## ICONES PLEUROTHALLIDINARUM XXXI

## LEPANTHES OF BOLIVIA

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## SYSTEMATICS OF OCTOMERIA

 SPECIES NORTH AND WEST OF BRAZILADDENDA: New Species of Brachionidium, Lepanthes, Masdevallia, Octomeria, Platystele, Pleurothallopsis, and Porroglossum. CORRIGENDA.

Carlyle A. Luer


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Missouri Botanical Garden

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Lepanthes serriola Luer \& R.Vásquez, Province of Cochabamba, Bolivia, 2650 meters above sea level, September 1996, photo by Roberto Vásquez Ch.

# THE GENUS LEPANTHES Sw. IN BOLIVIA (ORCHIDACEAE) 

Carlyle A. Luer
Lisa Thoerle


#### Abstract

Following a brief history and discussion of the genus Lepanthes Sw. in Bolivia, the 67 currently known species are described and illustrated with black and white line drawings.


New species:
Lepanthes altamiranoi Luer
Lepanthes crescentiformis Luer
Lepanthes croatii Luer
Lepanthes microphallica Luer
Lepanthes schoonenii Luer
New typifications:
Lepanthes rupicola Schltr.
Lepanthes sillarensis Schltr.

Lepanthes subgen. Lepanthes sect. Lepanthes is represented in Bolivia by three subsections:
Lepanthes subgen. Lepanthes sect. Lepanthes subsect. Lepanthes Type: Lepanthes ovalis (Sw.) Fawcett \& Rendle.
Lepanthes subgen. Lepanthes sect. Lepanthes subsect. Bilabiatae Luer Type: Lepanthes bifalcis Luer
Lepanthes subgen. Lepanthes sect. Lepanthes subsect. Breves (Luer) Luer Type: Lepanthes monoptera Lindl.
Lepanthes Sw. consists of over 800 species distributed from southern Mexico and the Antilles through the Andes into Bolivia, with the greatest concentration in the Andes of Colombia and Ecuador, each with over 300 species. Although the genus is poorly known in Peru, the number there must also be great. The Andes of Bolivia is the southernmost range of the genus, with 67 knowm species in the narrow strip of humid forest that stretches from Peru to central Bolivia along the eastern edge of the Andes between the páramo and the hot lowlands. Very few species of Lepanthes are known from the Amazonian lowlands, and none from farther south in Brazil and its southern neighbors. Although several species are widely distributed, most species are local and endemic. Most species currently known from Bolivia are endemic.


Fig. 1. Political Map of Bolivia


Fig. 2. Physical Map of Bolivia

The first species of Lepanthes to be reported from Bolivia was L. paivana, described by Reichenbach in 1881, although several species that have been subsequently found in Bolivia were previously described from other countries. Species described earlier, but only later attributed to Bolivia, include Reichenbach's $L$. ionoptera and $L$. wageneri, both based on specimens from the Eastern Cordillera of Colombia; L. helicocephala from Suriname; and Lindley's ubiquitous L. mucrona$t a$, originally described from an Ecuadorian collection. Schlechter published the next two Bolivian species, Lepanthes rupicola and L. sillarensis, in 1913 from collections made by Herzog. In 1922, Schlechter published the first list of the known species of Lepanthes from Bolivia, a meager four species: Reichenbach's $L$. paivana, his two of 1913, and an unidentified species erroneously attributed to the Jamaican L. tridentata Sw. by Kränzlin. Schlechter omitted Draconanthes aberrans (Schltr.) Luer, originally published as Lepanthes aberrans in 1915.

The majority of the 67 species presently known from Bolivia were published during the final quarter of the twentieth century, and fall into all three of the subsections defined in section Lepanthes: Bilabiatae Luer with lateral sepals connate, Breves Luer, with lateral sepals single-veined, and Lepanthes with lateral sepals two- or three-veined. The Bolivian species present a different pattern of characteristics from those of Ecuador and Colombia. The 24 species of subsection Breves, a surprisingly large number, comprise more than one-third of the known Bolivian species as opposed to about one-tenth for Ecuador and Colombia. Thirteen species of subsection Breves have plicate or involute lateral sepals, differing from those with the usual flat or recurved margins. Plicate lateral sepals also appear in the Bolivian $L$. incredibilis Luer \& R.Vásquez, a species with two-veined lateral sepals. A few species with plicate lateral sepals occur outside Bolivia, one being the Ecuadorian L. hystrix Luer \& Hirtz.


Fig. 3. Lateral sepals of the three subsections.

A detailed description and illustrations of the vegatative and floral morphology of the genus have been published in Systematics of Lepanthes of Ecuador in Icones XIV. Several series defined in this earlier publication are reduced to synonymy here. With the consideration of Lepanthes in several additional Andean countries, it is evident that the features defining these series are distributed throughout the genus, and maintaining these series is untenable.

# Illustrations of species of Lepanthes attributed to Bolivia. <br> Names in boldface indicate an accepted name; names in italics are synonyms. 

Fig. 1. Lepanthes acarina Luer
Fig. 2. Lepanthes altamiranoi Luer
Fig. 3. Lepanthes alticola C.Schweinf.
Fig. 4. Lepanthes auriculata Luer
Fig. 5. Lepanthes barbatula Luer \& R.Vásquez
Fig. 6. Lepanthes bifalcis Luer
Fig. 7. Lepanthes branchifera Luer \& R.Vásquez
Fig. 8. Lepanthes brevis Luer \& R.Vásquez
Fig. 9. Lepanthes calyptrata Luer \& Hirtz
Fig. 10. Lepanthes caudatisepala C.Schweinf.
Fig. 11. Lepanthes ciliolata Luer \& R.Vásquez
Fig. 12. Lepanthes cochliops Luer \& R.Vásquez
Fig, 13. Lepanthes complicata Luer \& R.Vásquez
Fig. 14. Lepanthes crescentiformis Luer
Fig. 15a. Lepanthes crista-piscis Luer \& R.Vásquez
Fig. 15b. Lepanthes crista-piscis Luer \& R.Vásquez
Fig. 16. Lepanthes croatii Luer
Fig. 17. Lepanthes dictyota Luer \& R.Vásquez
Fig. 18. Lepanthes doloma Luer \& R.Vásquez
Fig. 19. Lepanthes echidna Luer \& R.Vásquez
Fig. 20. Lepanthes epibator Luer \& R.Vásquez
Fig. 21. Lepanthes falcata Luer \& R.Vásquez
Fig. 22. Lepanthes fuchsii Luer
Fig. 23. Lepanthes garayi T. Hashim.
Fig. 24. Lepanthes glaberrima Luer \& R.Vásquez
Fig. 25. Lepanthes hastata Luer \& Hirtz
Fig. 26. Lepanthes helicocephala Rchb.f.
Fig. 27. Lepanthes herzogii Luer
Fig. 28. Lepanthes incisa Luer \& R.Vásquez
Fig. 29. Lepanthes incredibilis Luer \& R.Vásquez
Fig. 30. Lepanthes ionoptera Rchb.f.
Lepanthes ligulata Luer \& Hirtz = L. sillarensis
Fig. 31. Lepanthes llipiënsis Luer \& Hirtz
Fig. 32. Lepanthes longipedicellata C.Schweinf.
Fig. 33. Lepanthes megalocephala Luer \&

Fig. 34. Lepanthes megalostele Luer
Fig. 35. Lepanthes menatoi Luer \& R.Vásquez
Fig. 36. Lepanthes microphallica Luer
Fig. 37. Lepanthes miraculum Luer \& R.Vásquez
Fig. 38. Lepanthes monitor Luer
Fig. 39. Lepanthes monoptera Lindl.
Fig. 40. Lepanthes mucronata Lindl.
Fig. 41. Lepanthes nebulina Luer \& R.Vásquez
Fig. 42. Lepanthes nycteris Luer \& R.Vásquez
Fig. 43. Lepanthes orchestris Luer \& R.Vásquez
Fig. 44. Lepanthes oxyphylla Luer \& R.Vásquez
Fig. 45. Lepanthes paivana Rchb.f.
Fig. 46. Lepanthes panicellus Luer \& R.Vásquez
Fig. 47. Lepanthes panisca Luer \& R.Vásquez
Fig. 48. Lepanthes papilio Luer \& R.Vásquez
Fig. 49. Lepanthes pileata Luer \& R.Vásquez
Fig. 50. Lepanthes pilosa Luer \& R.Vásquez
Fig. 51. Lepanthes profusa Luer \& Hirtz
Fig. 52. Lepanthes ptyxis Luer \& R.Vásquez
Fig. 53. Lepanthes puck Luer \& R.Vásquez
Fig. 54. Lepanthes recurva Luer \& Hirtz
Fig. 55. Lepanthes ringens Luer \& Hirtz
Fig. 56. Lepanthes rupicola Schltr.
Fig. 57. Lepanthes schoonenii Luer
Fig. 58. Lepanthes scolops Luer \& R.Vásquez
Fig. 59. Lepanthes serriola Luer \& R.Vásquez
Fig. 60. Lepanthes sillarensis Schltr.
Fig. 61. Lepanthes usitata Luer \& R.Vásquez
Fig. 62. Lepanthes vasquezii Luer
Fig. 63. Lepanthes versicolor Luer \& R.Vásquez
Fig. 64. Lepanthes vespa Luer \& R.Vásquez
Fig. 65. Lepanthes vogelii Luer \& R.Vásquez
Fig. 66. Lepanthes wageneri Rchb.f.
Fig. 67. Lepanthes zongoënsis Luer \& R.Vásquez

