

LINDLEYANA

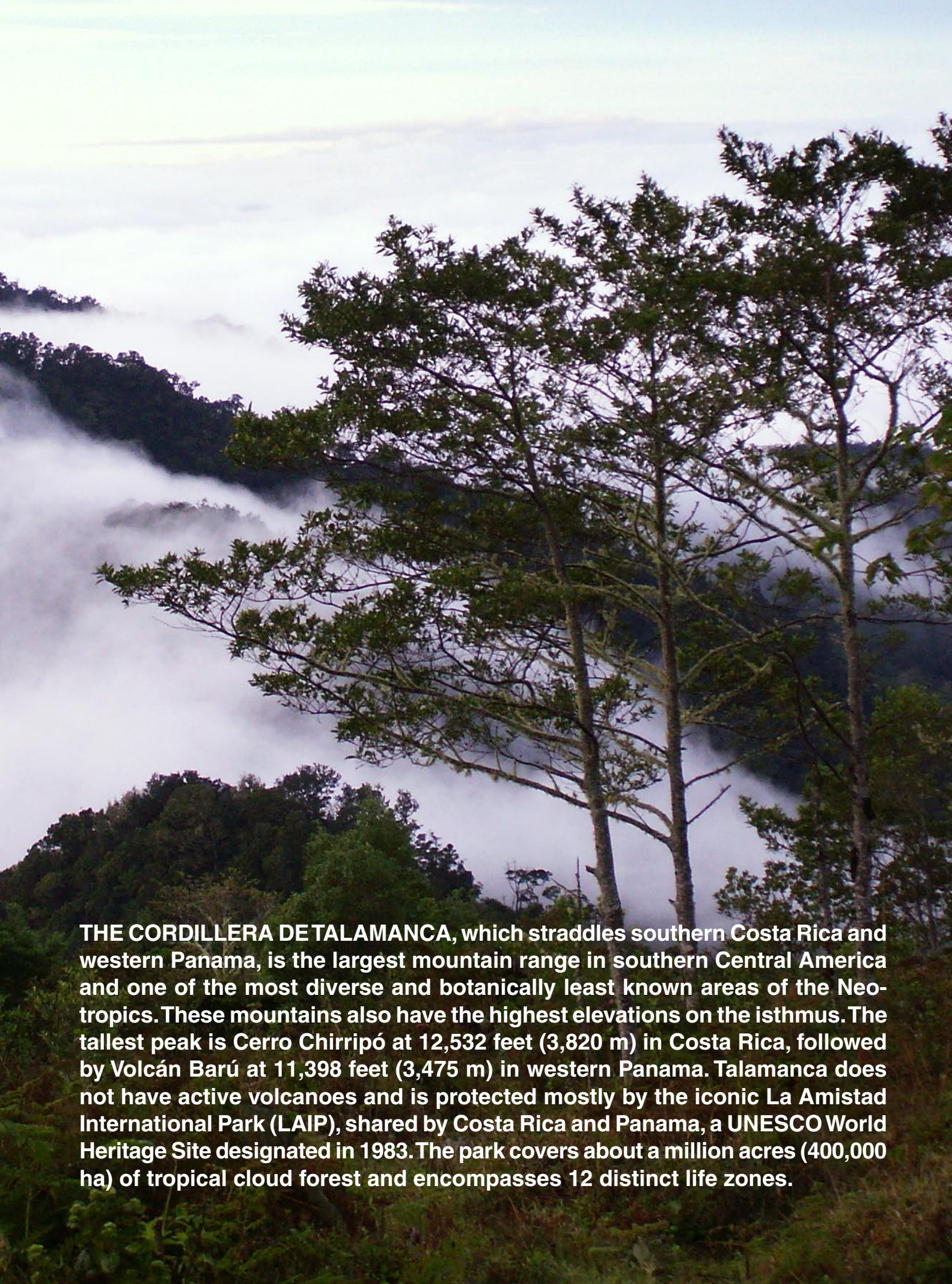
Lepanthes novae Durikaensis

By Diego Bogarín¹⁻³ and Daniel Jiménez¹

New species of *Lepanthes* (Pleurothallidiinae: Orchidaceae) are described from Cordillera de Talamanca, Costa Rica



Trade winds that create cloudiness in the mountains provide moisture to the forest. Photograph by D. Jiménez.

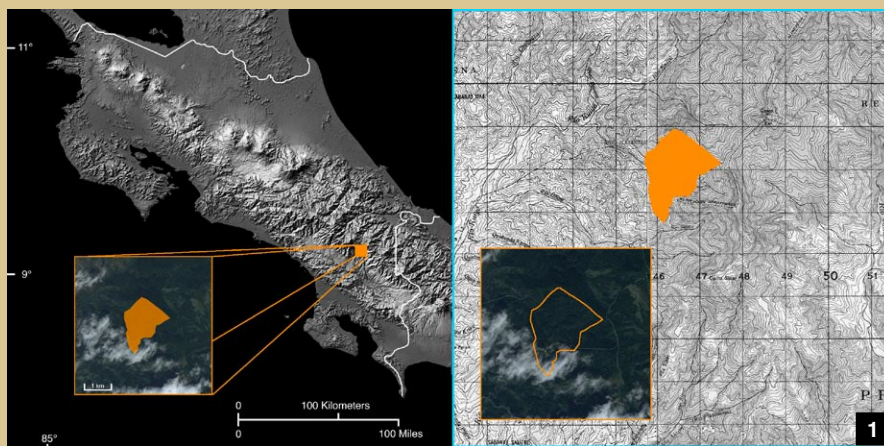


THE CORDILLERA DE TALAMANCA, which straddles southern Costa Rica and western Panama, is the largest mountain range in southern Central America and one of the most diverse and botanically least known areas of the Neotropics. These mountains also have the highest elevations on the isthmus. The tallest peak is Cerro Chirripó at 12,532 feet (3,820 m) in Costa Rica, followed by Volcán Barú at 11,398 feet (3,475 m) in western Panama. Talamanca does not have active volcanoes and is protected mostly by the iconic La Amistad International Park (LAIP), shared by Costa Rica and Panama, a UNESCO World Heritage Site designated in 1983. The park covers about a million acres (400,000 ha) of tropical cloud forest and encompasses 12 distinct life zones.

There is a popular saying that Talamanca was never conquered. During the last five centuries, this large mountain range served as protection or shelter for indigenous people who found refuge from Spanish conquerors and, later, from colonial oppression. The remoteness, very dense vegetation and constantly changing weather conditions make the region difficult to explore. In addition, the foothills of the Pacific watershed of Talamanca are steep and nearly inaccessible. Topography here is steep, with slopes averaging 30 degrees and in some areas, up to 70 degrees, with deep V-shaped canyons, ridges that join up to the continental divide and a few small flat areas. All of these conditions make the area a relatively unexplored region for scientific study.

