

A new *Lepanthes* from Costa Rica

DIEGO BOGARÍN and YAEL KISEL describe and illustrate an attractive new species from the Rara Avis Rainforest Reserve



Lepanthes castilloae, the type plant in cultivation at Lankester Botanic Gardens (JBL), Costa Rica, in April 2009

Diego Bogarín

RARA AVIS is a private rainforest reserve, of about 13 sq. km, at an average elevation of 700m. Established in 1983 for the purpose of conservation and sustainable use of the tropical forest, Rara Avis is the oldest rainforest lodge in Costa Rica. It borders Braulio Carrillo National Park and La Selva Biological Station in the Caribbean plains of Sarapiquí, in the north of Heredia province, in central Costa Rica. A winding road that goes into the deep primary forest from the nearest town, Horquetas de Sarapiquí, leads to the Rara Avis Lodge. Visitors usually travel by covered tractor cart, or by horse, in an adventurous journey of about 18km.

The area is very diverse in orchids. In a preliminary survey, almost 160 species of orchids were documented, and it is clear that more remain to be found. In the past five years alone, two new species of *Sobralia* were described from the reserve, *Sobralia rarae-avis* and *S. purpurella* (Dressler 2007, Dressler & Bogarín 2011). Of the 160 orchids recorded at Rara Avis, 53 species are members of subtribe *Pleurothallidinae*. Species of this subtribe are less common at elevations below 1,000 m. In the case of *Lepanthes*, diversity is at its highest between 1,500m and 3,000m. In fact, of the 120 species of *Lepanthes* recorded from Costa Rica, only 13 percent are known from altitudes below 1,000m (Luer 2003). Therefore, these regions are less visited in search of *Lepanthes*. This is perhaps one reason why several species of lower elevations are still undescribed. Recently, two new *Lepanthes* were published based on plants collected at lower elevations (Pupulin *et al.* 2010, Pupulin & Bogarín 2011). These species are *Lepanthes vestigialis* Bogarín & Pupulin and *Lepanthes viridis* Pupulin & Bogarín

During fieldwork activities for the PhD project by the second author on the comparison of the population genetics of species-rich and species-poor sister clades of Costa Rican orchids, a specimen of an undescribed *Lepanthes* was collected at Rara Avis Rainforest Reserve. Here we propose this species as new to science:

Lepanthes castilloae

Bogarín & Kisel, sp. nov.

affinis *Lepanthes selliana* Endrés ex Luer foliis oblongis suborbicularis atropurpureis reticulatis cuneatis, folia quam inflorescentias longiora, sepalis triangularis ovatis denticulatis, petalis basaliter rubris in centro flavis et laminis labelli glabris praecipue differt.

Type: Costa Rica. Heredia: Sarapiquí, Horquetas, Rara Avis Rainforest Reserve, 10°16'49"N 84°02'47"W, elev. 751m, epiphytic along the Bromeliad trail, 35m southwest from the turn to the Vueltón trail tropical wet forest premontane belt transition, 16 April 2009, Y. Kisel, K. Castillo & P. Renshaw 2000 (holotype: JBL-Spirit).

Description

Epiphytic, small, caespitose, erect herb, to 4cm tall. **Roots** slender, sinuous, about 1mm in diameter. **Ramicauls** 0.7–2.5cm long, enclosed by 3–8 lepanthiform, micropubescent sheaths, the ostia obliquely dilated, acute with ciliate margins. **Leaves** coriaceous, conduplicate, abaxially keeled, dark purplish-green, reticulate, ovate to suborbicular, slightly auriculate, acute, minutely emarginate, abaxially provided with a minute, rounded apicule, 1.2–2.1 x 0.8–1.6cm, the base shortly cuneate, narrowing into a petiole 2mm long. **Inflorescence** racemose, distichous, successively flowered, borne beneath and shorter than the leaf, to 7mm long; peduncle filiform, about 5mm

long, rachis 2mm long. **Floral bracts** conduplicate, ovate, subacute, sparsely muriculate, about 1mm long. **Pedicel** 1.5mm long, persistent. **Ovary** subclavate, rounded, glabrous, 1mm long. **Flowers** with the sepals yellow, with a red stain at base, the petals basally reddish-pinkish, the proximal half yellow, the apex of the lobes red, the lip concolorous purple red, the column yellow, the anther white suffused with pink. **Dorsal sepal** triangular-ovate, acute to subacuminate, 3-veined, the margins irregularly denticulate, 3.6 x 2.5mm, connate at the base 1mm. **Lateral sepals** triangular-ovate, acute to subacuminate, 3-veined, the margins irregularly denticulate, 4 x 1.9mm, connate at the base 1mm. **Petals** transversely bilobed, 0.9 x 3mm, ciliate, the upper lobe oblong, rounded, 0.9 x 1.8mm, the lower lobe transversely oblong-subfalcate, rounded, 0.4 x 1.3mm. **Lip** 3-lobed, basally connate to the column, 1 x 0.8mm, cellular-subpubescent along the blades, with short bristles under the body, the blades ovate, acute, the connectives oblong, the appendix external, short, subglobose, hirsute. **Column** short, 1.2mm long, with the anther dorsal, the stigma apical. **Anther cap** cucullate, 2-celled. **Pollinia** 2, ovoid. **Habitat** epiphytic in tropical wet forest premontane belt transition on the Caribbean plains of northern Sarapiquí, Costa Rica. **Distribution** known only from the type locality in Costa Rica. **Eponymy** dedicated to Kath Castillo, a biologist and botanical research assistant working in the Life Sciences Department, Plants Division at the Natural History Museum, London, for her discovery and collection of the type specimen, and special interest and enthusiasm shown for the species described and orchids in general. ▶