## KEY TO THE SPECIES OF LEPANTHES IN BOLIVIA <br> KEY 1

Lepanthes Sw. subgen. Lepanthes sect. Lepanthes
A Lateral sepals 1-veined, completely connate into a 2-veined synsepal (subsect. Bilabiatae Luer, represented in Bolivia by one species.
..L. bifalcis
A' Lateral sepals not completely connate into a 2-veined synsepal
B Lateral sepals 1-veined (subsect. Breves) KEY 2
B' Lateral sepals 2- to 3-veined (subsect. Lepanthes) KEY 3

KEY 2
Lepanthes Sw. subgen. Lepanthes sect. Lepanthes subsect. Breves Luer
Lateral sepals single-veined
1 Lateral sepals with lateral margins plicate or involute, sometimes only marginally
2 Lateral sepals deeply connate, apices approximate................................ L. pileata
2' Lateral sepals not deeply connate, apices not approximate
3 Lateral sepals deeply plicate, about half the width; petals with upper lobe transversely falcate . L. complicata

3' Lateral sepals not deeply plicate; petals with upper lobe not transversely
falcate

4 Lip with lobes not forming blades
5 Lip with the lobes triangular....................................................... L. schoonenii
5’ Lip with the lobes falcate................................................................ L. falcata
4' Lip with lobes forming blades
6 Lip with the blades long-pubescent................................................L. panisca
6' Lip with the blades not long-pubescent
7 Lip with broad, rounded, protuberant body, with ovate blades not surrounding the column
8 Lip with blades shorter than and not covering the column.........L. ringens
8' Lip with blades as long as and covering the column.....................L. ptyxis
$7^{\prime}$ Lip without a broad, rounded, protuberant body, the semicircular blades
9 Lip with blades shorter than the column, with apices obtuse.......L. scolops
9' Lip with blades as long as the column, with apices acute to falcate
10 Lip with the apices acute, not curving beneath the column.....L. ciliolata
$10^{\prime}$ Lip with the apices falcate, curving beneath the column
11 Pedicels ca. 3 mm long; lateral sepals with apices diverging ca. $90^{\circ}$ from the perpendicular axis. L. longipedicellata
$11^{\prime}$ Pedicels ca. 1.5 mm long; lateral sepals with apices diverging ca. $45^{\circ}$ from the perpendicular axis


1' Lateral sepals with flat margins, neither plicate nor involute
13 Habit prolific.
L. epibator

13' Habit caespitose
14 Raceme loose, longer than the leaf
15 Dorsal sepal round, shortly acuminate, 3 mm long
.L. fuchsii
15' Dorsal sepal ovate, acuminate, 7 mm long....................................L. nebulina
14' Raceme congested, shorter than the leaf
16 Inflorescence recurved
17 Lip with the apex of the blades uncinate, curved beneath the column
L. altamiranoi
17 ' Lip with the apex of the blades rounded, not curved beneath the column....
L. recurva
16' Inflorescence not recurved
18 Dorsal sepal subacute, not acuminate; petals crescent-shaped
$\qquad$L. crescentiformis
18' Dorsal sepal acuminate, acute to obtuse; petals not crescent-shaped
19 Petals with lobes triangular
20 Petals ca. 1 mm long and wide; lateral sepals caudate
L. garayi
20' Petals $3-4 \mathrm{~mm}$ wide; lateral sepals not caudate L. monoptera
19' Petals with lobes oblong, rounded at the ends
21 Lip with connectives narrow. L. paivana
21' Lip with connectives broad
22 Lip with connectives fleshy, the blade indistinctly demarcated....
L. brevis
22' Lip with connectives not fleshy, the blade distinctly demarcated...
L. usitata
KEY 3
Lepanthes Sw. subgen. Lepanthes sect. Lepanthes subsect. Lepanthes
Lateral sepals 2- to 3-veined
1 Inflorescence exceeding the leaf
2 Sepals 1 cm or more long
3 Raceme loosely flowered
4 Dorsal sepal 7-veined, synsepal concave below the middle. L. nycteris
4' Dorsal sepal 3-veined, synsepal not concave below the middle
5 Petals with upper lobe minute, the lower lobe longer than the lip
L. miraculum
5' Petals with upper lobe as large or larger than the lower lobe
6 Leaf ca. 1 cm wide, less than 3 cm long; dorsal sepal slightly concave, 3 mm wide L. ionoptera
6' Leaf ca. 2 cm wide, more than 3.5 cm long; dorsal sepal concave, 6 mm wide L. vasquezii
3' Raceme congested, eventually surpassing the leaf. L. versicolor
2' Sepals less than 1 cm long
7 Dorsal sepal deeply concave, cucullate. L. branchifera
7' Dorsal sepal not cucullate
8 Lateral sepals contracted into tails about as long as the blade9 Habit prolific.L. herzogii
9' Habit caespitose
10 Petals with lobes triangular, about equal in length; column capillary ..... L. pilosa
10' Petals with upper lobe uncinate, the lower lobe minute; column not capillary ..... L. cochliops
8' Lateral sepals acute to acuminate
11 Lateral sepals glabrous with margins smooth
12 Petals oblong with rounded tips; column longer than the blades of the lip ..... L. sillarensis
12 ' Petals with narrowly acuminate, recurving lobes; column not longer than the lip ..... L. barbatula
11' Lateral sepals ciliate or denticulate
13 Raceme densely flowered
14 Leaf less than 2 cm long; petals with upper lobe truncate, the lower lobe triangular L. acarina
14' Leaf more than 2 cm long; petals oblong, rounded at the tips
L. serriola
13' Raceme loosely flowered15 Column elongate, longer than the blades of the lip.L. rupicola
15' Column not longer than the blades of the lip
16 Column capillary L. vespa
16' Column not capillary L. alticola
$1^{\prime}$ Inflorescence shorter than the leaf
17 Sepals ciliate to denticulate
18 Lip with the blades ciliate
19 Leaf reticulate; petals with lobes narrowly triangular; lip with the blades narrow, finely ciliate. ..... L. megalocephala
19' Leaf not reticulate; petals with lobes not narrowly triangular; lip with the blades not narrow and finely ciliate
20 Lip with connectives oblong, longer than the blades, apical margin of blades long-ciliate L. doloma
20' Lip not as above
21 Plant minute, less than 1.5 cm tall; lip with blades long-ciliate on inner margin

$\qquad$ ..... L. incredibilis
21' Plant large, taller than 10 cm tall; lip with blades elliptical, minutely ciliate L. profusa
$18^{\prime}$ Lip with the blades glabrous
22 Leaf narrowly ovate, narrowly acute; lip with body very narrow with sinus acute ..... L. oxyphylla
22' Leaf elliptical-ovate, acute; lip with sinus obtuse, above the middle
23 Leaf acuminate; sepals remotely ciliate L. orchestris
23' Leaf not acuminate; sepals densely ciliate L. serriola
17' Sepals with margins smooth
24 Sepals more than 5 mm long
25 Leaf less than 6 mm wide25' Leaf more than 15 mm wide
26 Lip with blades long-ciliate on inner margin ..... L. menatoi
26' Lip with blades not long-ciliate on inner margin
27 Lip with blades thick, fleshy, with inner portion concave
28 Lateral sepals with tips diverging; petals with lower lobes oblong- obovate L. auriculata
28' Lateral sepals with tips not diverging; petals with lower lobes small, incurved L. panicellus

## 27' Lip with blades not thick, fleshy, concave

29 Dorsal sepal triangular, narrowly acute
30 Plant less than 10 cm tall; sepals less than 7 mm long; lip with blades
incomplete............................................................ helicocephala
$30^{\prime}$ Plant more than 10 cm tall; sepals more than 10 mm long; lip with
blades complete
31 Petals with upper lobe triangular, acute $\qquad$ L. versicolor

31' Petals with upper lobe broadly oblong, obliquely truncate....
L. monitor

29' Dorsal sepal broadly ovate, obtuse, shortly acuminate...L. caudatisepala 24' Sepals less than 5 mm long
32 Lateral sepals deeply connate; petals with a slender, marginal proce........................................................................................................
32' Lateral sepals not deeply connate; petals without a marginal process
33 Lateral sepals acute
34 Leaf ovate
35 Leaf more than 1.5 cm wide, acute, acuminate.
L. dictyota
$35^{\prime}$ Leaf less than 1.5 cm wide, neither acute nor acuminate
36 Leaf narrowly ovate, acute; lateral sepals 3-veined.................L. hastata
36' Leaf ovate, subacute; lateral sepals 2-veined.......................L. Ilipiënsis

## 34' Leaf elliptical

37 Lip with blades more less oblong with narrowly cuneate connectives from base of column
38 Lip with blades shorter than the arcuate column................L. sillarensis
38' Lip with blades not shorter than the column...............L. microphallica
37' Lip with blades not oblong with narrowly cuneate connectives from base of column
39 Leaf less than 6 mm wide; petals with apex of upper lobe oblique......................................................................................ii
acute.........
39' Leaf more than 10 mm wide; petals with apex of upper lobe narrowly
obtuse....................................................................... croatii
33' Lateral sepals obtuse
40 Lip with blades coarsely ciliate, long-ciliate at apex...........L. megalostele
$40^{\prime}$ Lip with blades glabrous or microscopically ciliate
41 Petals with lobes triangular, narrowly obtuse at the apex............L. incisa
41' Petals with lobes suboblong to subtriangular
42 Leaf broadly ovate, obtuse.
.L. wageneri
42' Leaf elliptical-ovate, acute
43 Leaf less than 8 mm wide....................................................L. papilio
43' Leaf more than 10 mm wide
44 Ramicaul less than 7 cm long; leaf less than 6 cm long; peduncle less than 1 cm long.
L. glaberrima

