

## NEW PLEUROTHALLID ORCHIDS FROM THE CORDILLERA DEL CONDOR OF ECUADOR

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**ABSTRACT:** Recent expeditions to the Cordillera del Condor in southeastern Ecuador have uncovered three new species of Orchidaceae, subtribe Pleurothallidinae. *Brachionidium condorense* L.J. Jost, *B. deflexum* L.J. Jost, and *Lepanthes neillii* L.J. Jost are described. The overall species composition of the primarily epiphytic genus *Lepanthes* in the Cordillera del Condor is similar to that of other front-line foothill ranges in the eastern Andes of Ecuador. The species composition of primarily terrestrial *Brachionidium*, on the other hand, appears to be unusual and distinctive.

**Key words:** *Brachionidium*, *Lepanthes*, *condorense*, *deflexum*, *neillii*, Ecuador

### INTRODUCTION

The Cordillera del Condor is a remote mountain range on the border between Ecuador and Peru. The highest peaks of this range reach elevations of 2900 m, and these are separated from similar elevations in the main body of the Andes by the 40 km wide valley of the Rio Zamora. The peaks are not only geographically isolated but also geologically unique in Ecuador, consisting of a complex mosaic of white sand, limestone, and granite, very different from the primarily volcanic Andes. Because of this isolation and unusual geology, the Cordillera del Condor supports an unusual flora, including several disjunct genera otherwise found only on Venezuelan tepuis (D. Neill pers. comm.). The flora remains poorly known in spite of its biological interest, because the area has long been the focus of border conflicts between Ecuador and Peru, and entry was restricted. Since the signing of a peace treaty in the year 2000, the Missouri Botanical Garden Cordillera del Condor Project, under David Neill, director of the Herbario Nacional del Ecuador (QCNE), has undertaken a thorough study of the area.

The author accompanied Neill and other botanists on two of the project's expeditions. The first expedition, in March 2000, reached a white sand mesa at an elevation of 2000 m near the Shuar settlement of Tinkimints. The second expedition, in December 2002, reached high granite peaks at an elevation of 2700 m. Both expeditions resulted in the discovery of new Orchidaceae, including *Maxillaria jostii* Dodson (Dodson 2003) and the following three new species in the subtribe Pleurothallidinae.

### NEW SPECIES

***Brachionidium condorense*** L.J. Jost, sp. nov.

TYPE: Ecuador. Prov. Morona-Santiago: ter-

restrial on mountaintop above Warints, Cordillera del Condor, 3°15'24"S, 78°19'10"W, ca. 2700 m, 15 Dec. 2002, L. Jost, D. Neill, J. Clark, W. Quishpe et al. 4686 (Holotype: QCNE). 

Planta mediocris erecta rhizomate crasso vaginis longimucronatis, foliis ellipticis, flore atropurpureo cupuliformi, sepalis petalisque ciliatis, synsepalo superiore profunde concavo bicaudato, sepalo impare caudato, petalis longicaudatis, labello transverse obovato, lobis lateralibus planiformibus incurvis, apice obtuso apiculato, marginibus ambis concavis, disco incrassato cum callo pubescenti supra basem.

**Plant** small in size, terrestrial, suberect to erect, up to 11 cm tall; rhizome relatively stout, occasionally branching, 10–12 mm long between ramicauls, enclosed by 2–3 pale, tubular, long-mucronate muriculate sheaths; roots stout; ramicauls relatively stout, suberect, 4–5 mm long, enclosed by 2 long-mucronate pale sheaths. **Leaf** suberect, thickly coriaceous, ovate to lanceolate, acute, olive green above, purple below, 15–18 mm long, 7–8 mm wide, with 7 veins, the round base contracted into a stout petiole 0.5 mm long. **Inflorescence** a solitary, non-resupinate flower born by a slender suberect peduncle 20 mm long, with a bract near the middle, from near the apex of the ramicaul; floral bract 4.5 mm long, inflated, acute, mucronate, enclosing the pedicel and part of the ovary; pedicel 0.6 mm long, with a filament 6 mm long; ovary 2.3 mm long. **Sepals** purple with green bases and yellow tips, ciliate, the dorsal sepal elliptical, acute, long-acuminate, the blade 7 mm long, 6 mm wide, 3-veined, the tail filiform, 4 mm long; lateral sepals connate into an ovate, acute, long-acuminate synsepal, the blade 8 mm long, 7 mm wide, 5-veined including suture; the filiform connate tails 5 mm long, free for 1.5