Durika Biological Reserve (DBR) lies in the southern Pacific watershed of Cordillera de Talamanca, Costa Rica, and comprises about 21,000 acres (8,500 ha) of protected lands in the buffer zone of La Amistad. The DBR is located about 10 miles (17 km) northeast of Buenos Aires, in the province of Puntarenas. It was founded in 1989 by The Durika Association of Agricultural and Cultural Development, later named The Pro Conservation Foundation of the Durika Biological Reserve, popularly known as the Durika Foundation. The community, with no political or religious ambitions, but motivated by the environmental deterioration of the lands around La Amistad, started with 50 members and 618 acres (250 ha). The Durika Foundation now has grown to over 100 members of different nationalities, protecting some 21,000 acres (8,500 ha), which includes the acquisition of several neighboring local farms and cow pastures. At present, this large protected chunk of land is composed of nearly 85 percent primary and secondary forests and 15 percent communal lands (agriculture, goat pasturage and housing purposes).

The weather at DBR is influenced by the trade winds from the Caribbean. These winds constantly bring humidity to the upper slopes in the continental divide and increase during the dry season from December to April. Precipitation and near permanent mist occur when humid winds collide with the Atlantic watershed of Talamanca, which is usually more humid than the Pacific watershed, losing humidity as it passes through to the Pacific. The Pacific watershed remains relatively cloudless during the dry season but also receives humidity from the Pacific Ocean. These environmental conditions,



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- [1] Location of the Durika Biological Reserve. Map by D. Bogarín.
- [2] Oak forests ecosystems are typical in Talamanca highlands. Many orchid species are found in this kind of forest.
- [3] A view inside the oak forests. The haze among vegetation raises humidity in the environment.

combined with the rugged topography, create a variety of microhabitats, each with a different species composition and high levels of endemism. Precipitation can reach an average of 138 inches (35 m/yr), and temperature ranges from 50–77 F (10–25 C); the difference between day and night temperatures is 18 F (10 C). There are two life zones at DBR, the montane wet forest and the lower montane wet forest. The highest point is Cerro Arbolado at 9,170 feet (2,800 m) above sea level and the lowest point is the banks of Dlorá river at 3,275 feet (1,000 m).

Durika is a wonderful place to

observe orchids. Many of them are miniatures belonging to the subtribe Pleurothallidinae, such as species of the genus *Lepanthes*. They are commonly found along the primary oak cloud forests in montane and premontane rain forests at elevations of 4,900–8,200 feet (1,500–2,500 m; Luer 2003, Pupulin and Bogarín 2012). In Costa Rica there are about 120 species of orchids (Bogarín et al. 2012). As a general rule, species of *Lepanthes* are endemic to certain ridges or hills, and their distribution is often narrow. For this reason, it is not surprising that a field trip to an unexplored place in Talamanca led to the discovery of new *Lepanthes*. Here, we describe four species, and we document a new record for Costa Rica based on fieldwork conducted at DBR.

Lepanthes garciae Bogarín & D.Jiménez, spec. nov.

TYPE Costa Rica. Puntarenas: Buenos Aires, Buenos Aires, Reserva Biológica Dúrika, sector Bosque Perfecto, 9°19'5.20"N, 83°12'24.97"W, 2485 m, epífitas, invenit Daniel Jiménez, Eugenio García et Pontus Aratoun. Floreció en cultivo en el Jardín Botánico Lankester, 13 abril 2011, D. Jiménez sub D. Bogarín 8535 (holotype, JBL).

DIAGNOSIS *Lepanthes garciae* is similar to *Lepanthes dolabriformis* Luer, from which it can be distinguished by the inflorescences shorter than the leaves, up to 1 cm long, the entire, glabrous petals with the upper lobe acute and the entire, glabrous lip with the blades ovate and the apices subfalcate.

Plant epiphytic, caespitose, erect or pendent, up to 5.5 cm tall; roots slender, flexuous, to 1 mm in diameter. Ramicauls slender, erect, 2.3–3.5 cm long, enclosed by 8 glabrous, lepanthiform sheaths, the ostia minutely ciliate, ovate, acute, adpressed; leaves subcoriaceous, elliptic, acute, conduplicate, emarginate, with a short apiculus, purplish beneath, 1.9–2.5 × 0.7–1.1 cm, the rounded base narrowing into a petiole less than 1 mm long. Inflorescence racemose, distichous, glabrous, successively flowered, born above the leaf, shorter than leaves, up to 1 cm long, peduncle 4 mm long, rachis 6 mm long. Floral bracts ovate, acuminate, conduplicate, membranaceous, 1 mm long, muriculate. Pedicels 1.5 mm long, persistent. Ovary to 1 mm long, glabrous. Flowers with yellow-orange sepals stained with red at base, the petals and lip scarlet. Dorsal sepal ovate, acute, ciliate, dorsally with three ciliate keels, connate to the lateral sepals for about 1.1 mm, 3.5

× 2.5 mm. Lateral sepals ovate, acute, ciliate, dorsally with three ciliate keels, connate for 1.3 mm, 3.5 × 2.0 mm. Petals transversely bilobed, entire, 1.2 × 3.6 mm, the upper lobe oblong or triangular, acute to obtuse, subfalcate, to 2.5 mm long, the lower lobe ovate to triangular, obtuse, smaller than the upper lobe, to 1.1 mm long. Lip bilobate, adnate to the column, the blades ovate with rounded ciliolate ends, embracing the column 1.7 × 2.0 cm, the connectives cuneate, oblong, to 5 mm long, the body thick, oblong, rounded, connate to the base of the column, the appendix thick, oblong, pubescent. Column cylindric, to 1.2 mm long, mucronate, the anther dorsal and the stigma subapical. Pollinia two, ovoid, basally filiform. Anther cap triangular, cucullate.

DISTRIBUTION Only known from the type locality.

EPONYMY Dedicated to biologist Eugenio García, who participated in the type collection. He kindly guided us through the paths of the reserve. His support has been fundamental for understanding the complex environment biodynamics at Durika Biological Reserve.