44' Ramicaul more than 10 cm long; leaf more than 6 cm long; peduncle $2-3 \mathrm{~cm}$ long.
L. calyptrata

Lepanthes acarina Luer, Phytologia 54: 326, 1983.
Ety.: From Acarina, the order of mites, in allusion to the little, red, prickly flowers.
Plant minute, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $10-35 \mathrm{~mm}$ long, enclosed by 3-8 closely fitting, microscopically scabrous lepanthiform sheaths. Leaf erect, coriaceous, elliptical-ovate, subacute to obtuse, $7-10 \mathrm{~mm}$ long, $4-6 \mathrm{~mm}$ wide, the rounded base contracted into a petiole ca. 1 mm long. Inflorescence a subdense, successively few- to several-flowered raceme 3-10 mm long, borne by a capillary peduncle up to 10 mm long, beyond the apex of the leaf; floral bracts muricate, 1 mm long; pedicels 1 mm long; ovary 1.5 mm long; sepals yellow or red, minutely ser-rulate-ciliate on the margins and external carinae, the dorsal sepal broadly ovate-triangular, subacute, $2-2.5 \mathrm{~mm}$ long, 2.5 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , the lateral sepals ovate, oblique, acute, 2.5 mm long, 2.5 mm wide together, 2 -veined, connate 1 mm ; petals red, microscopically pubescent, transversely bilobed, 0.5 mm long, 1.75 mm wide, the upper lobe oblong, oblique, obtusely angled, subtruncate, the lower lobe smaller, narrowly oblong, subfalcate, obtuse; lip red, bilaminate, the blades ovate, subacute, microscopically pubescent, 1 mm long, the connectives cuneate, the body narrow, connate to the base of the column, the sinus obtuse with the appendix bisegmented, pubescent, constricted above the middle with the apical portion deflexed, the basal portion concave; column stout, 1 mm long, the anther dorsal, the stigma ventral.
La Paz: Nor Yungas, Coroico to La Paz, alt. 2550 m, 27 Jan. 1983, C. Luer \& R. Vásquez 8611 (MO).
Cochabamba: Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. 1750 m, 15 January 1988, C. Luer, J. Luer, R. Vásquez, T.\& D. Mulder \& A. Vogel 12824 (MO); Carrasco, Sehuencas, alt. $2100 \mathrm{~m}, 1993$, P. Ibisch 93.0362 (MO); 13 Sept. 1993, P. Ibisch 93.0710 (MO); 15 Nov. 1993, P. Ibisch 93.1376 (MO); 15 Dec. 1993, P. Ibisch 93.1986, 93.1969 (MO); 4 Jan. 1994, P. Ibisch 94.0091 (MO); old road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. $1650 \mathrm{~m}, 30$ Jan. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18331 (MO).
Also Ecuador (Pichincha, type: C. Luer, J. Luer \& A. Hirtz 4399: SEL; Carchi, Imbabura, Napo, Pastaza, Morona-Santiago, Loja, Zamora-Chinchipe); Colombia (Antioquia, Cauca, Nariño); and Peru (Huanuco).

Although uncommonly seen in herbaria, this tiny species is one of the most common in the genus in the Andes; it is usually overlooked or ignored because of its diminutive size. It usually grows on mossy twigs, often in association with other small pleurothallids. Lepanthes acarina is easily recognized by the tiny size with the minute, spiculate flowers borne in a subcongested raceme beyond the apex of the leaf. Frequently, racemes will also be found bearing fruit.

## Lepanthes altamiranoi Luer, sp. nov.

Ety.: Named for Saul Altamirano, co-collector of this species.
Species haec Lepanthidis crista-piscibus Luer similis, sed habitu minore folio anguste ovato acuto, racemo brevo recurvo, sepalis lateralibus non-plicatis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $2.5-4 \mathrm{~cm}$ long, enclosed by $4-5$ minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, narrowly ovate, acute, 2-3 cm long, $4-5 \mathrm{~mm}$ wide, cuneate below into a petiole $2-3 \mathrm{~mm}$ long. Inflorescence a loose, recurved, successively 3 - to 4 -flowered raceme, up to 1 cm long, including the peduncle ca. 3 mm long; floral bracts 1 mm long; pedicels 1 mm long; ovary 1.5 mm long; sepals with color unknown, ovate, acute, shortly acuminate, minutely denticulate, the dorsal sepal 3 mm long, 2 mm wide, 3 -veined, the lateral sepals 3 mm long, 2 mm wide, 1 -veined, connate less than 1 mm ; petals transversely bilobed, 0.5 mm long, 1.5 mm wide, microscopically pubescent, the upper lobe oblong with the tip rounded, 1.25 mm long, the lower lobe narrowly triangular, 0.75 mm long; lip minutely pubescent, the blades oblong, 1.75 mm long, with obtuse tips incurved beneath the apex of the column, the connectives broadly cuneate, connate to the column above the base, the appendix a microscopic lobule, pubescent; column 1.5 mm long, the anther and stigma apical.

Cochabama: Arani, mesobosque montano humedo, localidad El Limbo, alt. $2180 \mathrm{~m}, 12$ June 2003, $S$. Altamirano, E. Zurita, T. Camacho, M. Aliaga \& A. Lacaze 871 (Holotype of L. altamiranoi: MO), C. Luer illustr. 21489.

This species, known from a single collection in central Bolivia, is characterized by a small, narrowly ovate, acute leaf, and a short, recurved, few-flowered raceme. The sepals are ovate, acute, acuminate and denticulate; the petals are transversely bilobed with the upper lobe oblong and the lower lobe triangular; the apices of the blades of the lip curve beneath the column; and the appendix is microscopic.

## Lepanthes alticola C.Schweinf., Bot. Mus. Leafl. 10: 121, 1942.

Ety.: From the Latin alticola, "dweller of high places," referring to the habitat.
Syn.: Lepanthes dipteryx Luer \& Hirtz, Lindleyana 2: 96, 1987.
Ety.: From the Greek dipteryx, "two-winged," referring to the lobes of the lip.
Plant small, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 5-25 mm long, enclosed by $3-4$ shortly ciliate lepanthiform sheaths. Leaf erect, coriaceous, narrowly elliptical, acute, $12-24 \mathrm{~mm}$ long including a petiole $2-8 \mathrm{~mm}$ long, $4-5 \mathrm{~mm}$ wide, the base narrowly cuneate into the petiole. Inflorescence a loose, flexuous, distichous, successively many-flowered raceme up to 8 cm long including the slender, filiform peduncle $1-2 \mathrm{~cm}$ long; floral bracts $1.75-2 \mathrm{~mm}$ long, muriculate; pedicels $2.5-3 \mathrm{~mm}$ long; ovary 1 mm long; sepals yellow to tan, ovate, acute, long-acuminate, carinate, the dorsal sepal glabrous, 7 mm long, 2.6 mm wide, 3 -veined, connate to the lateral sepals for 0.25 mm , the lateral sepals oblique, minutely denticulate, 7.75 mm long, 2 mm wide, 2 -veined, connate 2 mm ; petals yellow, suffused with red medially, glandular-cellular, transversely bilobed, 1.25 mm long, 5.25 mm wide, the lobes obliquely triangular, acute, attenuate, the upper lobe larger; lip red or yellow, bilobed, the lobes thick, subovate, acute, minutely ciliate, 2 mm long, with a shallow channel externally demarcating a narrow, poorly defined blade from the rest of the lobe, the lobes connate to the column near the middle without forming a body except for a minute, apiculate appendix on the undersurface of the column; column 2 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. 2800 m, 18 Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12873 (MO); Chapare, epiphytic in humid forest northeast of Cochabamba toward Villa Tunari, alt. 2900 m, 14 Nov. 1992, $C$. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 16410 (MO).
Also Peru (Huanuco, type of L. alticola: Macbride 4461, F); Ecuador (Azuay, type of L. dipteryx: C. Luer, S. Dalström, T. Höijer \& J. Kuijt 9523: MO; Loja, Zamora-Chinchipe).

This floriferous little species is widely distributed and locally abundant in the high Andes from southern Ecuador into Bolivia. Flexuous racemes far surpass the small, elliptical leaves. The sepals are denticulate and caudate. The lobes of the petals are triangular. The lip is most distinctive, with the lobes that are not well developed into blades and connectives. The lobes arise directly from the mid-shaft of the column, but labellar tissue between them forms a tiny, triangular appendix borne along the undersurface of the column.

