



Sylvia Strigari

Warczewiczella discolor

Text by Franco Pupulin/Watercolor by Sylvia Strigari

Tribe CYMBIDIEAE
Sutribae ZYGOPETALINAE

Genus WARCZEWICZELLA Reichenbach f.

Warczewiczella discolor (Lindl.) Rchb.f., Bot. Zeit. 10: 636. 1852. Bas.: *Warrea discolor* Lindl., J. Hort. Soc. Lond. 4: 265. 1849. Type: Costa Rica, *Warszewicz s.n.* (holotype, K).

Synonyms: *Zygopetalum discolor* (Lindl.) Rchb.f., Walp. Ann. Bot. Syst. 6: 655, 1861. *Chondrorhyncha discolor* (Lindl.) Allen, Ann. Missouri Bot. Gard. 36: 87. 1949. *Cochleanthes discolor* (Lindl.) Schultes & Garay, Bot. Mus. Leaflet. Harvard Univ. 18: 324. 1954.

Epiphytic, caespitose *herb*, without pseudobulbs. *Roots* terete, flexuous. *Stem* completely enclosed by 4–7 imbricating sheaths, the upper ones foliaceous. *Leaves* conduplicate, articulate, membranaceous, elliptic or oblanceolate, acute to acuminate, abaxially carinate, 15.0–35.0 × 2.0–3.5 cm, narrowed at the base into a conduplicate petiole, medium green. *Inflorescences* lateral, 1–2 per shoot, single-flowered, produced from the axil of the lower sheaths, 12–15 cm long; the peduncle terete, erect to patent, provided with 1–2 basal, tubular-infundibular, papery bracts. *Floral bract* double, conduplicate, papery, the external one broadly ovate, obtuse to acute, amplexant, 1.5 × 1.2 cm, the internal bractlet narrowly lanceolate, 1.5 × 0.7 cm. *Flowers* resupinate, not completely spreading, the sepals pale green, the petals yellowish cream or pale green, with a large violet blotch toward the apex, the lip violet-blue, often with white apex, the callus yellow. *Dorsal sepal* free, lanceolate-elliptic, acute, shortly apiculate, concave, bent over the column, 2.5–4.0 × 1.2–1.5 cm. *Lateral sepals* lanceolate-elliptic, acute, reflexed, strongly inrolled-folded toward the base, 2.5–4.0 × 1.0–1.3 cm. *Petals* elliptic, obtuse-rounded, gently revolute at apex, 2.6–4.0 × 1.5–1.9 cm. *Lip* articulate with the column foot, unguiculate, trilobed, broadly ovate when flattened, 3.0–4.0 × 3.2–4.2 cm, the apex retuse, the lateral lobes triangular-ovate, erect, enfolding the column, the midlobe transversely ovate, deflexed, the distal margins slightly undulate; disc with a radiate, multiseriate, digitate callus, the free apex of the radiating keels projecting into teeth of variable length. *Column* gently arched, 14–15 mm long, with a distinct foot, dilated in the central portion, provided

with rounded stigmatic wings, the ventral surface flat, basally puberulent, the stigma transverse, narrow. *Anther cap* cucullate, obovate, flattened, two-celled. *Pollinia* four, in two pairs of different sizes, on a wide, transversely trapezoidal stipe, indistinct from the large, shield-shaped, hyaline viscidium.

The first conundrum about the genus *Warczewiczella* is its correct orthography. The name honors Józef Warszewicz (1812–1866), one of the most prolific 19th-century plant collectors and one of the top field experts on tropical American plants of his time (Köhler 2014). Warszewicz (with “sz” in the middle of the name) is how the Polish transliterate his surname. Reichenbach used Warczewicz (with “cz”) when he described the genus *Warczewiczella* in 1852. However, he subsequently mostly used *Warszewiczella* (with “sc”) (i.e., Reichenbach 1854a, 1854b, 1883), and the latter is the form that ended up prevailing in taxonomic literature. The combinations “sz” and “cz” are Polish digraphs, which sound like the English “sh” in shape and “ch” in chat, respectively. There is no Polish “sc” digraph, but this could perhaps be interpreted as a Latinization of the sound “sz” (English “sh”), and this explains why Reichenbach consistently adopted it as a second thought. Article 60 of the Vienna code, however, expressly prohibits “second thoughts” on the original spelling of names, and the original *Warczewiczella* of Reichenbach (with “cz”) must then be maintained.