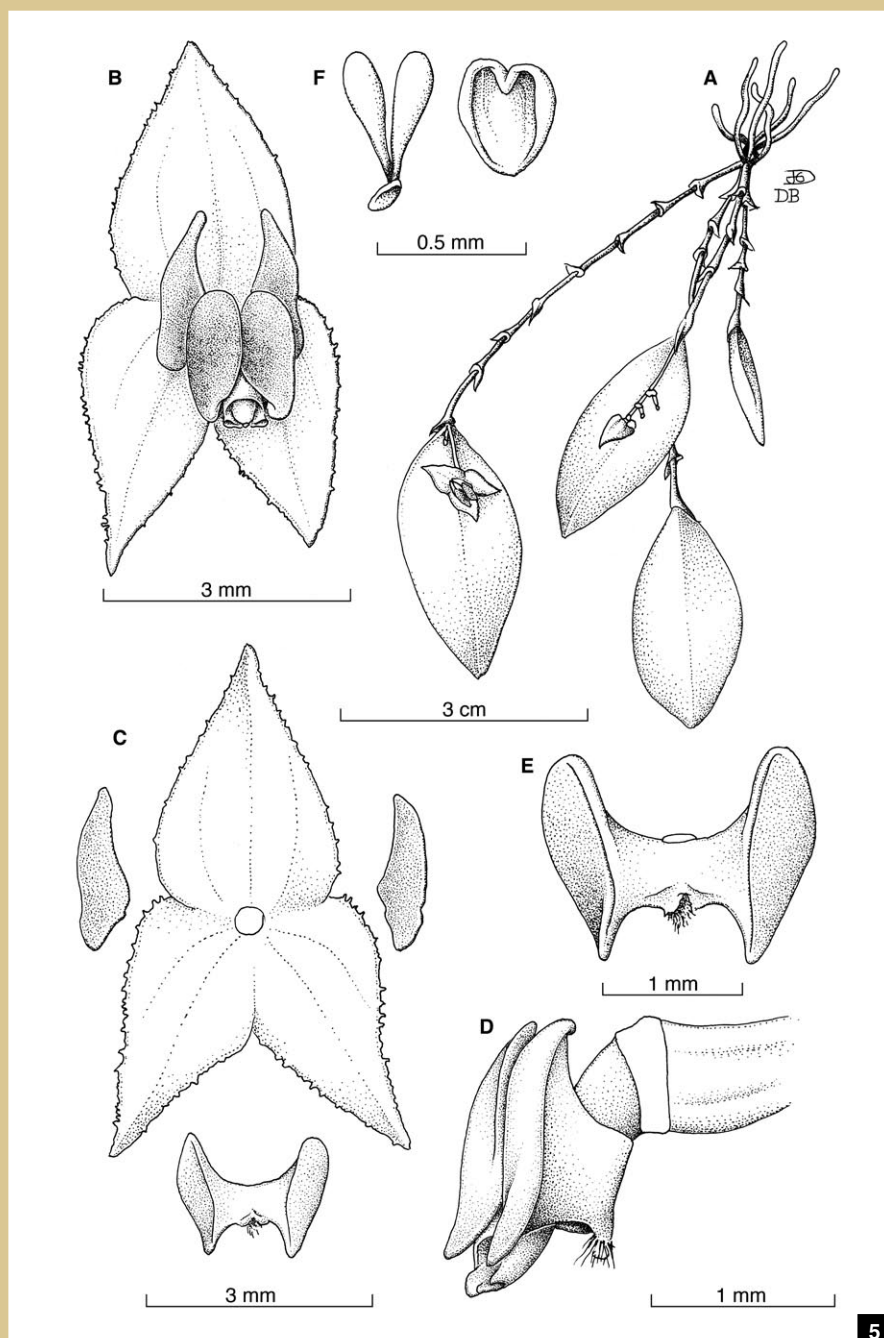
HABITAT AND ECOLOGY Epiphytic in lower montane wet forest in shady condition at around 7,500–8,200 feet (2,300–2,500 m) elevation. Most of the plants we found were growing on hanging lianas from the canopy of the forest.

PHENOLOGY Plants flower through the year but mainly from April to July.

DISCUSSION *Lepanthes garciae* is similar to *L. dolabriformis* Luer, from which it can be distinguished by the inflorescences up to 1 cm long, shorter than the leaves (rather than 1.5 cm long, as long as the leaves or slightly larger), the entire, glabrous petals with the upper lobe acute (rather than ciliate, pubescent with the upper lobe truncate), the entire, glabrous lip with ovate blades and the apices subfalcate (rather than ciliate, pubescent with the blades narrowly ovate and the apices falcate; Luer 1996).

Lepanthes siboei Bogarín & D. Jiménez, spec. nov.

TYPE Costa Rica. Puntarenas: Buenos Aires, Reserva Biológica Dúrika, sendero después de Bosque Perfecto, 9°18'46.64"N, 83°12'40.14"W, 2377 m, epífita en bosque pluvial premontano, inventit D. Jiménez, E. García, W. Driessen, P. Dubbeldam, F. Nass, J. Riksen et E. Schmidt, 16 enero 2012, floreció en

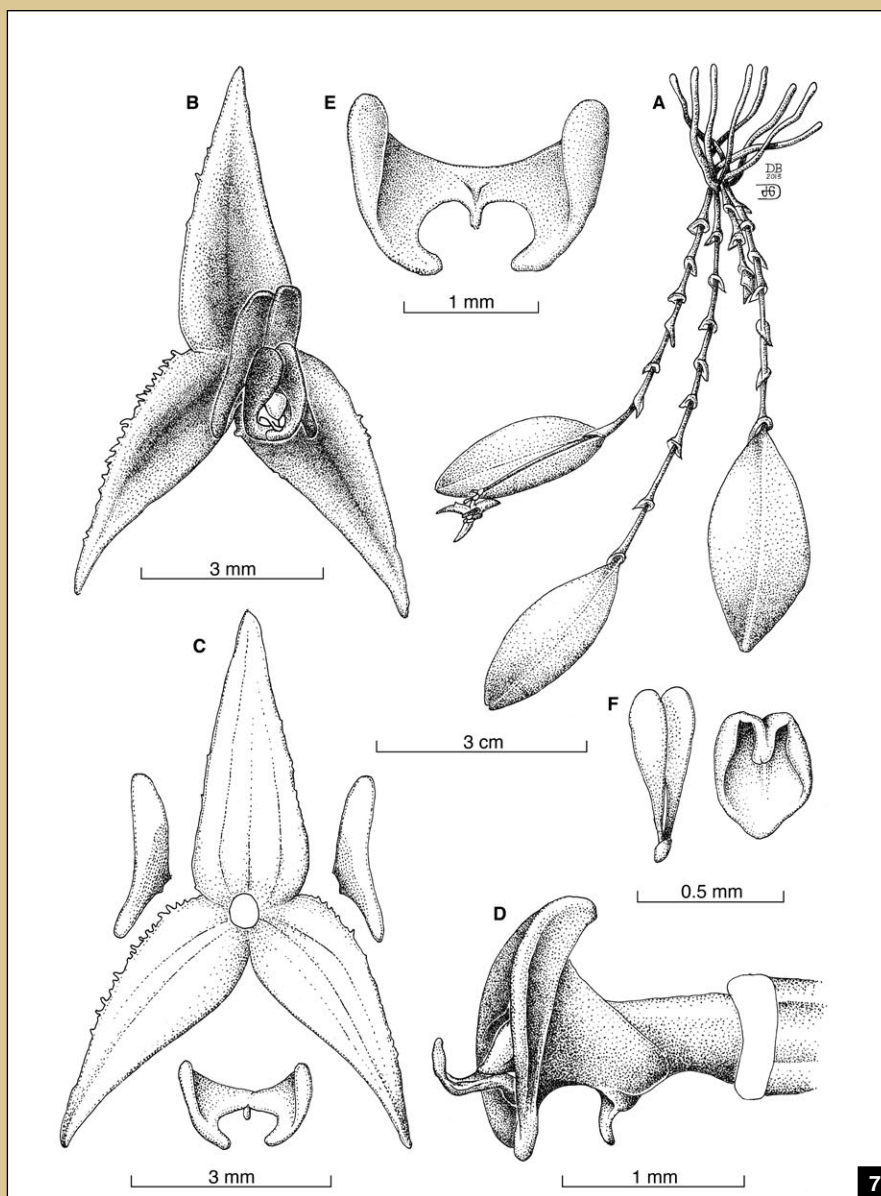
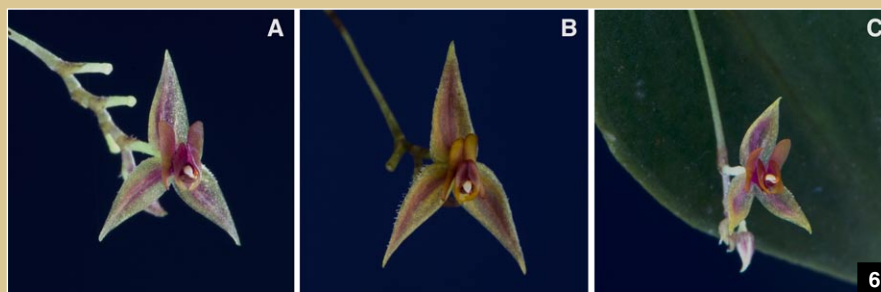