Lepanthes auriculata Luer, Phytologia 54: 330, 1983.
Ety.: From the Latin auriculatus, "like an ear," in reference to the blades of the lip.
Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, slender to stout, $8-30 \mathrm{~cm}$ tall, enclosed by 10-16 minutely ciliate lepanthiform sheaths. Leaf erect, thinly coriaceous, elliptical, acute, long-acuminate, $5-13 \mathrm{~cm}$ long, $2.5-5 \mathrm{~cm}$ wide, minutely ciliate along the veins beneath, the rounded base contracted into a petiole $3-5 \mathrm{~mm}$ long. Inflorescence a dense, successively many-flowered raceme up to 20 mm long, borne by a filiform peduncle $25-50 \mathrm{~mm}$ long behind the leaf; floral bracts 1.5 mm long; pedicels 1.25 mm long; ovary $3-4 \mathrm{~mm}$ long, narrowly winged; sepals yellow, glabrous, the dorsal sepal triangular, acute, acuminate, 9 mm long, 4 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals ovate, oblique, 9 mm long, 4 mm wide, 2 -veined, connate 3 mm , the apices acute, acuminate, diverging; petals yellow, suffused with purple, transversely bilobed, 1.25 mm long, 5 mm wide, the upper lobe cuneate with the apex subtruncate-rounded, the lower lobe similar but smaller and narrower; lip yellow, edged in purple, bilaminate, the blades thick, elliptical, longitudinally concave, 2 mm long, the apices narrowly rounded, the bases rounded, the connectives broad, short, oblique, the body broad, protruding and rounded, connate to the column above the base, the appendix short, oblong, pubescent; column 2 mm long, the anther dorsal, the stigma ventral.
Cochabamba: Chapare, new road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. 1750 m, 31 Jan. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18358 (MO).
Also Ecuador (Zamora-Chinchipe, type: D. D’Alessandro 164: SEL; Napo, Morona-Santiago, Loja); and Colombia (Valle del Cauca).

This large species is relatively frequent in southeastern Ecuador and recorded less frequently from both Colombia and Bolivia. Lepanthes auriculata is similar to several other species sharing a large size and mostly yellow flowers, e.g., the Ecuadorian Lepanthes ballatrix Luer and L. craticia Luer, but L. auriculata is easily distinguished by the concave, earlike blades of the lip. The connectives and body are thick, with the oblong, pubescent appendix in contact with the stigma.

Lepanthes barbatula Luer \& R.Vásquez, Lindleyana 7: 100, 1992.
Ety.: From the Latin barbatulus, "barbels," referring to the appearance of the filiform lobes of the petals.
Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-13 mm long, enclosed by 3-4 ciliate lepanthiform sheaths. Leaf erect, coriaceous, broadly elliptical to circular, obtuse, $7-10 \mathrm{~mm}$ long, $5-8 \mathrm{~mm}$ wide, with the rounded base contracted into a petiole 1 mm long. Inflorescence a loose, distichous, flexuous, successively several-flowered raceme up to 3 cm long including the slender peduncle $5-13 \mathrm{~mm}$ long; floral bracts $0.5-1 \mathrm{~mm}$ long, muriculate; pedicels $0.5-0.75 \mathrm{~mm}$ long; ovary 0.75 mm long; sepals carinate, entire, ovate, acute, acuminate, the dorsal sepal 5 mm long, 3 mm wide, 3veined, connate to the lateral sepals for 1 mm , the lateral sepals diverging, oblique, 5 mm long, 2.5 mm wide, 3-veined, connate 1.5 mm ; petals microscopically pubescent, transversely bilobed, 0.5 mm long at the base, 6 mm wide, the lobes filiform, arcuate, the upper lobe 2.5 mm long, the lower lobe 3.5 mm long; lip bilaminate, the blades cellular-pubescent, narrowly elliptical, flat, with rounded ends, minutely ciliate at the apices, 1.75 mm long, the connectives cuneate with a narrow body, connate to the base of the column, the appendix narrowly linear, ciliate; column stout, 1.5 mm long, with the anther dorsal and the stigma ventral.

Santa Cruz: Caballero, north of Comarapa, alt. $2380 \mathrm{~m}, 2$ Nov. 1990, R. Vásquez, D. Ric \& A. Burela 1277 (Holotype: MO; Isotype: Herb. Vásquezianum), C. Luer illustr. 15534; Manuel Maria Caballero, alt. 2400 m , date unknown, R. Vásquez \& D. Ric 2540 (MO).

This little species is easily distinguished from all others in the genus by its loose, flexuous raceme longer than the subcircular leaves; acuminate, diverging sepals, with the lateral sepals three-veined; bilobed petals with the lobes filiform and curving outward; and a lip with narrowly elliptical blades formed by the flat margins of cuneate connectives, with a narrow, ciliate appendix. The Colombian Lepanthes antennifera Luer \& R. Escobar and the Ecuadorian L. meniscophora Luer \& Hirtz share similar, narrow petals with everted apices, but in these a congested raceme shorter than the leaf bears flowers with denticulate, two-veined lateral sepals.

Lepanthes bifalcis Luer, Phytologia 54: 332, 1983.
Ety.: From the Latin bifalcis, "two sickles," in reference to the forked petals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, suberect, 3-8 cm long, enclosed by 6-8 minutely scabrous lepanthiform sheaths. Leaf suberect, thinly coriaceous, narrowly ovate, acuminate, acute, $25-40 \mathrm{~mm}$ long, $7-11 \mathrm{~mm}$ wide, the base cuneate into a petiole $3-4 \mathrm{~mm}$ long. Inflorescence a weak, subdensely successively flowered raceme up to 25 mm long including the capillary peduncle, along the back of the leaf; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 0.75 mm long; sepals light yellow, glabrous, the dorsal sepal ovate, subacute, convex, 2.5 mm long, 1.5 mm wide, 3 -veined, the lateral sepals connate into an ovate lamina 2.3 mm long, 2 mm wide, 2 -veined, the subacute apex minutely bifid; petals dark yellow, transversely bilobed, forked, 0.5 mm long, 2.3 mm wide, the lobes equal, falcate, narrowly obtuse; lip orange, minutely ciliate, obcordate or obovate, 0.75 mm long, 0.75 mm wide, incised at the apex into two rounded lobes, the base cuneate, claw-like, connate to the base of the column; column 0.8 mm long, the anther apical, the stigma subapical.

La Paz: Nor Yungas, epiphytic in cloud forest east of the pass near Chuspipata, alt. $2800 \mathrm{~m}, 27$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15365 (MO).
Also Ecuador (Napo, type: C. Luer \& A. Hirtz 6864, SEL; Esmeraldas, Imbabura, Pastaza, MoronaSantiago).

Lepanthes bifalcis occurs frequently on the eastern slopes of the Andes of central Ecuador, with one collection known in northwestern Ecuador, and this distant collection in the Yungas of Bolivia. It is distinguished by the small flowers with a two-veined synsepal similar to the dorsal sepal; bilobed petals with the lobes sickleshaped, emerging beyond an unguiculate base; and an obcordate or obovate, bilobed lip without an appendix, attached with a claw to the base of the column. This is the only member of subsection Bilabiatae known to occur in Bolivia. Lepanthes bifalcis is distinguished from its two close Ecuadorian allies, L. columbar Luer and L. homotaxis Luer, by the smaller, non-cordate blade of a bilobed lip.

## Lepanthes branchifera Luer \& R.Vásquez, Phytologia 54: 333, 1983.

Ety.: From the Latin branchiae, "gills of a fish," and -fer, "bearing," referring to the appearance of the lower lobes of the petals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $2.5-4.5 \mathrm{~cm}$ long, enclosed by 5-6 long-ciliate lepanthiform sheaths with markedly dilated ostia. Leaf erect, coriaceous, broadly elliptical, obtuse, $12-15 \mathrm{~mm}$ long, $8-10 \mathrm{~mm}$ wide, the base broadly cuneate into the petiole $2-3 \mathrm{~mm}$ long. Inflorescence a weak, lightly flexuous, successively flowered raceme up to 5 cm long including the filiform peduncle 1-2.5 cm long; floral bracts 1 mm long; pedicels 1.25 mm long; ovary 1.25 mm long; sepals with dorsal sepal peach colored, ovate, acute, shortly acuminate, deeply concave, 4 mm long, 2 mm wide unspread, the carinae and the narrowly everted margins lightly erose, 3 -veined, connate to the lateral sepals for 1 mm , lateral sepals yellow, suffused with red centrally, completely connate into a cymbiform, ovate, acute lamina 3.5 mm long, 2.5 mm wide unexpanded, the carinae and margins similarly narrowly revolute and lightly erose, each 2 -veined; petals yellow, transversely bilobed, 1 mm long, 4 mm wide, connate to the column between the basal and middle thirds, the upper lobe setiform, the lower lobe much larger, narrowly triangular, attenuate, long-ciliate along the inner margin; lip bright rose, the blades thin, translucent, glabrous, narrowly oblong, 1.25 mm long, the ends obtuse, the connectives cuneate, connate to the column between the distal and middle thirds, the appendix a membranous triangle in the sinus; column very slender, 2 mm long, minutely pubescent, the anther dorsal, the stigma ventral.
Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. 1950 m , 26 Nov. 1978, C. Luer, F. Fuchs et al. 3506 (Holotype: SEL).

This unusual species can be mistaken for no other species of Lepanthes. A deeply concave dorsal sepal and synsepal gape to expose long-ciliate petals, the lower lobes hanging to either side of the lip like gills, with the narrow, pointed upper lobes crisscrossing above the column. Both the petals and the lip are connected to the very long, slender shaft of the column well above the base.