Distinguishing characteristics

Lepanthes castilloae is most similar to *L. selliana* Endrés ex Luer but differs in the purplish-green, reticulate (versus green, non-reticulate), oblong to suborbicular (versus ovate), strongly cuneate narrowing into a petiole 2mm long (versus slightly cuneate) leaves. The inflorescence is shorter than the leaves (versus as long as leaves), the sepals triangular-ovate,

denticulate (versus broadly ovate, minutely ciliate), the petals basally red and yellow at the centre (versus orange with thin purple stain), and the blades of the lip glabrous, red (versus pubescent, rose purple).

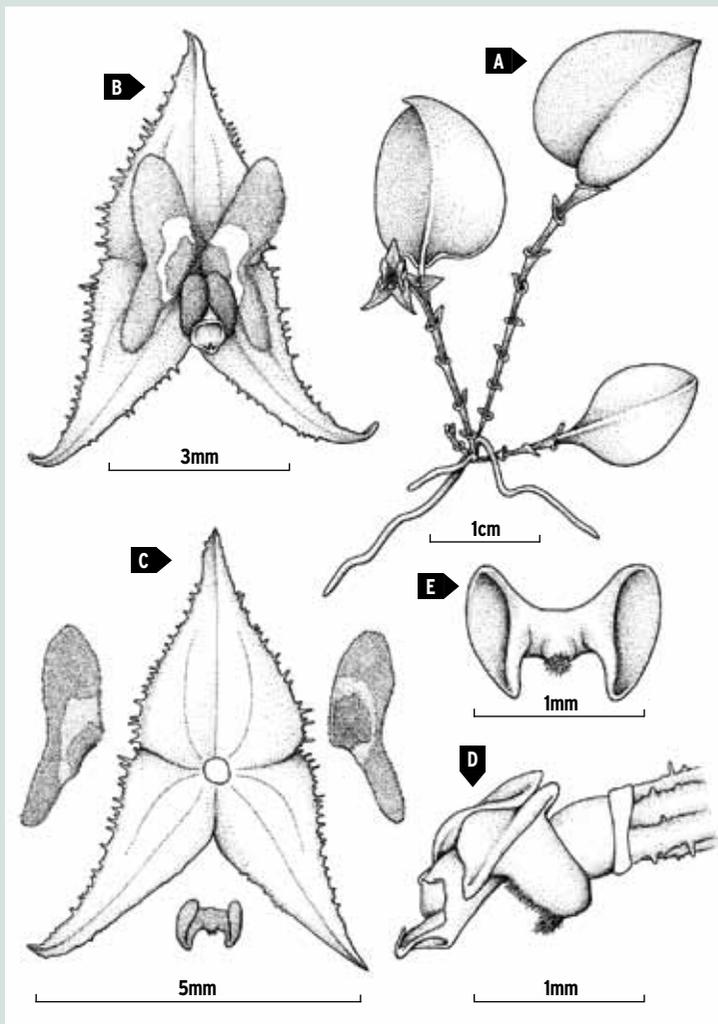
It is also superficially similar to *Lepanthes umbonifera* Endrés ex Luer, which is described as having dark purplish-green leaves, but differs in the ovate leaves, the umbonate (with

a central raised area) lip and the petals with the lower lobe inconspicuous when compared to the upper lobe.

Cultivation

Lepanthes castilloae is native to the warm, humid Caribbean lowlands of Costa Rica. As with many *Lepanthes* from warm regions, it can be grown mounted on a small piece of wood, or potted in a mixture of sphagnum moss and fine pumice. This species enjoys good moisture and ventilation so that the leaves do not remain wet. Intermediate to warm conditions are ideal for strong, healthy growth. ■

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LEPANTHES CASTILLOAE Bogarín & Kisel

A habit **B** flower **C** perianth, flattened **D** column and lip, lateral view **E** lip, spread.

Drawn by Diego Bogarín from the holotype

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The rainforest at Rara Avis. Many orchids grow on the trees along the trails where *Lepanthes castilloae* was collected

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