cultivo en el Jardín Botánico Lankester, 27 setiembre 2012, D. Jiménez sub D. Bogarín 9927. (holotype, JBL).

DIAGNOSIS *Lepanthes siboei* is most similar to *Lepanthes falcifera* Luer from which is distinguished by the ovate-elliptic leaves, entire, acute sepals, golden yellow with the midvein stained with red, the rounded yellow-orangish petals and the thick, ovate, folded downward conspicuous appendix.

Plant epiphytic, caespitose, erect or suberect, up to 8 cm tall. Roots slender, flexuous, to 0.5 mm in diameter. Ramicauls slender, erect, 2.5–5.5 cm long, enclosed by 7–8 minutely ciliate, lepanthiform sheaths, the ostia minutely ciliate, ovate, acuminate and slightly dilated. Leaves coriaceous, elliptic, acute, emarginate, with a short apiculus, 1.1–1.5 × 2.3–3.0 cm, the rounded base narrowing into a petiole less than 2 mm long, light green stained with purple beneath. Inflorescence racemose, distichous, glabrous, successively flowered, developed above the leaf, larger or as long as the leaves, up to 2.5 cm long, peduncle 2 cm long, rachis 1.5 cm long. Floral bracts ovate, acuminate, conduplicate, membranaceous, 1.1 mm long, muriculate. Pedicels 2 mm long, persistent. Ovary to 1 mm long, glabrous. Flowers the sepals golden yellow with the midvein stained with red, the petals yellow-orangish with the inner margin stained with red, the lip red with the apex golden yellow, the column pinkish-red. Dorsal sepal ovate, acute, denticulate, slightly concave, dorsally with three keels, connate to the lateral sepals for about 0.5 mm, 4.5 × 1.7 mm. Lateral sepals subsimilar to the dorsal sepal, ovate, acute, denticulate along the outer margin, slightly concave, dorsally with three keels, connate for 0.5 mm, 4.5 × 2.0 mm. Petals transversely bilobed, entire, 0.7 × 2.5 mm, the upper lobe oblong, rounded, 1.5 mm long, the lower ovate, narrowly oblong. Lip bilobate, adnate to the column, 1.6 × 1.8 mm, the blades ovate to oblong with rounded ends, embracing the column 1.3 × 1.9 mm, the connectives cuneate, oblong, to 0.6 mm long, the body thick, subquadrate, rounded, connate to the base of the column, the appendix thick, ovate, folded downward, conspicuous. Column cylindrical, to 1.5 mm long, the anther apical and the stigma subapical. Pollinia two, ovoid, basally filiform. Anther cap obovate, cucullate.

PARATYPE Costa Rica-Panamá: Puntarenas-Bocas del Toro: Coto Brus-Valle del Risco, línea fronteriza sobre la divisoria de aguas ingresando por el



[4] Flower morphology of *Lepanthes garciae* Bogarín & D.Jiménez. Photograph by Daniel Jiménez from the type plant.

[5] *Lepanthes garciae* Bogarín & D.Jiménez. A — Habit. B — Flower. C — Perianth flatten. D — Lip, spread. E — Column and lip, lateral view. Drawings by D. Bogarín and D. Jiménez from the holotype.

[6] Flower morphology of *Lepanthes siboei*. A — M. Fernández 820. B — D. Bogarín 9927. C — D. Bogarín 10760.

[7] *Lepanthes siboei* Bogarín & D.Jiménez. A — Habit. B — Flower. C — Perianth flatten. D — Column and lip, lateral view. E — Lip, spread. F — Pollinarium and anther cap. Drawings by D. Bogarín and D. Jiménez from the holotype.

camino de la Finca Sandí-Hartmann “El Capricho”, 8°57'12.34"N, 82°43'32.69"W, 2154 m, bosque pluvial montano bajo, 11 diciembre 2013, D. Bogarín et al. 10760 (JBL). Puntarenas-Bocas del Toro: Coto Brus-Valle del Risco, línea fronteriza sobre la divisoria de aguas ingresando por el camino de la Finca Sandí-Hartmann “El Capricho”, alrededores de riachuelo, 8°57'14"N, 82°43'39"W, 2107 m, bosque pluvial montano bajo, 11 diciembre 2013, M. Fernández et al. 819 (JBL).

DISTRIBUTION Costa Rica and Panama. It is known from the trail to Cerro Arbolado, passing “la Pared” and Zona Protectora Las Tablas on the Pacific watershed of the Cordillera de Talamanca along the border between Costa Rica and Panama.

ETYMOLOGY Sibö, Sibú or Zipoh is in the mythology of Talamanca, the God or main deity, creator of the universe, humans, plants and animals. Sibö is the most important personage in the religion and culture of Cabécar and Bribri ethnicities.