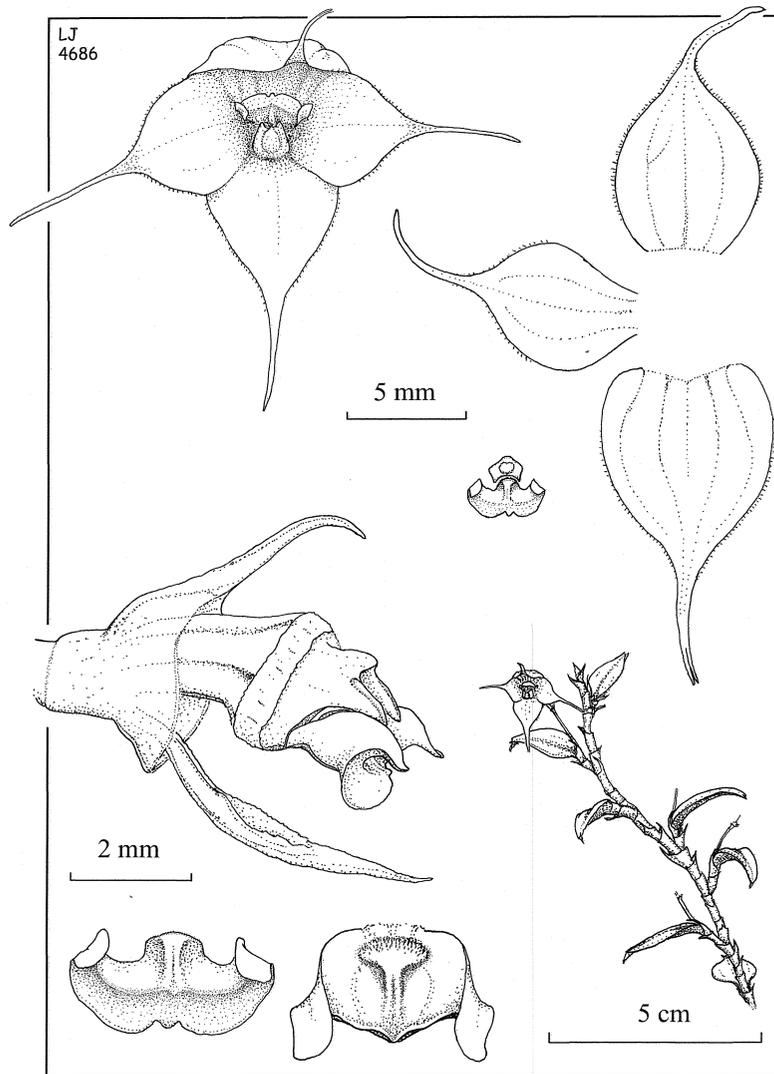


FIGURE 1. *Brachionidium condorense* L.J. Jost.

mm. **Petals** purple, green basally, ovate, subfalcate, acute, acuminate, the blade 7 mm long, 5 mm wide, 3-veined, margins ciliate, abruptly contracted into filiform tails 5 mm long. **Lip** green suffused purple, subquadrate, extended laterally into incurving flattened wings 1.3 mm long, bimarginate, the apex apiculate, 1.9 mm long, about 3.3 mm wide in the natural position, the disc raised, densely long-papillose basally, longitudinally channeled apically, forming two confluent straight parallel longitudinal ridges on the apical half of the lip, hinged to the column foot. **Column** stout, 1.6 mm long, bidentate; pollinia 8.

**Paratype.** ECUADOR. Prov. Morona-Santiago:

terrestrial on mountaintop above Warints, Cordillera del Condor, 3°15'24"S, 78°19'10"W, ca. 2700 m, 15 Dec. 2002, L. Jost, D. Neill, J. Clark, W. Quishpe, et al. 4685 (MO).

**Etymology.** After the Cordillera del Condor, where this species was found, and in allusion to the broad wing-like lobes of the lip.

