affinities. *Z. robusta* has an aspect similar to that of *Z. carinata* and has a similar size and perigone color. However, it is easily distinguished from *Z. carinata* by the following combination of character states: glaucous

leaves; floral pedicel 40-60 mm long; declinate perigone with a short tube (2-4 mm); acuminate tepals with fimbriate scales around the insertion points of the stamens; and anthers 4-5 mm long.

6. *Zephyranthes rosea* (Spreng.) Lindl., Edward's Bot. Reg. 10: pl. 821. 1824. Figure 3 b, 4 a-b

= *Amaryllis rosea* Spreng., Linn. Syst. Veg. Cur. Post.: 133, 1825.

Vernacular name: "rain flower" (San Andrés).

Plants with bulbs of ca. 15 mm in diameter, with up to 5-6 thin, dark green leaves, 3(-4) mm wide. Flowering scapes



Figure 4. *Zephyranthes rosea*. a- Lateral view of the flower showing stamens and stigmas. b- Flower from above, showing the colors of the interior. (Photographs: cultivated plant, voucher *J. L. Fernández 21.202* (COL).

1-3, emerging successively, concurrent with the leaves, 2.5 mm thick. Pedicel 3-3.3 cm long, clearly exceeding the spathe. Spathe 17-25 mm, slightly bifid, primarily pink. Perigone 30-35 mm long, with a tube of less than 5 mm long. Tepals linear-lanceolate, acute, up to 0.8-1 cm wide. Stamen filaments of four different lengths: one of 11 mm, four of 12-13 mm, and one of 16 mm. Anthers 6-7 mm long, which is much smaller than in *Z. carinata*.

Habitat and distribution. Described from Cuba (**Hume**, 1940), the species is widespread in Central America and the Antilles. It has been found on San Andrés y Providencia, as witnessed by a photograph corresponding to this species, but named *Z. grandiflora*, in a publication by **González & al.** (1995).

Studied material: COLOMBIA. **BOLÍVAR.** Islas del Rosario, cultivada y asilvestrada en la Isla del Acuario. 19-X-2002, *J. L. Fernández 19960* (COL 481539, 481540); ibidem, cultivada en matera, fl., 11-X-2003, *J.L. Fernández 21.202* (COL). **SAN ANDRÉS Y PROVIDENCIA.** Isla de Providencia, La Montaña, *P. Lowy 152* (COL)

Affinities: The species *Z. bifolia* (Aubl.) M. Roemer, described from Haiti, and *Z. cardinalis* C. H. Wright, from Santo Domingo, have been treated frequently as conspecifics of *Z. rosea* or as varieties of it (**Hume**, 1939; **Ravenna**, 2003). It has been confused occasionally with *Z. grandiflora* / *Z. carinata* by some authors.

Acknowledgements

The Instituto de Ciencias Naturales of the Universidad Nacional de Colombia supported the development of this work. The Santander family, owner of the Hacienda Susatá, kindly permitted us to work on their property. We are indebted to Professor Thomas van der Hammen and the Corporación Regional de Cundinamarca (CAR) for calling our attention to the collection site, where the plant that we described here was found about five years ago. Carlos Florez provided specimens of *Zephyranthes* from Las Islas de San Bernardo. Ludek Tikovský provided photographs of flowers of *Z. susatana*. Finally, we thank Carlos Aedo (MA), M. Arbo (SI), A. Freire (MO) and P. Ravenna, for their support in the acquirement of literature.

References

- Arroyo, S.** 1990. *Habranthus* (Amaryllidaceae) en Argentina y Uruguay. *Parodiana* **6** (1): 11-30.
- _____ & **B. E. Leuenberger** 1996. Type specimens of names in American Amaryllidaceae at the Berlin-Dahlem herbarium (B and B-W). *Willdenowia* **25**: 693-702.