Lepanthes brevis Luer \& R.Vásquez, Lindleyana 6: 64, 1991.
Ety: From the Latin brevis, "short," referring to the short, distantly flowered racemes.
Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3.5-6 cm long, enclosed by 5-8 lepanthiform sheaths with dilated, ciliated ostia. Leaf erect, coriaceous, purple, ovate, acute, $2-3.5 \mathrm{~cm}$ long, $1-1.5 \mathrm{~cm}$ wide, with the rounded base contracted into a petiole $2-3 \mathrm{~mm}$ long. Inflorescence a loose, successively 3 - to 4 -flowered raceme up to 7 mm long, borne behind the leaf by a peduncle $5-7 \mathrm{~mm}$ long; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; sepals yellow, entire, ovate, acute, acuminate, carinate, with the dorsal sepal 5.5 mm long, 2.5 mm wide, 3 -veined, connate to the lateral sepals for 0.75 mm , with the lateral sepals oblique, 5 mm long, 1.5 mm wide, 1 veined, connate 1.5 mm ; petals orange, suffused with purple at the tips of the lobes, microscopically pubescent, transversely bilobed, 0.75 mm long, 2.5 mm wide, with the lobes oblong with rounded ends, with the upper lobe larger; lip red-purple, microscopically pubescent, bilaminate, with the blades oblong, flat with the apices narrowly rounded, 1.5 mm long, with the connectives thick, broadly cuneate, with the body thick, broad, connate to the base of the column, with the sinus obtuse with the appendix arising from the anterior surface, oblong, recurving; column 1.5 mm long, with the anther dorsal and the stigma ventral.
Cochabamba: Chapare, epiphytic in forest between Cochabamba and Villa Tunari, alt. $2800 \mathrm{~m}, 18$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. \& D. Mulder \& A. Vogel 12876 (Holotype: MO).

This species is not remarkably distinct from many others, but it is distinguished by a combination of not uncommon features: short, distantly few-flowered racemes; acute, acuminate and entire sepals, the lateral sepals one-veined; oblong petals; and a lip unremarkable except that the connectives and body are thick, with the appendix protruding from the anterior surface of the body.

## Lepanthes calyptrata Luer \& Hirtz, Lindleyana 7: 103, 1992.

Ety.: From the Greek kalyptos, "covered," referring to the position of the blades over the column.
Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls very slender, suberect, $12-18 \mathrm{~cm}$ long, enclosed by 10-17 glabrous to microscopically ciliate lepanthiform sheaths. Leaf erect, coriaceous, narrowly ovate, acute, acuminate, $5.5-6.5 \mathrm{~cm}$ long, $1.2-1.8 \mathrm{~cm}$ wide, the base cuneate into a petiole 2 mm long. Inflorescence a very congested, secund, successively several-flowered raceme up to

5 mm long, borne behind the leaf by a filiform peduncle $20-30 \mathrm{~mm}$ long; floral bracts $1-1.5 \mathrm{~mm}$ long; pedicels 2-3 mm long; ovary 3 mm long; sepals translucent orange-brown, carinate, the dorsal sepal transversely ovate, obtuse, 4 mm long, 4 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , with the margins sparsely microscopically subdenticulate, the lateral sepals broadly ovate, obtuse, oblique, 3.5 mm long, 2.5 mm wide, 2 -veined, connate 1.5 mm , with the lateral margins minutely ciliate; petals orange-brown, transversely bilobed, 1.6 mm long, 3.5 mm wide, the upper lobe microscopically pubescent, oblong, truncate, the lower lobe long-pubescent, triangular, obtuse; lip bilaminate, the laminae orange-brown, glabrous, oblong, with the ends rounded, completely covering the column, 1.7 mm long, the connectives broad, very short, the body broad, thick, pubescent, connate to the base of the column, the sinus rounded and cleft with an oblong, long-pubescent appendix; column stout, 1.5 mm long, the anther dorsal, the stigma ventral.

La Paz: Larecaja, southwest of Tipuani, epiphytic in forest remnant above Santa Barbara, Alto Llipi, alt. 1350 m, 30 Aug. 1991, collected by A. Hirtz, J. del Hierro \& W. Teague, C. Luer 15385 (Holotype: MO).

This species is characterized by long, thin, weak ramicauls and narrowly ovate, acuminate leaves longer than the congested, long-pedunculate inflorescence. The sepals are broadly ovate and obtuse; the transversely bilobed petals are large with the upper lobe truncate and the lower lobe long-pubescent. The thin blades of the lip are held over the large column and conceal it, in a manner shared with many other species from Ecuador and Colombia. The blades are not easily spread because the broad connectives are very short. The body is thick with a cleft sinus and an oblong, pubescent appendix.

Lepanthes caudatisepala C.Schweinf., Bot. Mus. Leafl. 10: 123, 1942.
Ety.: From the Latin caudatisepalus, "with caudate sepals," referring to the shortly acuminate, taillike sepals.
Plant large, epiphytic, shortly ascending, caespitose; roots coarse. Ramicauls stout, erect, 1040 cm long, enclosed by $10-14$ glabrous, closely fitting lepanthiform sheaths, microscopically ciliate on the margins of the upper ostia. Leaf erect, coriaceous, elliptical-ovate, acute, lightly acuminate, 7-12 cm long, 2-5 cm wide, the base rounded or broadly cuneate, contracted into a petiole $3-6 \mathrm{~mm}$ long. Inflorescence racemose, successively many-flowered, lax below to congested above, up to 5 cm long including the peduncle $1.5-2 \mathrm{~cm}$ long, borne behind the leaf; floral bracts 1.5 mm long; pedicels 3 mm long; ovary 2.5 mm long; sepals pale yellow, glabrous, carinate, ovate-triangular, acute, slightly acuminate, the dorsal sepal $6-7 \mathrm{~mm}$ long, $4-5 \mathrm{~mm}$ wide, 3 -veined, connate to the lateral sepals for $1.5-2 \mathrm{~mm}$, the lateral sepals oblique, $6.5-7 \mathrm{~mm}$ long, 3 mm wide, 2 -veined, connate $1.5-2.5 \mathrm{~mm}$; petals yellow with red inner margin, glabrous, transversely bilobed, 1-1.5 mm long, $3.5-4 \mathrm{~mm}$ wide, narrowed between the lobes, the lobes subequal, the upper lobe broadly ovate, the lower lobe oblong, narrower, with the ends rounded; lip bilaminate, the lamina red-purple, elliptical, 2.25 mm long, glabrous, the rounded apices ciliate, the connectives shortly cuneate, the body broad, connate to the base of the column, the sinus obtuse, with a minute, biglandular appendix; column 1.5 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in humid forest northeast of Cochabamba toward Villa Tunari, alt. 2800 m, 14 Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 16414 (MO).
Also Peru (Cuzco, type: Macbride 4273, F; Huanuco); Colombia (Nariño); and Ecuador (Carchi, Azuay, Sucumbíos, Zamora-Chinchipe).

This large, robust species is widely distributed in moist forests at altitudes around 3000 meters above sea level from southern Colombia into Bolivia. It is identified by tall, stout ramicauls clad in essentially glabrous, non-dilated lepanthiform sheaths; elliptical-ovate, acuminate leaves; short inflorescences laxly flowered below, becoming congested above; glabrous to denticulate, broad but acuminate sepals; glabrous, bilobed petals with a constriction near the middle; and a lip with elliptical blades, ciliate at the apex, with a minute, biglandular appendix.

Lepanthes caudatisepala is similar to L. profusa Luer \& Hirtz, but they are sufficiently distinct and stable to retain as separate species. Both are known from Cochabamba, Bolivia. The flowers of $L$. caudatisepala have entire sepals and a lip with flat blades, while those of $L$. profusa have denticulate sepals and a lip with the blades sloping at the middle. The pedicels of $L$. caudatisepala are approximately twice as long as the subtending bracts; those of $L$. profusa are about the same length as the bracts.

Lepanthes ciliolata Luer \& R.Vásquez, Phytologia 54: 334, 1983.
Ety.: From the Latin ciliolatus, "minutely ciliate," referring to the sepals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $2.5-5 \mathrm{~cm}$ long, enclosed by 6-7 minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, 15-24 mm long including the petiole 2 mm long, $7-9 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a successive, subdense, flexuous, several-flowered raceme up to 15 mm long including the short, filiform peduncle; floral bracts 1 mm long; pedicels 0.5 mm long; ovary 1.5 mm long; sepals purple- brown, ovate, acute, shortly acuminate, carinate, ciliate-pubescent near the margins, the dorsal sepal 4.5 mm long, 2.5 mm wide, 3 -veined, connate nearly 1 mm to the lateral sepals, the lateral sepals connate $1.5 \mathrm{~mm}, 5.25$ mm long, 3.5 mm wide together, each 1 -veined, the lateral margins narrowly incurved; petals yellow with brown margins, microscopically cellular-pubescent, transversely oblong, 1 mm long, 2.75 mm wide, the lobes oblong with rounded ends, the lower lobe slightly smaller; lip red-brown, microscopically pubescent, the blades oblong, 2 mm long, subacute at the apices, rounded at the bases, the connectives broadly cuneate, connate to the column above the base, the appendix minute, bilobulate; column 2 mm long, the anther dorsal, the stigma subapical.
Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2500 \mathrm{~m}, 4$ Feb. 1983, C. Luer, J. Luer, R. Vásquez \& E. Besse 8684 (Holotype: SEL).