The generic description of *Warczewiczella* by Reichenbach (1852) clearly stated the characteristic shape of the callus that distinguishes it from the closely related taxa in the *Chondrorhyncha* complex. Although Schultes and Garay (1954) lumped the species of *Warczewiczella* with *Cochleanthes* Raf., Fowlie (1969) was emphatic in maintaining the two genera apart on the basis of the different callus and column morphology. Combined molecular data (Whitten et al. 2005) strongly supported the separation of *Warczewiczella* from *Cochleanthes*, confirming Fowlie’s view. In the molecular analysis, *Warczewiczella* forms a well-supported clade (with the exception of *Warczewiczella wailesiana*), which is sister to *Pescatoria* Rchb.f., *Chaubardiella* Garay, *Ixyophora* Dressler and *Aetheorhyncha* Dressler and only

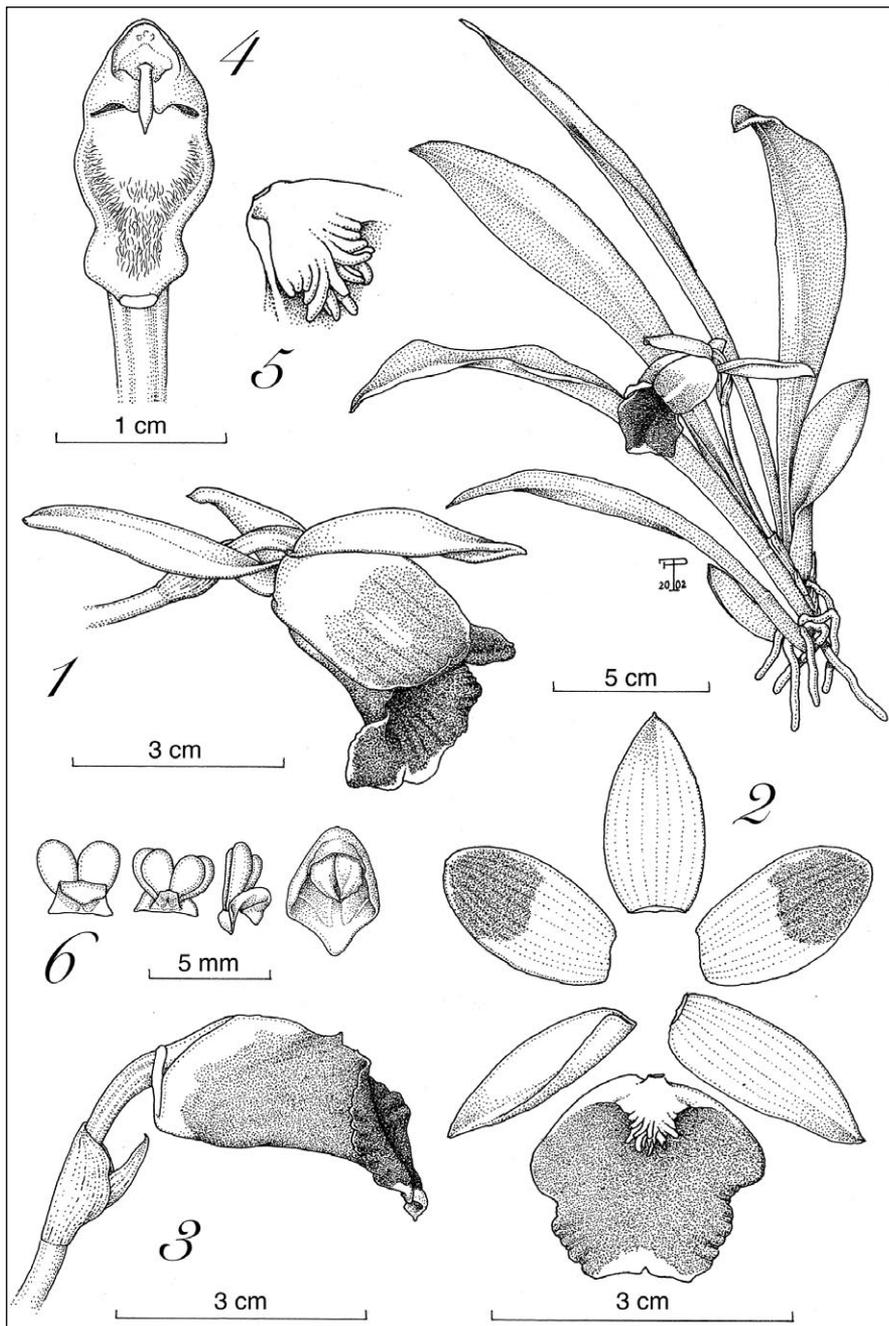
distantly related to the clade containing *Cochleanthes* and *Stenotyla* Dressler.