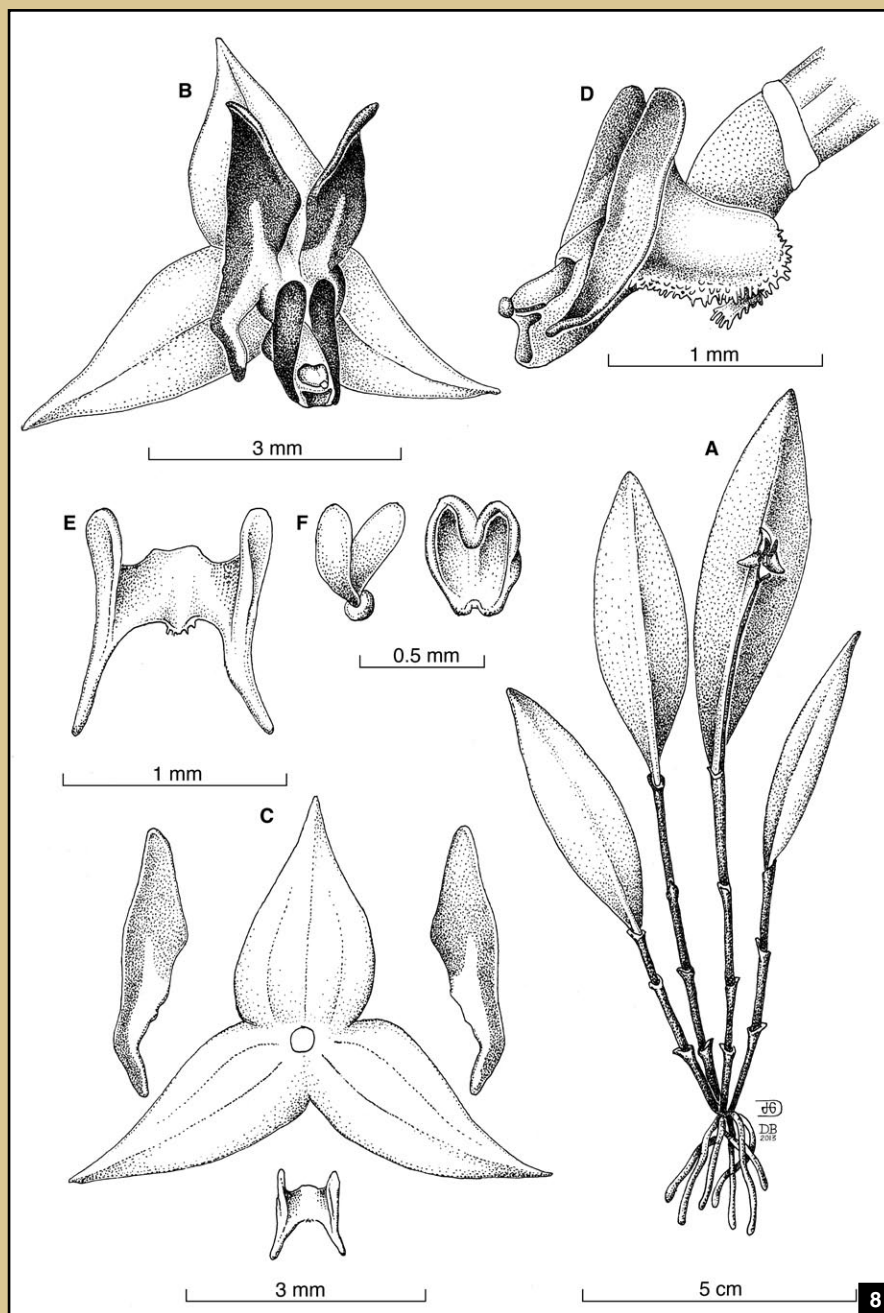
HABITAT AND ECOLOGY Epiphytic in lower montane wet forest at around 7,900 feet (2,400 m) elevation. It is found growing attached to large clumps of mosses with almost no direct contact with the branches of the trees. It is found in shade but it can also grow in exposed direct sunlight as a result of clear spaces formed in the canopy after the fall of trees.

PHENOLOGY Plants flower through the year.

DISCUSSION This species is most similar to *L. falcifera* from which it is distinguished by the ovate-elliptic leaves (rather than narrowly ovate) entire, acute sepals, golden yellow with the midvein stained with red (rather than denticulate, acuminate, greenish brown), the rounded, yellow orangish petals (rather than obliquely truncate, blood red) and the thick, ovate, folded downward, conspicuous appendix (rather than minute, pubescent; Luer 1996).

Lepanthes talamancana Bogarín & D. Jiménez, spec. nov.

TYPE Costa Rica. Puntarenas: Buenos Aires, Buenos Aires, fila montañosa frente a Cerro Utyum y río Cabagra, Reserva Biológica Dúrika, 9°18'47.97"N, 83°12'50.09"W, 2418 m, epífitas, legit Daniel Jiménez, Eugenio García et Pontus Aratoun, floreció en cultivo en el Jardín Botánico Lankester, 25 mayo 2011, D. Jiménez sub D. Bogarín 8835 (holotype, JBL).



DIAGNOSIS This species is similar to *Lepanthes stenorhyncha* Luer; however it can be recognized by the narrowly elliptic to elliptic leaves, the narrowly ovate sepals, the petals with the upper lobe oblique ovate to oblong, the lower lobe narrowly ovate to narrowly oblong, acute, falcate, glabrous, the lip with the blades ovate to oblong and the thick, oblong, pubescent appendix.

Plant epiphytic, caespitose, erect, up to 27 cm tall. Roots slender, flexuous, to 1 mm in diameter. Ramicauls slender, erect, 3.8–19.2 cm long, enclosed by 12 minutely ciliate, blackish lepanthiform sheaths, the ostia minutely ciliate, ovate, acute. Leaves coriaceous, narrowly elliptic to elliptic, acute, conduplicate, abaxially

[8] *Lepanthes talamancana* Bogarín & D. Jiménez. A — Habit. B — Flower. C — Perianth flatten. D — Lip, spread. E — Column and lip, lateral view. Drawings by D. Bogarín and D. Jiménez from the holotype.

[9] Flower morphology of *Lepanthes talamancana*. A — D. Jiménez sub Bogarín 8835. B — D. Bogarín 9778. C — D. Bogarín 9778.



cuneate, emarginate, with a short apiculus, 7.0–5.0 × 1.8–2.2 cm, the rounded base narrowing into a petiole less than 2.5 mm long. Inflorescence racemose, distichous, glabrous, successively flowered, developed beneath the leaf, shorter than leaves, up to 6 cm long, peduncle to 2.5 cm long, rachis to 4 mm long. Floral bracts ovate, acuminate, conduplicate, membranaceous, 2 mm long, muriculate. Pedicels 2 mm long, persistent. Ovary to 1.5 mm long, glabrous. Flowers with yellow sepals sometimes suffused with red, the petals with the upper lobe yellow and the margin red, the lower lobe yellow or with a red margin, the lip yellow suffused with red, the column yellow. Dorsal sepal ovate, acute, entire, connate to the lateral sepals for about 5 mm, 2.9 × 1.7 mm. Lateral sepals narrowly ovate to elliptic, acute, entire, divaricate, connate for 0.6 mm, 3.1 × 1.4 mm. Petals transversely bilobed, oblique, ciliolate, 0.9 × 3.4 mm, the lobes unequal, the upper lobe ovate to oblong, rounded, superimposed, apically folded, the lower lobe narrowly ovate to narrowly oblong, acute, falcate; lip bilobate, adnate to the column, 1.0 × 0.8 cm, the blades ovate to oblong with rounded ciliolate ends, embracing the column to 1.0 × 0.2 mm, the connectives cuneate, oblong, to 0.2 mm long, minutely pubescent, the body thick, oblong, rounded, connate to the base of the column, the appendix thick, oblong, pubescent; column cylindrical, to 1.2 mm long, the anther dorsal and the stigma subapical. Pollinia two, ovoid, basally filiform. Anther cap, triangular, cucullate.