This species and the next are characterized by thick dark olive green leaves flushed purple below and by purple flowers bearing a cucullate synsepal. Both are superficially similar to sympatric *Brachionidium galeatum* Luer and Hirtz (Luer 1995). *Brachionidium condorense* is easily distinguished by the broad flat incurved lat-

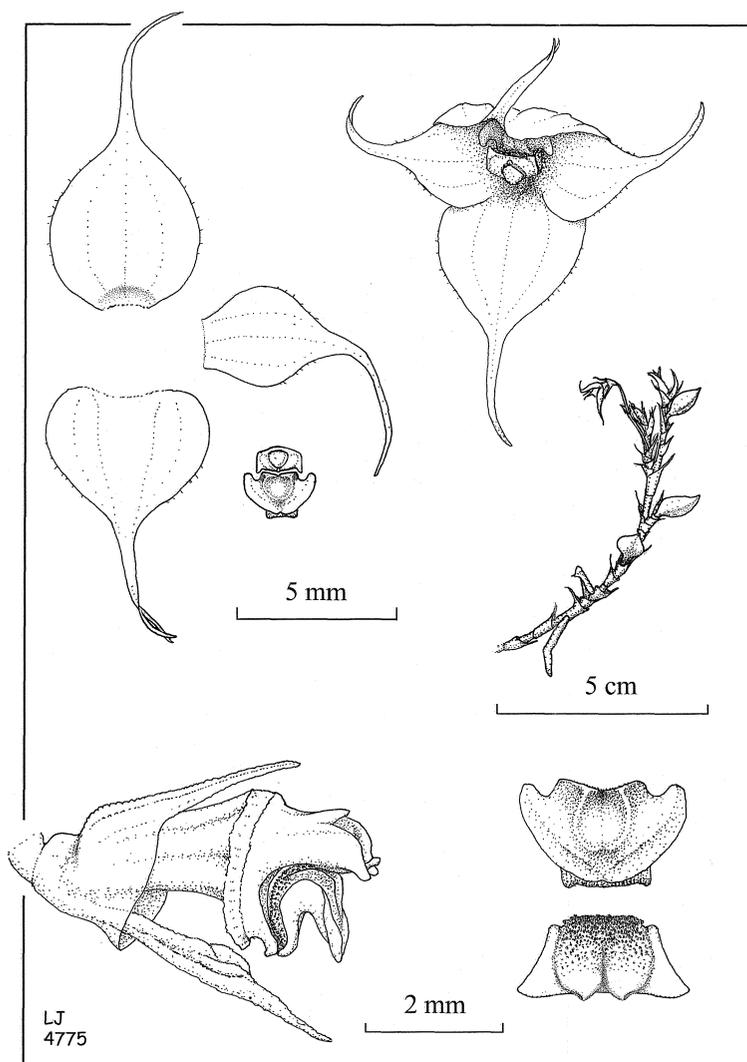


FIGURE 2. *Brachionidium deflexum* L.J. Jost.

eral lobes of the strongly bmarginate lip. A color photo is available on the Internet at [www.loujost.com](http://www.loujost.com).

***Brachionidium deflexum*** L.J. Jost, sp. nov.

TYPE: Ecuador. Prov. Morona-Santiago: terrestrial on mountaintop above Warints, Cordillera del Condor, 3°15'24"S, 78°19'10"W, ca. 2700 m, 15 Dec. 2002, L. Jost, D. Neill, J. Clark, W. Quishpe et al. 4775 (Holotype: QCNE).

FIGURE 2.

A *Brachionidium condorense* cui similis, sed foliis minoribus obovatis et labello ovato deflexo bmarginato sine lobis planiformibus cum callo basali papilloso differt.

**Plant** small in size, terrestrial, erect, up to 10

cm tall; rhizome relatively stout, occasionally branching, 10–12 mm long between ramicauls, enclosed by 3–4 pale, inflated, tubular, long-mucronate, muriculate sheaths 5 mm in total length; roots stout. **Ramicauls** relatively stout, suberect, 2–3 mm long, enclosed by 2 long-mucronate muriculate sheaths. **Leaf** suberect, thickly coriaceous, ovate, acute, olive green above, purple below, 8–10 mm long, 6 mm wide, 7-veined, the round base contracted into a stout petiole 1 mm long. **Inflorescence** a solitary, nonresupinate flower born by a slender suberect peduncle 18 mm long, with a bract near the middle, from near the middle of the ramicaul; floral bract 4 mm total length, inflated, acute, mucronate, enclosing the pedicel and part of the ovary; pedicel