Morphologically, the genus is characterized by relatively large plants and flowers, with the base of the lip enfolding the column and a basal callus, free apically and laterally, composed of many ridges. In most species of *Warczewiczella* the lateral sepals are swept back and revolute to form a false spur, and the lip has a notch on either side of its base, allowing the entrance to the tubular base of the sepals. These false nectaries, which mimic the floral arrangement of species of lianas in the Bignoniaceae, deceive euglossine bee pollinators in search of nectar (Ackerman 1983).

As presently understood, *Warczewiczella* is a genus of 10–11 species and a natural hybrid ranging from Honduras to southern Brazil, Bolivia and Peru, with the highest diversity along the Amazonian slopes of the Colombian Andes (Pupulin 2009, Alzate, Álvarez and Dressler 2011). A single species is known from Costa Rica, which represents the northern distribution limit for the genus.

The species of *Warczewiczella* occur as epiphytes or, rarely, terrestrial herbs in open to dark shade, mostly on large branches covered with dense layers of mosses, in tropical to submontane wet forests and cloud forests. The elevational range of the genus spans from near sea level [i.e., *Warczewiczella lipscombiae* (Rolfe) Fowlie] to over 8,200 feet (2,500 m) (our *Warczewiczella discolor*), but most of the species grow in temperate regions of midelevation (2,300–4,300 feet [700–1,300 m]). Flowering mostly occurs during the rainy season; however, flowers are also sporadically produced following the development of new shoots.

Warczewiczella discolor is known exclusively from Costa Rica and Panama, where it is a common epiphyte on large branches and trunks, in partial shade, in premontane and lower montane moist forest on both the watersheds of the mountain ranges that form the continental divide in the two countries. A plant adapted to the temperate and cool regions of the southern Central American isthmus, *Warczewiczella discolor* spans from 2,300 feet to over 8,200 feet (700–2,500 m) elevation. Flowering of this species occurs during the dry season, from December to



Warczewiczella discolor. The plant.

1. Flower.
 2. Dissected perianth.
 3. Column and lip, lateral view.
 4. Column, abaxial view.
 5. Callus of the lip.
 6. Pollinarium (three views) and anther cap.
- All drawn from Pupulin 441 (JBL-spirit) by Franco Pupulin.

May, with a flowering peak in April.

The violet-blue lip that encircles the column and the yellow, multidigitate callus easily distinguish *Warczewiczella discolor* from other species of the Zygopetalinae. The floral fragrance of *Warczewiczella discolor* is dominated by sesquiterpenes, notably germacrene (77.0%); a rose-scented volatile organic hydrocarbon which also plays a role in insect chemical communication systems, and a ketone-derivative, mushroom-like scent, that Kaiser (1993, cited as *Cochleanthes discolor*) tentatively identified as germacra-1(10),11-dien-5-one.

Warczewiczella discolor can be grown under intermediate conditions, even

though it is suited to a cooler environment as it frequently occurs in montane forests at higher elevations. It must be protected from the direct rays of the sun, and can tolerate deep shade. Under these conditions, high humidity and good air circulation are essential to maintain the plants in healthy condition. Its extensive root system makes it advisable to cultivate *Warczewiczella discolor* in pots. Watering should be abundant during development of new growth but reduced after flowering; however, even during this period, the medium should never be allowed to dry out completely.

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