- Bailey, L. H.** 1939. The Standard Cyclopedia of Horticulture. Vol 3. The Macmillan Co. New York.
- Brako, L. & J. L. Zarucchi** 1993. Catálogo de las Angiospermas y Gimnospermas del Perú. *Mongr. Syst. Bot. Missouri Bot. Gard.* **45**. Missouri Bot. Gard.
- Christian, P. J.** 1999. *Zephyranthes* In: <http://rareplants.co.uk/zephyran.htm>
- Claro-Rizo F. A.** 1995. Estudio agroclimático de la cuenca alta del Río Bogotá y del Río Ubaté-Suárez. IDEAM Bogotá
- D'Arcy, W. G.** 1987. Flora of Panama, Checklist and index. Missouri Bot. Gard. Saint Louis.
- Dahlgren, R. M. T., H. T. Clifford & P. F. Yeo** 1985. The families of Monocotyledons. Structure, Evolution and Taxonomy. Springer-Verlag. Berlin.
- Fabris, H. A.** 1969. Amaryllidaceae. In: Flora de la Provincia de Buenos Aires **4** (1): 520-535.
- Fellers, J. D.** 1996. A passion for rainlilies: *Cooperia*, *Habranthus* and *Zephyranthes*. *Herbertia* **51**: 78-112.
- Fernández-Alonso, J. L.** 1997. Nueva especie de *Condalia* Cav. (Rhamnaceae) y notas sobre los géneros de la familia en Colombia. *Caldasia* **19** (1-2): 101-108.
- Flory, W. S.** 1959. The chromosomes of *Zephyranthes insularum*, *Z. puertoricensis* and *Z. nervosa*. *Herbertia* **15** (1): 55-66.
- Gereau, R. E.** 2001. Liliaceae, pp. 1219-1228, In: W.D. Stevens, A. Pool & O.M. Montiel (eds), Flora of Nicaragua I, *Mongr. Syst. Bot. Missouri Bot. Gard.* **85** (1).
- González, F., J. N. Díaz & P. Lowy.** 1995. Flora ilustrada de San Andrés y Providencia. Sena- U. Nacional. Publicaciones Sena.
- Groenendijk, J. P., J. F. Duivenvoorden, N. Rietman & A. M. Cleef.** in prep. Successional position of key species in Andean dry forests as a basis for restoration trials.
- Holmes, W. C. & C. J. Wells.** 1980. The distribution of *Habranthus tubispathus* (L' Her.) Traub in South America and North America -Texas and Louisiana. *Sida* **8** (4): 328-333.
- Hume, H. H.** 1940. *Zephyranthes* of the West Indies. *Herbertia* **6**: 121-134.
- Huzinker, A. T.** 1967. Estudios sobre Amaryllidaceae II. Notas taxonómicas sobre los géneros *Hieronymella*, *Hippeastrum* y *Habranthus*. *Kurtziana* **4**: 7-18.
- _____ & **T. E. dí Fulvio.** 1973. Una nueva especie de *Habranthus* (Amaryllidaceae) de la provincia de Buenos Aires. *Kurtziana* **7**: 255-259.
- Lopes-Ferrari, A. R. & A. Espejo-Serna.** 2002. Amaryllidaceae, fasc. **128**, Flora de Veracruz, Inst. Ecol. Xalapa, Veracruz.
- Mabberley, D. J.** 1997. The Plant Book. Cambridge University Press. Cambridge, U.K.
- Macbryde, J. J.** 1936. Amaryllidaceae. Flora of Peru. *Field. Mus. Nat. Hist. Bot. Ser.* **13**(I-3): 631-690.
- Meerow, A. W.** 1990. Amaryllidaceae, n° 41. In: G. Harling & L. Anderson (eds.) Flora of Ecuador. **41**: 1- 52.
- _____ & **D. A. Snijman.** 1998. Amaryllidaceae. In: K. Kubitzki (ed.), Families and genera of vascular plants, vol. 3: 83-110. Springer-Verlag, Berlin.
- _____, **M. F. Fay, C. L. Guy, Q-B., Li, F. Q. Zaman & M. W. Chase.** 1999. Systematics of Amaryllidaceae based on cladistic analysis of plastid rbcL and trnL-F sequence data. *Amer. J. Bot.* **86** (9): 1325-1345.
- Ravenna, P.** 1967. Contribucões ao estudo das Amaryllidaceae da América do Sul. *Sellowia* **19** (19): 25-36.
- _____. 1970. Contributions to South American Amaryllidaceae III. *Plant Life* **26**: 72-103.
- _____. 1971. Contributions to South American Amaryllidaceae IV. *Plant Life* **27**: 61-89.
- _____. 2003. *Aidema*, a new genus of neotropical Amaryllidaceae. *Oniria Bot. Leafl.* **8** (1): 1-4.
- Sealy, J. R.** 1937. *Zephyranthes*, *Pyrolirion*, *Habranthus* and *Hippeastrum*. *J. Roy. Hort. Soc.* **63**: 195-209.
- Spencer, L. B.** 1986. Six new species of North American *Zephyranthes*. *Phytologia* **59** (2): 85-88.
- Standley, P. C. & J. A. Steyermark** 1952. Amaryllidaceae. pp. 103-145 In: P.C. Standley & J.A. Steyermark (eds.) Flora of Guatemala, *Fiediana Bot.* **24** (3).
- Stapf, O.** 1926. *Habranthus robustus* Herb. ex Sweet., *Bot. Magaz.* **152**, tab. 9126.
- Traub, H. P.** 1950. *Zephyranthes albiella*. *Pl. Life* **6**: 51.
- _____. 1951. *Zephyranthes puertoricensis*. *Pl. Life* **7**: 37.
- _____. 1958. *Zephyranthes tubispatha*, *Z. puertoricensis*, *Z. insularum*, *Z. nervosa*, and *Habranthus robustus*. *Taxon* **7**: 109-113.
- _____. 1975. *Zephyranthes tubispathus* (L'Herit.) Traub. *Pl. Life* **31**: 76-77.
- Uphof, J.C.** 1946. Review of the genus *Habranthus*. *Herbertia* **13**: 93-97.
- Van der Hammen** 1997. El bosque de *Condalia*. *Caldasia* **19** (1-2): 355-359.
- Woodson, R. E. & R. W. Schery.** 1965. Amaryllidaceae. pp. 12-26 In: Woodson, R.E. & R.W. Schery (eds.) Flora of Panamá, *Ann. Missouri Bot. Gard.* **32**.