With very narrowly incurved margins of single-veined lateral sepals, this species is related to Lepanthes complicata Luer. Instead of coarsely toothed sepaline margins, the margins are finely ciliate. Otherwise, this species is distinct with a minute, bilobulate appendix.

Lepanthes cochliops Luer \& R.Vásquez, Lindleyana 6: 68, 1991.
Ety.: From the Greek cochliops, "snail eyes," referring to the appearance of the petals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $10-16 \mathrm{~mm}$ long, enclosed by 4-5 microscopically ciliate lepanthiform sheaths. Leaf erect, coriaceous, purple beneath, elliptical, subacute, $10-13 \mathrm{~mm}$ long, $5-6 \mathrm{~mm}$ wide, with the base cuneate into a petiole $1.5-2 \mathrm{~mm}$ long. Inflorescence a loose, distichous, weak, successively several-flowered raceme up to 9 cm long including the slender peduncle ca. 1.5 cm long; floral bracts muriculate, $1-1.25 \mathrm{~mm}$ long; pedicels 1 mm long; ovary 0.75 mm long; sepals rose-brown, ovate, acute, caudate, denticulate, carinate-spiculate, with the blade of the dorsal sepal 3.5 mm long, 2.5 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , with the tail 3 mm long, with the lateral sepals oblique, 3.5 mm long, 1.5 mm wide, 2 -veined, connate 2.5 mm , with the tails 3.5 mm long; petals yellow with the apex purple, pubescent, obliquely ovate, acute, erect, 1 mm long, 0.5 mm wide, acuminate and recurved above the middle, with the base rounded with a small, obtuse, basal angle; lip red, pubescent, bilobed, with the lobes subrhomboid, acute, embracing the column, with the lower margins irregular, 1.5 mm long, forming a broad body connate to the column near the middle, with the sinus obtuse, with the appendix a short, broad triangle; column 1.5 mm long, with the anther dorsal and the stigma ventral.

Cochabamba: Carasco, Sehuencas, epiphytic in forest along Río Lope Mendoza, alt. $2450 \mathrm{~m}, 13$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. \& D. Mulder \& A. Vogel 12810 (Holotype: MO); Carrasco, Sehuencas, alt. 2100 m, 12 June 1993, P. Ibisch 93.0413 (MO); same area, 15 Nov. 1993, P. Ibisch 93.1324 (MO); same area, 2 Dec. 1993, P. Ibisch 93.1698 (MO); same area, 14 Dec. 1993, P. Ibisch 93.1865 (MO); same area, 5 Jan. 1994, P. Ibisch 94.0202 (MO); epiphytic in forest south of Siberia, alt. 2550 m, 5 Feb. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18402 (MO).

This little species is distinguished by a long, weak, loosely-flowered raceme of spiculate, long-tailed flowers with unique petals. Instead of being transversely bilobed, the petals stand erect as if one-lobed, with the narrow apex recurved. In reality, the petals are obscurely bilobed, consisting almost entirely of the protruding upper lobe, the lower lobe remaining as an obtuse angle at the base. Equally distinctive are multiangled lobes of the lip with a narrow, recurved apex that resembles the upper lobe of the petals.

Lepanthes complicata Luer \& R.Vásquez, Phytologia 54: 334, 1983.
Ety.: From the Latin complicatus, "folded together," referring to the sides of the lateral sepals.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls relatively stout, erect, 3-7 cm long, enclosed by 5-8 long-ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, shortly acuminate, $3-4 \mathrm{~cm}$ long, $1.5-1.8 \mathrm{~cm}$ wide, the base cuneate into a 2 mm long petiole. Inflorescence a dense, distichous, successively flowered raceme up to 15 mm long, borne behind the leaf by a filiform peduncle up to 10 mm long; floral bracts 1.5 mm long, lightly verrucose; pedicels 1.5 mm long; ovary 1.25 mm long; sepals translucent light yellow, suffused with purple along the veins, with margins and carinate veins laciniate, triangular with short, thickened, acuminate apices, the dorsal sepal 5.5 mm long, 4 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals with the lateral half to one-third sharply folded over onto the anterior surface, 5.5 mm long, 2.25 mm wide unexpanded, 1 veined, connate 1 mm ; petals lemon yellow, essentially glabrous, at most microscopically pubescent, transversely bilobed, 1.5 mm long, 2.3 mm wide, the upper lobe transversely falcate, obtuse, the lower lobe obliquely triangular; lip dull white with a purple stripe, at most microscopically pubescent, the blades narrowly oblong, 2.1 mm long, the ends rounded, the apex narrowly incurved, the connectives short, broadly cuneate, connate to the column near the middle, the sinus protuberant and rounded, with a minute, round appendix; column 2.5 mm long, the anther and stigma apical.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $1900 \mathrm{~m}, 26$ Nov. 1978, C. Luer, F. Fuchs et al. 3531 (Holotype: SEL); new road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. $1520 \mathrm{~m}, 31$ Jan. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18341 (MO).
La Paz: Nor Yungas, epiphytic in forest north of Caranavi toward Alto Beni, alt. $1550 \mathrm{~m}, 26$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. Mulder 12940, 12949 (MO); Nor Yungas, epiphytic in forest northeast of Caranavi, alt. $1300 \mathrm{~m}, 31$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15392 (MO).

This species is remarkable for deeply plicate, lateral sepals. The lateral thirds, or nearly the lateral halves, are folded inward onto the surface of the medial halves. A laciniate, ribbed lamella becomes the lateral margin of the blade, while the true outer margin lies folded inward, nearly reaching the inner margin. Other species, almost all from Bolivia, also exhibit this characteristic but to a lesser degree.

## Lepanthes crescentiformis Luer, sp. nov.

Ety.: From the Latin crescentiform, "crescent-shaped," in allusion to the petals.
Species haec Lepanthidis minutipetalae C.Schweinf. similis, sed ramicaulibus brevioribus, sepalis acutis non breviter acuminatis, et petalis late crescentiformibus differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-10 cm long, enclosed by 8-11 ciliate lepanthiform sheaths. Leaf erect, coriaceous, ovate, acute, $2.5-4 \mathrm{~cm}$ long, $8-13 \mathrm{~mm}$ wide, cuneate below into a petiole 2-3 mm long. Inflorescence $1-2$ loose, slightly flexuous, successively flowered racemes up to 18 mm long, borne behind the leaf by a slender peduncle 5 mm long; floral bracts 1 mm long; pedicels ca. 1 mm long; ovary $1.25-2 \mathrm{~mm}$ long; sepals light yellow, entire, microscopically pubescent, the dorsal sepal triangular, acute, $4.5-5 \mathrm{~mm}$ long, 3.4 mm wide, 3 -veined, connate to the lateral sepals for ca .1 mm , the lateral sepals elliptical, oblique, acute, $4.5-5 \mathrm{~mm}$ long, 1.75 mm wide, 1-veined, connate 1.5 mm ; petals dark red, short-pubescent, transversely bilobed, minutely apiculate between the lobes, 1 mm long, 1.3 mm wide, 1 -veined, the lobes nearly equal, broadly cres-cent-shaped, incurved, rounded at the tips, 1 mm long, 0.5 mm wide; lip dark red, minutely pubescent, bilaminate, the blades oblong, with rounded ends, ca. 1.5 mm long, with the connectives broadly cuneate, from the middle, the body broad, connate to the column at the base, the appendix oblong, ciliate, with a terminal, ciliate gland; column 2 mm long, with the anther apical and the stigma ventral.

Cochabamba: Chapare, road to Villa Tunari, alt. $2500 \mathrm{~m}, 4$ Feb. 1983, C. Luer, J. Luer \& R. Vásquez 8688 (Holotype of L. crescentiformis: SEL); same area, alt. 2900 m, 22 Jan. 1980, C. Luer, J. Luer \& R. Vásquez 4886 (SEL).

This species from central Bolivia is apparently related to Lepanthes minutipetala C.Schweinf. from an altitude 1000 meters higher in central Peru. The ramicauls of both species are slender, but those of $L$. minutipetala are about six times longer than the leaves. The flowers are superficially similar, but the petals are distinctive. Those of $L$. minutipetala are transversely oblong, but no dimensions are given, nor is pubescence either mentioned or illustrated. Those of $L$. crescentiformis are reniform and densely short-pubescent with the ends of the lobes rounded and incurved.

