Sylvia Strigari

Maxillaria rodrigueziana

Text by Lizbeth Oses, Melissa Díaz-Morales and Franco Pupulin/Watercolor by Sylvia Strigari

Tribe Cymbidieae
Sutribe Maxillariinae
Genus Maxillaria *Ruiz & Pav.*

Maxillaria rodrigueziana J.T. Atwood & Mora-Ret., *Icones Plantarum Tropicarum* 14(1):t. 1361. 1989. Type: Panamá. Province of Coclé: El Copé on the Pacific side ½-hour walk from the sawmill, elevation 2,400 feet (730 m), October 16, 1979, *T. Antonio 2137* (holotype, MO; isotype, SEL).

Epiphytic, sympodial, caespitose, large *herb*, up to 50 cm tall. *Roots* growing from the rhizome at the base of the pseudobulb, fleshy, white, up to 1 mm in diameter. *Rhizome* short, stout, concealed by appressed, imbricating, scarious sheaths. *Pseudobulbs* apically unifoliate, ovoid, rugose, 5–7 × 3–4 cm, subtended by one large, lanceolate-triangular, obtuse, imbricating, scarious sheath. *Leaves* elliptic, coriaceous, obtuse to rounded, grass green, blade 15–30 × 4.5–7.5 cm, supported by a distinct, thick petiole 3–11 cm long. *Inflorescence* 1–3 per pseudobulb, single-flowered, erect, growing from the base of the newly developing pseudobulbs, up to 20 cm long; covered by 4–6, thin, imbricating, tightly adpressed bracts. *Floral bracts* much longer than the ovary, lanceolate, acute, conduplicate, apically loose, to 6 cm long, translucent. *Pedicellate ovary* terete-subclavate, ca. 2.5 cm long. *Flowers* large, resupinate, strongly scented; sepals and petals white on the base becoming creamy yellow towards the apex, the petals with dark-red blotches at the base; lip white on the base becoming yellow towards the midlobe and the apex of the lateral lobes, the lobes marked with red lines on the sides, the callus light yellow. *Sepals* free, long attenuate, acuminate, 80–120 × 10–12 mm, the lateral sepal slightly longer than the dorsal sepal, glabrous. *Petals* long attenuate, acuminate, 90–120 × 7–10 mm, glabrous. *Lip* ovate, trilobed, 1.8–2.1 × 1.0–1.2 cm; midlobe decurved, rounded-obtuse; side lobes erect, obtuse; disc with a ligulate, puberulent callus on the basal half. *Column* cylindric, arcuate, 1.6–1.8 cm long including the foot at the base 8 mm long. *Anther cap* obtriangular, cucullate, with a thickened rim along the opening, two-celled. *Pollinia* four in two pairs of different size, dorsiventrally superposed, ovate, concave, on a short trapezoid stipe; the viscidium large, horsehoe-shaped. Fruit not seen.

The genus *Maxillaria* was discovered and described by the Spanish botanists Hipólito Ruiz López (1754–1816) and José Antonio Pavón y Jiménez (1754–1844) from their famous botanical expeditions to Peru, Ecuador and Chile (financed by the Spanish crown under King Carlos III) for finding plants with commercial potential as the main purpose (Pupulin 2012a, b). During the expeditions, Ruiz and Pavón discovered many plants species that were illustrated in detail by a group of artists that joined the expedition. In their *Florae Peruviae et Chilensis Prodromus* the genus *Maxillaria* is described, citing as a diagnostic character a maxilliform (jaw-shaped) nectary, which gives the name to the genus (Ruiz and Pavón 1794).

In 1798, Ruiz and Pavón formally described 18 species in their new genus, only a few of which are actually considered as belonging to *Maxillaria* in the broad sense (Pupulin 2012a, 2012b, Schuiteman and Chase 2015). *Maxillaria platypetala*, with large, white flowers up to almost 10 cm in size (and one of the few taxa in the genus with nonresupinate flowers), was selected as the genus' lectotype (Brieger and Hunt 1969; Garay 1997). Eventually, *Maxillaria* ended up being one of the richest genera in the floras of the Neotropics, with almost 650 species according to a recent checklist (Schuiteman and Chase 2015).