PARATYPE Costa Rica. Límite entre Limón y Puntarenas: Talamanca-Buenos Aires, Bratsi-Potrero Grande, Parque Internacional La Amistad, Sector Altamira, sendero al Valle del Silencio, Cerro Hoffman, sobre la divisoria de aguas, 9°05'38.2"N, 82°58'37.73"W, 2553 m, bosque pluvial montano, 14

agosto 2012, D. Bogarín et al. 9778 (CR, USJ, JBL-spirit).

DISTRIBUTION Only known from the southern Cordillera de Talamanca in Costa Rica. It is probably found in western Panama as a population was found very close to the boundary.

HABITAT AND ECOLOGY Epiphytic in primary and secondary forest in montane wet forest.

ETYMOLOGY Named after the Cordillera de Talamanca between Costa Rica and Panama, where many new species of *Lepanthes* have been discovered.

PHENOLOGY Flowers through the year but mostly from May to December.

DISCUSSION This species belongs to the *Lepanthes disticha* complex characterized by the erect ramicauls with blackish, amplexent lepanthiform sheaths with narrow ostia and the coriaceous, ovate, acute to acuminate leaves. Although similar in habit to *L. stenorhyncha*, *L. talamancana* can be recognized by the narrowly elliptic to elliptic leaves (rather than ovate), the narrowly ovate sepals (rather than ovate), the petals with the upper lobe oblique ovate to oblong, the lower lobe narrowly ovate to narrowly oblong, acute, falcate, glabrous (rather than the upper lobe triangular, obtuse, the lower lobe triangular, acute, pubescent), the lip with the blades ovate to oblong (rather than the lip with the narrow, incurved blades flanking the column) and the thick, oblong, pubescent appendix (rather than minute, pedunculate; Luer 1995). In habit and flower morphology, *L. talamancana* is also similar to *Lepanthes tachirensis* Foldats; however, it can be recognized mainly by the entire sepals (rather than denticulate), the upper lobe of the petals ovate to oblong, rounded (rather than oblong-subtruncate with a prominent fingerlike lobule) and the blades of the lip ovate to oblong (rather than narrowly elliptical). Another closely

allied species may be *Lepanthes eciliata* Schltr., described from western Panama (Schlechter 1913). However, it differs by the narrowly ovate to elliptic, acute, divaricate sepals (rather than ovate, slightly acuminate, not divaricate); the petals with the lobes unequal (rather than equal), the overlapping upper lobes (rather than not overlapping each other) and the falcate lower lobe (rather than straight, oblong).

Lepanthes utyumii Bogarín & D. Jiménez, spec. nov.

TYPE Costa Rica. Puntarenas: Buenos Aires, Buenos Aires, Olán, de la falda noreste del Cerro Tinuk hacia la falda sureste de Cerros Utyum, 9°17'37.1"N, 83°09'40.1"W, 2624 m, bosque pluvial montano bajo, epífitas en bosque primario, 26 julio 2012, D. Bogarín 9749, E. Herrera, D. Jiménez, A. Karremans & V.H. Zúñiga (holotype, JBL).

DIAGNOSIS *Lepanthes utyumii* is more closely allied to *Lepanthes selliana* Endrés ex Luer, from which it can be easily distinguished by the entire sepals, the entire, glabrous petals with the upper lobe oblong and the glabrous lip blades. The appendix is thick, oblong-ovate, folded downward, pubescent and conspicuous.

Plant epiphytic, caespitose, erect or suberect, up to 5.5 cm tall. Roots slender, flexuous, to 1 mm in diameter. Ramicauls slender, erect, 1.3–2.7 cm long, enclosed by 6–9 minutely ciliate, lepanthiform sheaths, the ostia minutely ciliate, ovate, acuminate and slightly dilated. Leaves subcoriaceous, ovate to elliptic, acute or subacuminate, emarginate, with a short apiculus, 2.1–2.4 × 0.7–0.9 cm, the rounded base narrowing into a petiole less than 3 mm long, with purple beneath and along the margins. Inflorescence racemose, distichous, glabrous, successively flowered, developed above the leaf, shorter or as long as the leaves,

up to 1.2 cm long, peduncle 8 mm long, rachis 4 mm long. Floral bracts ovate, acuminate, conduplicate, membranaceous, 1.3 mm long, muriculate. Pedicels 1.8 mm long, persistent. Ovary to 1.5 mm long, glabrous. Flowers with yellow sepals, the petals yellow with the inner margin stained with red or pink, the column pinkish-red, basally white. Dorsal sepal ovate, acute, entire, dorsally with three keels, connate to the lateral sepals for about 1.3 mm, 3.7×3.2 mm. Lateral sepals ovate, acute, entire, dorsally with three keels, connate for 1.3 mm, 3.7×2.2 mm. Petals transversely bilobed, entire, 1.0×2.7 mm, the upper lobe oblong-ovate, obtuse, the lower ovate, subacute or obtuse, smaller than the upper lobe. Lip bilobate, adnate to the column, 1.6×1.8 mm, the blades ovate to oblong with rounded ciliolate ends, embracing the column 1.6×0.5 mm, the connectives cuneate, oblong, to 0.5 mm long, the body thick, subquadrate, rounded, connate to the base of the column, the appendix thick, ovate, folded downward, pubescent, conspicuous. Column cylindric, to 1.5 mm long, truncate, the anther apical and the stigma ventral. Pollinia two, ovoid, basally filiform. Anther cap obovate, cucullate.

PARATYPE Puntarenas: Buenos Aires, Buenos Aires, Reserva Biológica Durika, sector Bosque Perfecto, $9^{\circ}19'5.20''N$, $83^{\circ}12'24.97''W$, 2485 m, epífitas en bosque primario, inventit D. Jiménez, E. García et P. Aratoun, floreció en cultivo en el Jardín Botánico Lankester, 13 abril 2011, D. Jiménez sub D. Bogarín 8616 (JBL).