0.6 mm long, with a filament 4 mm long; ovary 2 mm long. *Sepals* purple, sparsely ciliate, the dorsal sepal elliptical-ovate, acute, long-acuminate, the blade 5 mm long, 4.6 mm wide, 3-veined, with a shallow mentum, the tail filiform, 4 mm long; lateral sepals connate into an ovate, acute, long-acuminate synsepal, the blade 4 mm long, 5 mm wide, 4-veined; the filiform connate tails 4.2 mm long, free for 1.8 mm. *Petals* purple, ciliate, ovate, acute, acuminate, the blade 4 mm long, 3 mm wide, 3-veined, abruptly contracted into filiform tails 4 mm long. *Lip* purple, broadly lingulate, completely deflexed above the middle, bimarginate, the apex rounded, 3–4 mm long, 2.4 mm wide, the disc raised, densely long-papillose basally, longitudinally channeled apically, forming two incurved ridges on the apical third of the lip, with a small depression between the terminus of the ridges and the apex of the lip, hinged to the column foot. *Column* stout, 1.8 mm long, bidentate; pollinia 8.

**Etymology.** From the Latin *deflexum*, “deflexed,” the name is in reference to the sharply deflexed lip.

This species, with its leathery dark olive leaves flushed purple below, and with purple flowers bearing a somewhat cucullate synsepal, closely resembles *Brachionidium condorensis*, though all parts are smaller. The lip, however, is very different, being completely deflexed at the middle, and without the long flat incurved lobes of *B. condorensis*. The large basal callus is densely papillose. Only one plant was found in flower.

**Lepanthes neillii** L.J. Jost, sp. nov. TYPE: Ecuador. Prov. Morona-Santiago: flowered in cultivation by L. Jost in Dec. 2001; epiphytic in cloud forest above Tinkimints, 3°16'W, 78°10'S, 2000 m, 21 Mar. 2000, L. Jost, D. Neill, P. Berry, J. Manzanares, B. Patterson, E. Escobar 3154 (Holotype: QCNE; Isotypes: MO, QCA). FIGURE 3.

Planta mediocris caespitosa, foliis ellipticis, inflorescentia racemosa laxa, floribus longipedicellatis, sepalis lateralibus ovatis tenuicaudatis, petalis transverse bilobis, lobo superiore oblongo apice oblique obtuso, lobo inferiore triangulare, labellorum laminis subquadratis grandibus, connectivis late cuneatis, corpore crasso antice concavo, appendice bilobata, columna ovarioque cristatis.

**Plant** small in size, epiphytic, caespitose; roots slender. **Ramicauls** slender, erect, 2–6 cm long, enclosed by 4–8 tightly fitting, ciliate, lepanthiform sheaths, purplish when fresh, drying light tan. **Leaf** erect, thinly coriaceous, elliptical, acute, 2.5–3 cm long, 0.7–0.9 cm wide, the tapering base contracted into a petiole 1 mm long.

**Inflorescence** a loose, lightly flexuous, successively 2–10 flowered raceme up to 3 cm long, borne below the leaf by a minute peduncle up to 2 mm long; floral bract ca. 0.6 mm long; pedicel ca. 0.7 mm long; ovary 0.8 mm long, carinate. *Sepals* yellow, the dorsal sepal ovate, 3.5 mm long, 2.5 mm wide, the apex prolonged into a tail 2.5–3.5 mm long, connate to the lateral sepals for 0.6 mm, the lateral sepals oblique, ovate, 3.5 mm long, 2.5 mm wide, connate 1.5–2 mm, the apices prolonged into tails 4–5 mm long. *Petals* yellow, heavily suffused with red, transversely bilobed, minutely pubescent, 1 mm long, 3 mm wide, the upper lobe triangular-oblong, apex rounded, the lower lobe shorter, triangular, rounded. *Lip* red, bilaminar, the blades broadly subquadrate with rounded apices, 1 mm long, short-pubescent, embracing the column, the connectives thin, nearly as long as blades, the body narrow, the appendix a small bilobed flap, pubescent. *Column* 1.3 mm long, with an apical crest, the anther dorsal, the stigma ventral.

**Etymology.** The species is named after David Neill, director of the Herbario Nacional del Ecuador and leader of its Cordillera del Condor expeditions.

This species from a white sand region of the Cordillera del Condor is easily distinguished from all other Ecuadorian species (Luer 1994, 1996, 1998a, 1999, 2000, 2002) by the combination of the loose inflorescence, ornately crested column and ovary, broad wing-like blades of the lip, and long sepaline tails. It appears to have no close relatives. Only one plant was found in spite of extensive searching, and it was flowered in cultivation. A color photo is available on the Internet at [www.loujost.com](http://www.loujost.com).