Lepanthes crista-piscis Luer \& R.Vásquez, Phytologia 54: 337, 1983.
Ety. From the Latin crista piscis, "crest of a fish," in reference to the crests along the margins of the lateral sepals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $10-35 \mathrm{~mm}$ long, enclosed by 4-6 shortly ciliate lepanthiform sheaths. Leaf erect, coriaceous, suffused with purple beneath, elliptical, subacute, $14-22 \mathrm{~mm}$ long including the 2 mm long petiole, $6-9 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a subdense, distichous, successively flowered raceme up to 7 mm long, borne behind the leaf by a filiform peduncle up to 6 mm long; floral bracts $0.75-1 \mathrm{~mm}$ long, verrucose; pedicels 1-1.5 mm long; ovary 1.75 mm long; sepals crested, with the dorsal sepal purple, slightly spiculate externally, 3 mm long, 2 mm wide, 3 -veined, the apex acute, acuminate to caudate, lateral sepals yellow, spiculate externally especially along the veins, with a membranous crest along the narrowly plicate lateral margins, oblique, concave, glabrous within, connate $1 \mathrm{~mm}, 3.75 \mathrm{~mm}$ long, 2.5 mm wide together unexpanded, the apices acute, acuminate to caudate, each 1-veined; petals transversely oblong, the apices rounded, microscopically pubescent, 0.5 mm long, 2.3 mm wide, the upper lobe purple, the lower lobes shorter, yellow-orange; lip yellow-orange, microscopically pubescent, the blades oblong with uncinate apices incurved beneath the apex of the column, the connectives broadly cuneate, connate to the column above the base, the appendix a microscopic lobule, pubescent: column 1.5 mm long, the anther and stigma apical.
La Paz: Nor Yungas, epiphytic in cloud forest east of Unduavi, alt. 2400 m, 22 Jan. 1983, C. Luer, J. Luer, R. Vásquez \& E. Besse 8548 (Holotype: SEL); Nor Yungas, west of Coroico, alt. $2550 \mathrm{~m}, 27$ Jan 1983, C. Luer, J. Luer \& R. Vásquez 8608 (MO); Nor Yungas, epiphytic in cloud forest west of Coroico, alt. 2550 m, 27 Jan. 1983, C. Luer, J. Luer, R. Vásquez \& E. Besse 8612 (SEL); Nor Yungas, collected Aug. 1991, flowered in cultivation in Quito, Ecuador, A. Hirtz 5657 (MO).
Cochabama: Arani, mesobosque montano humedo, localidad El Limbo, alt. $2180 \mathrm{~m}, 12$ June 2003, $S$. Altamirano, E. Zurita, T. Camacho, M. Aliaga \& A. Lacaze JA871 (MO).

By virtue of the plicate margins of its lateral sepals a relative of Lepanthes complicata Luer, this species is most remarkable for the finlike, laciniate membrane running the length of the margins of the lateral sepals. The tips of the sepals of $L$. crista-piscis vary from acuminate (Fig. 15a.) to caudate (Fig. 15b.), The petals are simply transversely oblong, while the uncinate tips of the lip curve under the end of the column.

Lepanthes croatii Luer, sp. nov.
Ety.: Named for Thomas C. Croat, of the Missouri Botanical Garden, collector of this species.
Species haec Lepanthidis crista-piscibus Luer similis, sed habitu minore folio ovato acuto, racemo brevissimo recurvo et sepalis lateralibus non-plicatis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-6 cm long, enclosed by 4-6 microscopically ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, $3-4 \mathrm{~cm}$ long, $1-1.5 \mathrm{~cm}$ wide, cuneate below into a petiole 2-3 mm long. Inflorescence 2-3 erect, congested, curved, successively many-flowered racemes, up to 4 cm long, including the peduncle ca. 20 mm long; floral bracts 1 mm long, denticulate; pedicels 1.5 mm long; ovary $0.75-1 \mathrm{~mm}$ long; sepals with color unknown, ovate, acute, entire, the dorsal sepal 3.5 mm long, 3 mm wide, 3 -veined, the lateral sepals 4 mm long, 2 mm wide, 2-veined, connate less than 1 mm ; petals transversely bilobed, oblong, 1 mm long, 4 mm wide, glabrous, the upper lobe oblong with the tip rounded, 2 mm long, the lower lobe narrowly triangular, narrowly obtuse, 1.5 mm long; lip glabrous, the blades elliptical, 1.5 mm long, with narrowly obtuse ends, the connectives narrow from the center of the blade, connate to the column above the base, the appendix oblong, ciliate, 0.5 mm long, with a round, concave, terminal lobule; column 1.5 mm long, the anther and stigma apical.
Cochabama: between Cochabamba and Villa Tunari, near Hotel Caballeros, altitude not given, 21 Nov. 1980, T. Croat 51334 (Holotype of L. croatii: MO), C. Luer illustr. 21488.

This species is known from a single collection in lowland, central Bolivia. It is characterized by a congested raceme borne by a peduncle about half the length of an elliptical leaf. The sepals are ovate, acute and entire; the petals are transversely oblong and glabrous; the blades of the lip are elliptical and also glabrous, but a comparatively large, oblong appendix is ciliate.

Lepanthes dictyota Luer \& R.Vásquez, Phytologia 54: 340, 1983.
Ety.: From from the Greek diktyotos, "reticulated," referring to the purple-netted veins.
Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, horizontal to pendent, $4-8 \mathrm{~cm}$ long, enclosed by $8-10$ minutely ciliate lepanthiform sheaths with thin, dilated ostia. Leaf erect with the stem, thinly coriaceous, with purple reticulations on both surfaces, suffused with purple beneath, ovate, acute, acuminate, $4-5.5 \mathrm{~cm}$ long including the 2-4 mm long petiole, 1.6-2.1 cm wide, the rounded base contracted into the petiole. Inflorescence a subdense, distichous, flexuous, successively flowered raceme up to 20 mm long, borne behind the leaf by a filiform peduncle $9-11 \mathrm{~mm}$ long; floral bracts $1.5-2 \mathrm{~mm}$ long, echinate; pedicels 2 mm long; ovary 2 mm long, crested; sepals yellow, suffused with purple centrally, the veins and margins minutely denticulate, the dorsal sepal broadly ovate, obtuse, 3.5 mm long, $2.5-3 \mathrm{~mm}$ wide, 3 -veined, connate to the lateral sepals for 1 mm , the lateral sepals narrowly ovate, oblique, acute, connate $1 \mathrm{~mm}, 3.5 \mathrm{~mm}$ long, 3.25 mm wide together, each 2-veined; petals red-orange, minutely pubescent, transversely oblong, 1 mm long, 2.5 mm wide, the ends rounded; lip yellow, suffused with red-orange, glabrous, the blades narrowly oblong, 1.75 mm long, the ends rounded, the connectives short, cuneate, connate to the column above the base, the appendix ligulate, hinged at the acute sinus, pubescent, with a brushlike apical segment; column 2 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Charasco, epiphytic in cloud forest below Monte Puncu along Río Lope Mendoza, alt. 2400 m, 1 Feb. 1981, C. Luer, J. Luer \& R. Vásquez 5820 (Holotype: SEL); Chapare, alt. 1200 m, 16 Apr. 1982, R. Vásquez 664 (MO).
La Paz: Nor Yungas, epiphytic in forest between Caranavi and Bella Vista, alt. 1300 m , collected in Aug. 1991 by A. Hirtz, J. del Hierro \& W. Teague, flowered in cultivation in Quito, Ecuador, Dec. 1991, A. Hirtz 5575 (MO), C. Luer illustr. 16201.

This handsome species, apparently endemic in central Bolivia, is recognized by purple-reticulated, ovate, acuminate leaves and shorter, flexuous inflorescences. The sepals are yellow and suffused with purple, making the dorsal sepal purple with a yellow margin. The petals are simply transversely oblong. The blades of the lip are narrowly oblong, and the appendix is pubescent with a terminal, intricate segment.

Lepanthes doloma Luer \& R.Vásquez, Phytologia 54: 341, 1983.
Ety: From the Greek doloma, "a bait, a decoy," referring to the probable role of the appendix.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-9 cm long, enclosed by 5-8 ciliate lepanthiform sheaths. Leaf erect, coriaceous, suffused with purple beneath, ovate, acute, lightly acuminate, apiculate, $3.5-4.5 \mathrm{~cm}$ long, $1-1.7 \mathrm{~cm}$ wide, the broadly cuneate base contracted into a 2 mm long petiole. Inflorescence racemose, several congested, distichous, successively flowered racemes up to 12 mm long, borne behind the leaf by filiform peduncles $8-15 \mathrm{~mm}$ long; floral bracts 1.25 mm long, sparsely ciliate; pedicels 2 mm long; ovary 2 mm long, sparsely papillose; sepals translucent orange or rose, broadly ovate, shortly acuminate, carinate, the carinae and margins conspicuously denticulate, the dorsal sepal 5 mm long, 4 mm wide, connate to the lateral sepals for 1.5 mm , the lateral sepals connate $2.5 \mathrm{~mm}, 5 \mathrm{~mm}$ long, 5 mm wide together; petals orange, edged in red-orange, microscopically pubescent, transversely oblong, 1.4 mm long, 3.75 mm wide, the upper lobe obtuse, the lower lobe acute, smaller; lip bright rose, edged in orange, the blades broadly oblong, 1.25 mm long, slightly concave with rounded ends, the anterior margins long-ciliate, otherwise microscopically pubescent, the connectives long, oblong, elevating the blades above the column, connate to the base of the column, the appendix large, straplike, concave at the attachment to the sinus, convex and ciliate above with an apical lobule; column 1 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest along the road to Tablas, alt. $2500 \mathrm{~m}, 9 \mathrm{Feb} .1980$, C. Luer, J. Luer \& R. Vásquez 5171 (Holotype: SEL); between Cochabamba and Villa Tunari, alt. 1900 m , 26 Nov. 1978, C. Luer, F. Fuchs et al. 3534 (SEL); east of Cochabamba, 2500 m , collected by William Cullina, July, 1994, flowered in cultivation at J\&L Orchids, Easton, Connecticut, 19 June 1999, C. Luer 19188 (MO).