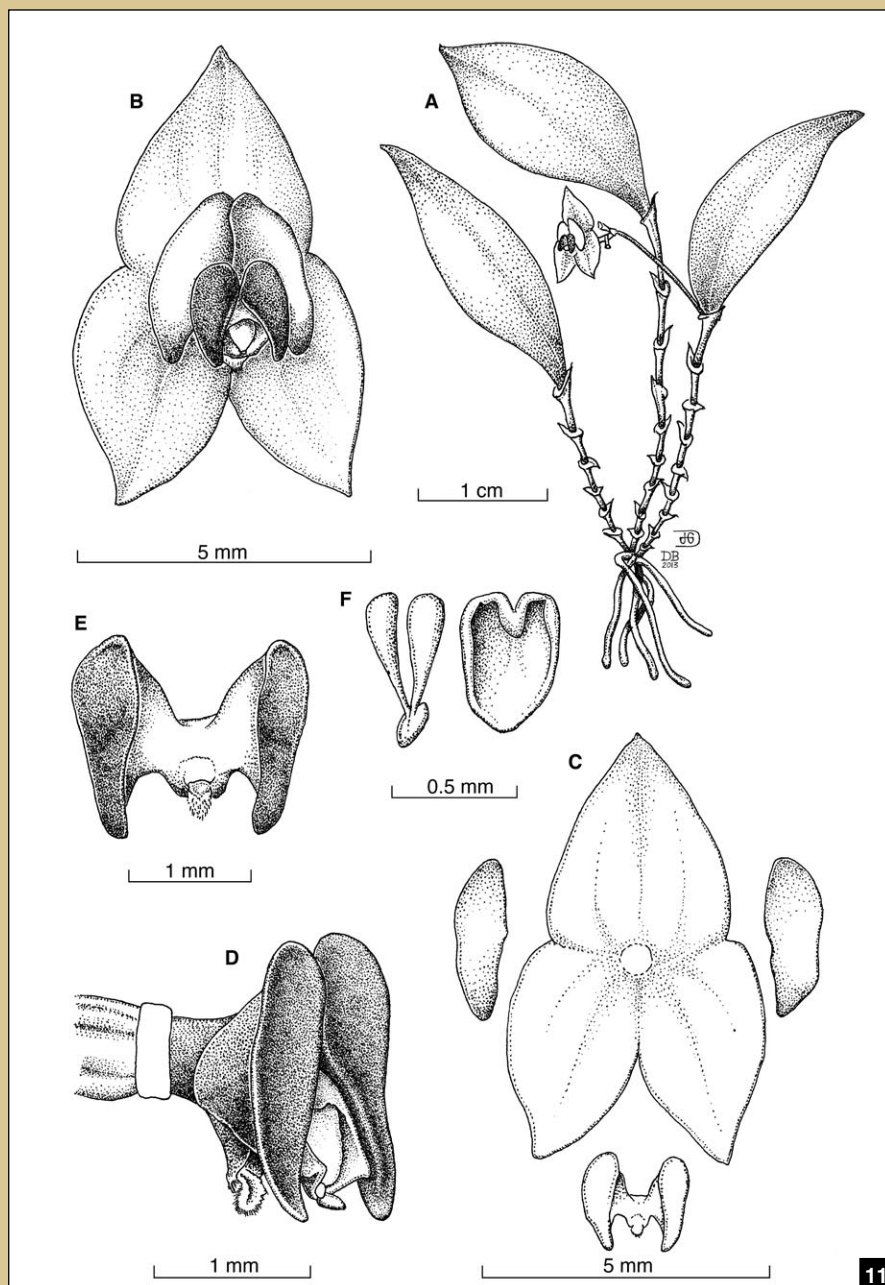
DISTRIBUTION Known only from Cerro Arbolado, Cerros Utyum and Cerro Tinuk on the Pacific watershed of the Cordillera de Talamanca, Costa Rica.

ETYMOLOGY Named after the area of Cerros Utyum in the Cordillera de Talamanca, the type locality of this species. The name comes from the native Bribri language and it is derived from *Ūyōm: ù* (home) and *yōm*, which is a word for onryms.

HABITAT AND ECOLOGY Epiphytic in lower montane wet forest on small branches and lower tree trunks in shady condition at around 7,900–8,500 feet (2,400–2,600 m) above sea level.

PHENOLOGY Plants flower through the year but mainly from June to December.

DISCUSSION *Lepanthes utyumii* is more closely allied to *L. selliana* Endrés ex Luer, from which it can be easily distinguished by the entire sepals (rather than denticulate), the entire, glabrous petals with the upper lobe oblong (rather



[10] Flower morphology of *Lepanthes utyumii*. A — D. Bogarín 9749. B — D. Bogarín 9778. C — D. Jiménez sub Bogarín 8616.

[11] *Lepanthes utyumii* Bogarín & D. Jiménez. A — Habit. B — Flower. C — Perianth flatten. D — Column and lip, lateral view. E — Lip, spread. F — Pollinarium and anther cap. Drawings by D. Bogarín and D. Jiménez from the paratype.

than ciliate, pubescent with the upper lobe oblong), the glabrous lip blades (rather than pubescent). The appendix is thick, oblong-ovate, folded downward, pubescent and conspicuous (rather than minute, inconspicuous; Luer 1995).

Among the new species discovered at Durika Biological Reserve we found *Lepanthes antilocapra* Luer, a species described from Panama. It is illustrated here for the first time based on Costa Rican material. It is known in Costa Rica from two localities in the Cordillera de Talamanca:

Lepanthes antilocapra Luer & Dressler, *Orquideología* 16(3): 15–17, 25–26. 1986.