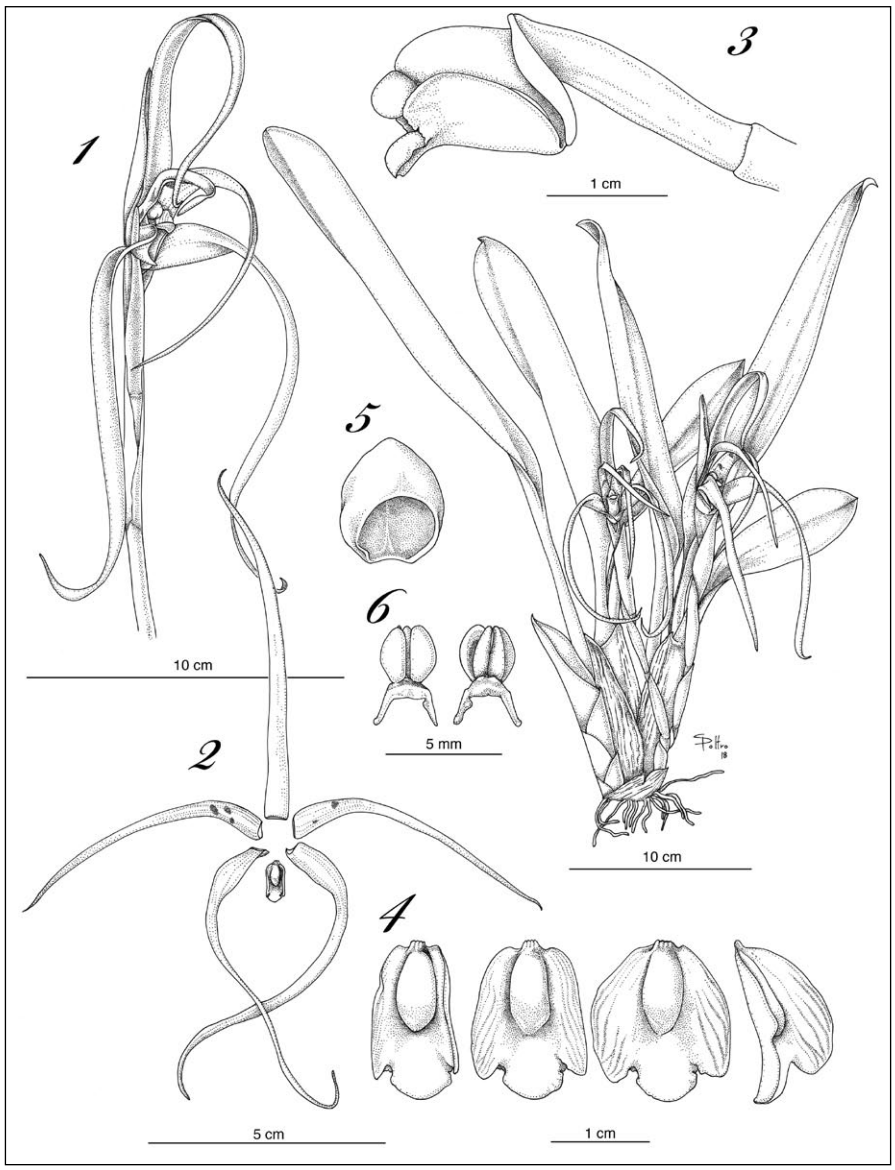
The genus is more diverse in the northern Andes, from Peru to Colombia, where most of the showiest species also occur, such as *Maxillaria augustae-victoriae* F. Lehm. & Kraenzl, *Maxillaria fractiflexa* Rchb.f., *Maxillaria grandiflora* (Kunth) Lindl., *Maxillaria grandimentum* C. Schweinf., *Maxillaria lehmannii* Rchb. f., *Maxillaria luteoalba* Lindl., *Maxillaria nutans* Lindl., *Maxillaria sanderiana* Rchb. f. ex Sander, *Maxillaria speciosa* Rchb. f., and *Maxillaria striata* Rolfe, among others. Along and north to the Central American isthmus *Maxillaria* is poorer in terms of large-flowered species, with a few exceptions such as *Maxillaria angustisegmenta* Ames & C. Schweinf., *Maxillaria endresii* Rchb.f., *Maxillaria inaudita* Rchb.f., and *Maxillaria pachyacron* Schltr., to cite some of the more relevant examples.

It was strange that a species so showy, not only florally but also by the large, erect, and majestic habit of the plant, remained undescribed until John T. Atwood and Dora Emilia Mora de Retana (1940–2001) presented it to orchid science in 1989. Atwood and Mora de Retana described *Maxillaria rodrigueziana* in the first issue of *Icones Plantarum Tropicarum* devoted to the orchid flora of Costa Rica (Atwood 1989). In this, as in subsequent publications, both authors made important contributions to the knowledge of the Costa Rican Maxillariinae (e.g. Atwood and Mora de Retana 1999, Atwood 2003).

Even though the type specimen of *Maxillaria rodrigueziana* was a Panamanian plant collected at El Copé (Chiriquí) by Thomas M. Antonio, the illustration of the flower presented in the protologue was from a Costa Rican collection by Charles Lankester, grown at the botanical garden that bears his name (Atwood 1989). Atwood and Mora de Retana named the new species after Rafael Lucas Rodríguez Caballero (1915–1981) a Costa Rican botanist and artist, whose passion for orchids made him illustrate many species in over a thousand paintings. A selection of 143 of these orchid illustrations was published posthumously in the book *Géneros de Orquídeas de Costa Rica*" (Costa Rican Orchid Genera), to honor his legacy (Rodriguez Caballero et al. 1986).