## DISCUSSION

The *Lepanthes* diversity of the high Cordillera del Condor is less than that of similar elevations in the main body of the eastern Andes. In addition to the presently described *L. neillii*, species found during the expeditions include the following: *L. bifalcis* Luer, *L. condorensis* Luer and Hirtz, *L. monitor* Luer, *L. mucronata* Lindl., *L. orchestris* Luer and Vasquez, *L. papyrophylla* Rchb. f., *L. serialina* Luer and Jost, *L. series* Luer and Hirtz, *L. surrogata* Luer and Hirtz, *L. tachirensis* Foldats, and *L. tectorum* Luer and Hirtz. Most of these species also are found on the main body of the eastern Andes of Ecuador, on foothill ranges such as the Cordillera Guacamayos (Napo Province) or the Cordillera Abitagua (Tungurahua and Pastaza provinces). The geographic isolation of the Cordillera del Condor appears to be an insignificant impediment to

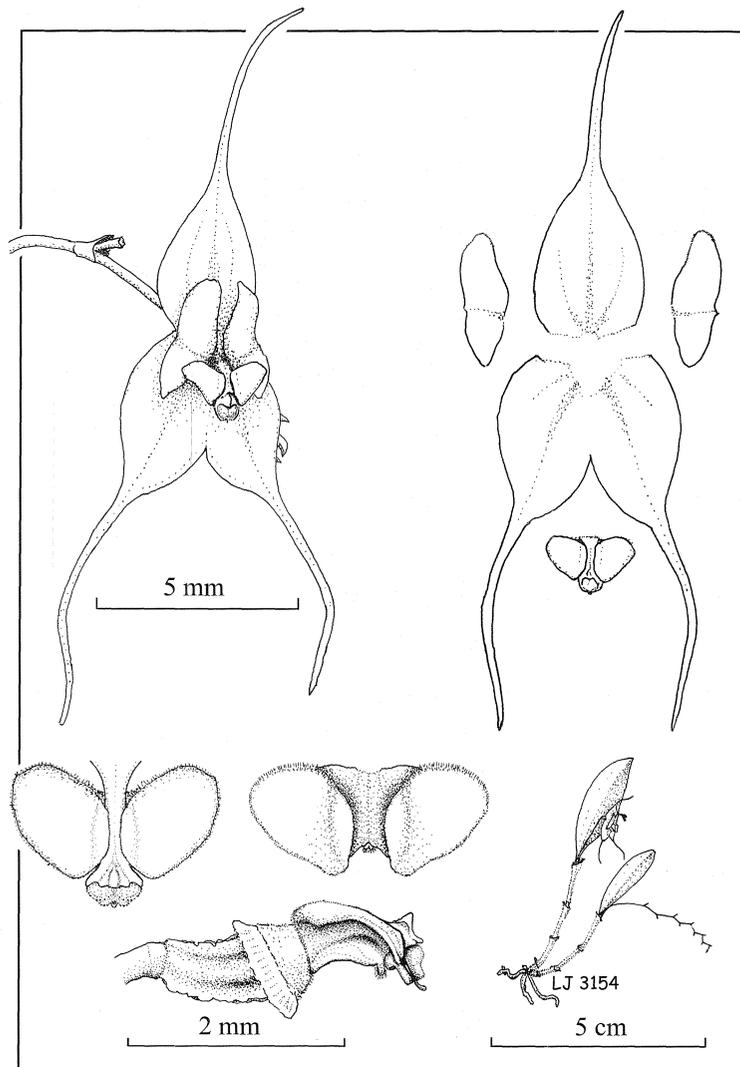


FIGURE 3. *Lepanthes neillii* L.J. Jost.

the dispersal of orchid seeds. With respect to *Lepanthes*, a mostly epiphytic genus, the Cordillera del Condor appears to be just another eastern foothill range, though bigger than most. One suspects that *L. neillii* eventually will be found outside the Cordillera del Condor; sampling of this genus is very incomplete in eastern Ecuador.

On the other hand, the diversity of the primarily terrestrial genus *Brachionidium* on the 2700 m peak of the Cordillera del Condor is exceptionally high, including *B. ballatrix* Luer and Hirtz, *B. galeatum*, *B. condorense*, *B. deflexum*, and an as yet unidentified fifth species represented by a sterile collection in cultivation.

The unusual geology of the Condor may facilitate the evolution of endemic species in such terrestrial genera. Note that the new *Maxillaria* found during these expeditions, *M. jostii* Dodson, is also a terrestrial species.

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