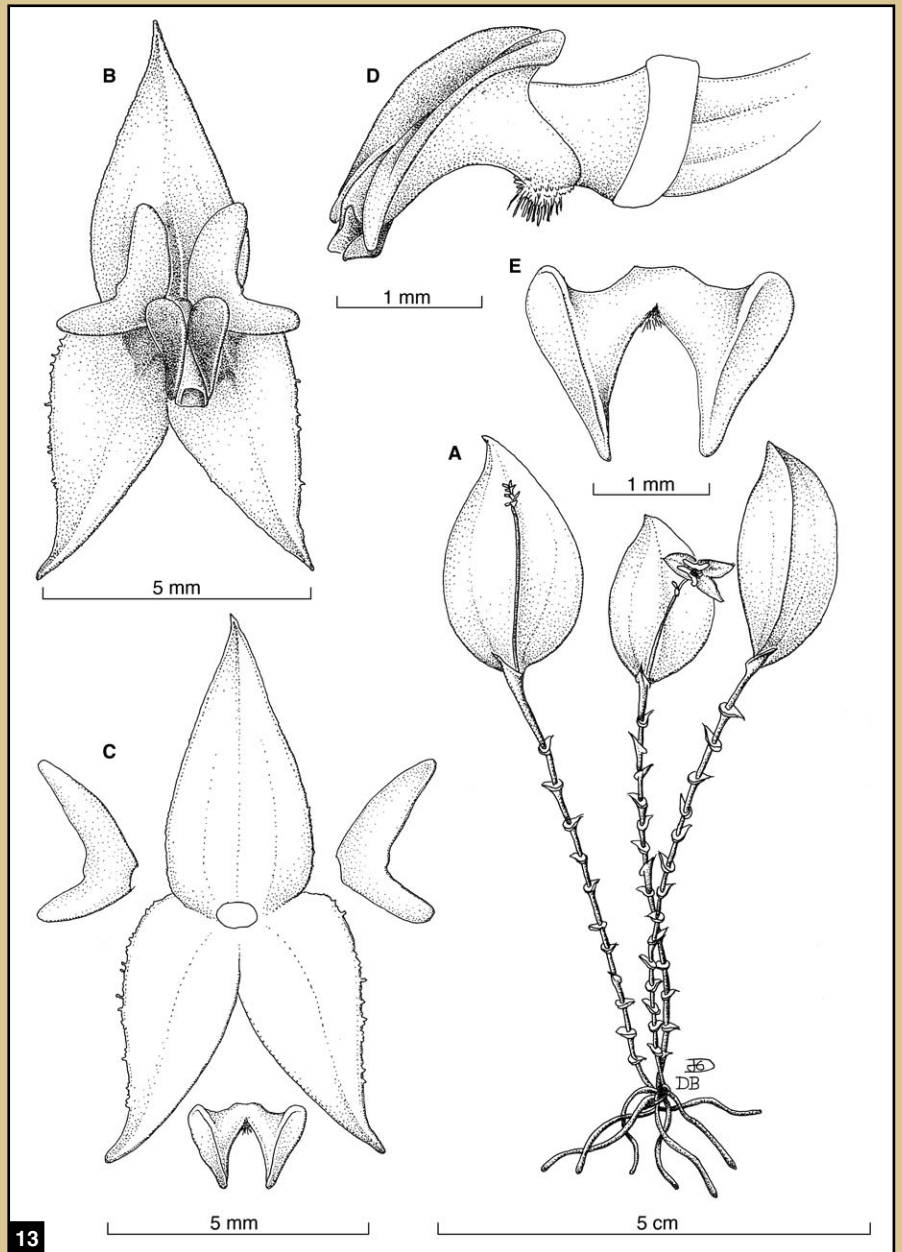
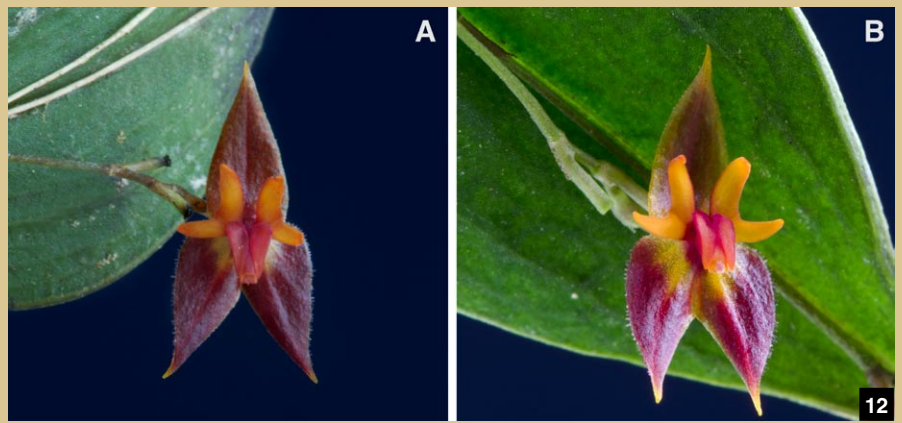
TYPE Panama. Prov. of Chiriquí: epiphytic in cloud forest on Cerro Colorado, alt. 1750 m, 15 February 1985, C. Luer, J. Luer, R.L. Dressler & K. Dressler 10544 (Holotype, MO).

ETYMOLOGY Named after the resemblance of the petals to the horns of the North American pronghorn antelope (*Antilocapra americana*).

HABITAT IN COSTA RICA Epiphytic in lower montane wet forest at around 8,200 feet (2,500 m) on the Pacific watershed of the Cordillera de Talamanca.

PHENOLOGY Plants were recorded in flower in January to July.

Costa Rican material studied: Costa Rica. Puntarenas: Buenos Aires, Buenos Aires, Reserva Biológica Durika, sector Bosque Perfecto, 9°19'5.20"N, 83°12'24.97"W, 2485 m, epifitas, invent Daniel Jiménez, Eugenio García, Wiel Driessen, Piet Dubbeldam, Frank Nass, Joost Riksen et Ed Schmidt. Floreció en cultivo de D. Matamoros, 6 julio 2012, D. Bogarín 9697 (JBL). Puntarenas: Coto Brus, Sabalito, Zona Protectora Las Tablas, 13 km al noreste de Lucha, Sitio Coto Brus, Finca de la familia Sandí-Hartmann, camino hacia la fontera Costa Rica-Panamá, 8°57'15.5"N, 82°43'50.6"W, 2147 m, recolectada por D. Jiménez s.n., 6 mayo 2013, D. Bogarín 10136 (JBL). Puntarenas-Bocas del Toro: Coto Brus-Valle del Risco, línea fronteriza sobre la divisoria de aguas ingresando por el camino de la Finca Sandí-Hartmann "El Capricho", 8°57'12.34"N, 82°43'32.69"W, 2154 m, bosque pluvial montano bajo, 11 diciembre 2013, D. Bogarín 10743 (JBL). Puntarenas-Bocas del Toro: Coto Brus-Valle del Risco, línea fronteriza sobre la divisoria de aguas ingresando por el camino de la Finca Sandí-Hartmann "El Capricho", alrededores de riachuelo,



[12] Flower morphology of *Lepanthes antilocapra*. A — D. Bogarín 9697. B — D. D. Bogarín 10743

[13] *Lepanthes antilocapra* Luer & Dressler. A — Habit. B — Flower. C — Perianth flatten. D — Lip, spread. E — Column and lip, lateral view. Drawings by D. Bogarín and D. Jiménez from D. Bogarín 9697.



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[14] *Lepanthes durikaensis* Pupulin & Bogarín was the first new species found at the Durika Biological Reserve. Photograph by Daniel Jiménez.

8°57'14"N, 82°43'39"W, 2107 m, bosque pluvial montano bajo, 11 diciembre 2013, M. Fernández et al. 819 (JBL).

DISCUSSION Among the species of *Lepanthes* from Costa Rica, *L. antilocapra* is easily distinguished by the erect plants with subcoriaceous purplish green leaves, the inflorescences displayed above the leaves and shorter than the leaves, the denticulate sepals and the peculiar shape of the petals, which are forked, with both lobes pointing upward, the upper lobe larger than the lower lobe (Luer and Dressler 1986).

During the revision of the *Lepanthes guatemalensis* group in Costa Rica (Pupulin and Bogarín 2014), to which *Lepanthes edwardsii* Ames, *Lepanthes guanacastensis* Ames & C. Schweinf., *Lepanthes ruberrima* Pupulin and *Lepanthes schugii* Pupulin belong, a new species similar to *L. edwardsii* was found at Durika. It was named *Lepanthes durikaensis* Bogarín & Pupulin after the region of Durika in Talamanca, Costa Rica (Pupulin and Bogarín 2014).

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