One of the species that Rafael Lucas Rodríguez painted was *Maxillaria rodrigueziana*, and his illustration was published in 1986 in the same book before the species was formally described. He painted his beautiful and detailed watercolor in 1974, but at that time he identified the specimen as *Maxillaria speciosa*, the sister species native to South America. That was not the first time he painted an orchid before it was described as new to science. *Epidendrum rafael-lucasii* Hágsater, *Lepanthes rafaeliana* Pupulin, and *Masdevallia rafaeliana* Luer were other species that he illustrated and were later dedicated to him (Ossenbach 2006).

During his life, Rafael Lucas Rodríguez worked as a professor at the University of Costa Rica (UCR) in diverse areas of the biological sciences. Among other



Maxillaria rodrigueziana. The plant.
1. The flower.
2. The dissected perianth.
3. The column and lip, lateral view.
4. The lip, spread to different degrees, and in longitudinal section.
5. The anther cap
6. The pollinia in frontal and dorsal views.

Drawn from *JBL-03927* by Sara Poltronieri.

contributions to Costa Rican orchidology, could be mentioned his efforts for the development of the Department of Biology at the UCR (currently the School of Biology named in his honor), where most of the new Costa Rican botanists are trained. He was also one of the founders of the Costa Rican Orchidology Association (ACO), the first of its kind in the country. Thanks to Dr. Rodríguez's efforts, the Lankester Botanical Garden was donated to the UCR in 1973 and is currently a leading orchid research center (Ossenbach 2006).

Maxillaria rodrigueziana is one of the most attractive species in the genus (even in a broad sense) in Central America, mainly because of its showy flowers and easily perceived fragrance. This species naturally grows in very humid forests of Costa Rica and Panama at medium elevations. Because of the characteristics of its natural habit, plants in cultivation need constant watering, but care must be taken that the medium does not get too damp. It grows better protected from direct sun and with intermediate temperatures between 59 F and 77 F (15 C–25 C). The plants of *Max. rodrigueziana* can be grown in pots with a mix of moss and small pieces of bark as potting media.

References

Atwood, J. T. 1989. Orchids of Costa Rica Part 1. *Icones Plantarum Tropicarium*, fascicle 14: plates 1301-1400. The Marie Selby Botanic Gardens, Sarasota

Atwood J. T. and D. E. Mora de Retana. 1999. Family #39 Orchidaceae: Tribe Maxillarieae: Subtribes Maxillariinae and Oncidiinae. 182 pp. *in*: W. Burger (ed.). *Fieldiana. Botany New Series No. 40. Flora Costaricensis*. Field Museum of Natural History, Chicago, U.S.A.

Atwood, J. T. 2003. *Maxillaria*. Pp. 291–332 *in*: B. E. Hammel, M. H. Grayum, C. Herrera & N. Zamora (eds.). Manual de Plantas de Costa Rica. Volumen III. Monocotiledóneas (Orchidaceae–Zingiberaceae). Missouri Botanical Garden Press, St. Luis, Missouri, US.A.

Brieger, F. G. and P. F. Hunt. 1969: *Hormidium, Maxillaria* and *Scaphyglottis* (Orch.). *Taxon* 18:601–603.

Garay, L. A. 1997. De nominibus Orchidacearum incunabulorum. *Harvard Papers in Botany* 2(1):47-54.

Ossenbach, C. 2006. Orchids in Costa Rica. Part III: Rafael Lucas Rodríguez. *Orchids (Bull. Am. Orch. Soc.)* 75(3):180–187.

Pupulin, F. 2012a. The Orchidaceae of Ruiz & Pavón´s "Flora Peruviana et Chilensis". A taxonomic study. I. *Anales del Jardín Botánico de Madrid* 69(1):21–79.

— 2012b. The Orchidaceae of Ruiz & Pavón´s "Flora Peruviana et Chilensis". A taxonomic study. II. *Anales del Jardín Botánico de Madrid* 69(2):143-186.

Rodriguez Caballero, R. L., D. E. Mora, M. E. Barahona and N. H. Williams. 1986. *Géneros de orquídeas de Costa Rica*. San Jose: Editorial de la Universidad de Costa Rica.

Ruiz, H. and J. Pavón. 1794. *Flora peruvianae et chilensis prodromus*. Gabriellis de Sancha, Madrid.

— 1798. *Systema vegetabilium Florae Peruvianae et Chilensis, characteres prodromi genéricos differentiales, specierum omnium differentias, durationem, loca natalia, tempus florendi, nomina vernacula, vires et usus nonnullis illustrationibus interspersis complectens*. Typis Gabrielis de Sancha, Madrid.

Schuiteman, A. and M.W. Chase. 2015. A reappraisal of *Maxillaria* (Orchidaceae). *Phytotaxa* 225(1):1–78.