Lepanthes doloma, apparently endemic in central Bolivia, had been considered to be a synonym of $L$. intonsa Luer of Ecuador. Although similar, L. doloma is distinguished by densely ciliate sepals as opposed to minutely ciliate sepals, and the margin of the petals is only shallowly indented between the lobes as opposed to
deeply incised as in L. intonsa. The blades of the lip of both species are long-ciliate at the apex, and borne by long connectives. The appendix of both species is proportionately large and ciliate. Another similar species is L. jubata Luer of Ecuador with denticulate sepals, but with unindented petals, blades of the lip with lateral margins long-ciliate as well, and with a minute, bilobulate appendix.

Lepanthes echidna Luer \& R.Vásquez, Phytologia 55: 183, 1984.
Ety.: From the Greek echidna, "a viper," or the genus of spiny anteaters, Echidna, referring to the prickly exterior of the flower.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $1-6 \mathrm{~cm}$ long, enclosed by 3-8 ciliate lepanthiform sheaths with dilated apices. Leaf erect, coriaceous, the blade ovate, obtuse, shortly acuminate, $17-23 \mathrm{~mm}$ long, $10-13 \mathrm{~mm}$ wide, the rounded base contracted into a petiole $4-5 \mathrm{~mm}$ long. Inflorescence a subdense, flexuous, successively flowered raceme up to 11 mm long, borne behind the leaf by a filiform peduncle 7 mm long; floral bracts 2 mm long, ciliate; pedicels 2.25 mm long; ovary 1 mm long; sepals triangular, concave, acute with setiform apices, the dorsal sepal purple, 6 mm long, 3 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , tricarinate, the carinae irregularly ciliate-fringed, the lateral sepals yellow, suffused with purple centrally, unicarinate, similarly fringed, 7 mm long, 3 mm wide, 1 -veined, connate less than 1 mm , both margins sharply folded with fringed lamellae along the creases; petals purple, shortly pubescent, transversely oblong, 1 mm long, 3 mm wide, the lobes subequal, oblong with rounded ends; lip rose, shortly pubescent, the blades lunate, 1.8 mm long, the apices narrowly obtuse, incurved, the bases rounded, the connectives broadly cuneate, originating from the base of the column, the sinus obtuse without an appendix; column 1.5 mm long, the anther and stigma apical.
Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. 1850 m , 17 Jan. 1984, C. Luer, J. Luer \& R. Vásquez 9386 (Holotype: SEL).

This unusual species, another related to Lepanthes complicata Luer, is distinguished by both margins of larger lateral sepals being plicate and crested. Only the lateral margins of the lateral sepals of several species are similarly plicate, as with L. crista-pisces Luer \& R.Vásquez. The lobes of the lip are broadly semicircular with broad, short connectives that encircle the column behind the anther and stigma.

Lepanthes epibator Luer \& R.Vásquez, Phytologia 55: 184, 1984.
Ety.: From the Greek epibator, "a climber," referring to the scandent habit.
Plant small to medium in size, epiphytic, scandent; roots from the apices of secondary stems, slender. Ramicauls slender, proliferating from the apices of other secondary stems, $4-8 \mathrm{~cm}$ long, enclosed by 5-8 close, minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, narrowly ovate, acute, $2.5-4.5 \mathrm{~cm}$ long, $0.6-0.9 \mathrm{~cm}$ wide, the base cuneate into a petiole 2-3 mm long. Inflorescence a subdense, successively flowered raceme up to 20 mm long, produced on top of the leaf by a filiform peduncle $4-6 \mathrm{~mm}$ long; floral bracts 1 mm long; pedicels 1.25 mm long; ovary 1.5 mm long; sepals white, ovate, acute, shortly acuminate into narrow apices, the dorsal sepal 3.2 mm long, 2.5 mm wide, 3 -veined, connate 1 mm to the lateral sepals, the lateral sepals oblique, connate $1 \mathrm{~mm}, 3 \mathrm{~mm}$ long, 2.8 mm wide together, each 1 -veined; petals red-purple, pubescent, transversely oblong, 0.4 mm long, 1 mm wide, the lobes subequal, oblong, rounded; lip red-purple, the blades oblong with rounded ends, 1.2 mm long, the connectives broadly cuneate, the body connected to the column above the base, the sinus narrow with a comparatively large, oblong, long-pubescent appendix; column red-purple, 1 mm long, the anther dorsal, the stigma ventral.
La Paz: Sud Yungas, epiphytic in cloud forest east of Unduavi, alt. $3100 \mathrm{~m}, 22$ Jan. 1984, C. Luer, J. Luer \& R. Vásquez 9409 (Holotype: SEL).

Lepanthes epibator is the one of very few prolific species with single-veined lateral sepals known from the Andes, and the only one known from Bolivia. Other distinguishing characteristics include its weak habit, racemes shorter than the leaves, and very small flowers with a lip connate to the column above the base and a comparatively large, long-pubescent appendix.

Lepanthes falcata Luer \& R.Vásquez, Phytologia 54: 342, 1983.
Ety.: From the Latin falcatus, "sickle-shaped," in reference to the lobes of the lip.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $10-30 \mathrm{~mm}$ long, enclosed by 4-6 ciliate lepanthiform sheaths. Leaf erect, coriaceous, suffused with purple beneath, elliptical, subacute to obtuse, $11-18 \mathrm{~mm}$ long including a petiole $2-3 \mathrm{~mm}$ long, $5-11 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a loose, fractiflex, successively flowered raceme up to 13 mm long including the peduncle, often with 2 flowers open simultaneously; floral bracts $1-1.5 \mathrm{~mm}$ long; pedicels $1-1.5$ mm long; ovary 1 mm long, more or less minutely papillose; sepals brown, widely spread, free nearly to the base, spiculate externally along the thickened veins, the dorsal sepal narrowly ovate, acute, acuminate, 4.5 mm long, $1-1.5 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals narrowly triangular, acute, curved upward, $4.5-5 \mathrm{~mm}$ long, $0.8-1 \mathrm{~mm}$ wide, 1 -veined, the outer margins narrowly and lightly incurved; petals brown, microscopically pubescent, transversely oblong, $0.2-0.3 \mathrm{~mm}$ long, $1.5-2.75 \mathrm{~mm}$ wide, the lobes narrowly obtuse; lip brown, bilobed, 1.3 mm long, the lobes falcate, surrounding the column, the acute apices incurved beneath the apex of the column, minutely pubescent along the inner margins, the sinus acute with a minute, triangular appendix; column 1.5 mm long, the anther and stigma apical.

La Paz: Nor Yungas, epiphytic in cloud forest west of Coroico, alt. $2800 \mathrm{~m}, 4$ Feb. 1980, C. Luer, J. Luer, R. Vásquez \& R. Lara 5113 (Holotype: SEL); Bautista Saavedra, ephiphytic in trees along the river below Charazani, alt. 2550 m, 20 Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16454 (MO).
Cochabamba: Chapare, alt. $2750 \mathrm{~m}, 1981$, R. Vásquez 515 (MO); Carrasco, Sehuancas, epiphytic in forest along Río Lope Mendoza, alt. $2200 \mathrm{~m}, 13$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12813 (MO); Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. 1900 m, 15 Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12839, 12844 (MO); epiphytic in forest remnant, between Villa Tunari and Cochabamba, alt. $2320 \mathrm{~m}, 23$ Aug. 1991, C. Luer, J. Luer \& R. Vásquez 15346 (MO); epiphytic in forest remnant along road north of Cocapata, alt. $2630 \mathrm{~m}, 5$ Feb. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18382 (MO); road to Tablas Montes, wet cloud forest, alt. 2550 m, 27 Nov. 1999, S. Dalström, J. Sönnemark \& R. Burian 2416 (MO).
Santa Cruz: Manuel Maria Caballero, other data unknown, R. Vásquez, D. Ric et al 1578 (MO); epiphytic in moist forest above Mairana, La Yunga, west of Samaipata, alt. 2090 m, 8 Sep. 1991, C. Luer, J. Luer, R. Vásquez \& D. Ric 15414 (MO).

This small species, endemic in central Bolivia, is characterized by a flexuous raceme that apparently does not exceed the length of the little elliptical leaf. The sepals are acuminate and widely spread, with the tips of the lateral sepals spreading about $180^{\circ}$ from each other. The lobes of the transverse petals are slender and nearly equal in size and shape. The lobes of the lip are falcate and embrace the column without forming blades. The acute, incurved tips surround the column below the stigma.

## Lepanthes fuchsii Luer, Lindleyana 6: 70, 1991.

Ety.: Named in honor of the late Fred Fuchs, Jr. of Naranja, Florida, who discovered this species.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $2-3.5 \mathrm{~cm}$ long, enclosed by 5-6 minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, suffused with purple beneath, elliptical, obtuse, $11-18 \mathrm{~mm}$ long, $8-12 \mathrm{~mm}$ wide, with the base cuneate into a petiole 2 mm long. Inflorescence a loose, distichous, flexuous, successively many-flowered raceme up to 7 cm long including the slender peduncle ca. 2 cm long; floral bracts 1.5 mm long; pedicels 2.5 mm long; ovary 1 mm long; sepals yellow, sometimes suffused with rose, carinate, entire, with the dorsal sepal subcircular, concave, 3 mm long, 3 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , with the rounded apex abruptly contracted into a short tail, with the lateral sepals widely spread, ovate, oblique, 5 mm long, 2.5 mm wide, 1 -veined, connate 1 mm , the apices acute, acuminate, everted and incurved, shortly caudate; petals yellow, microscopically pubescent, transversely bilobed, reniform, 0.75 mm long, 2 mm wide, with the lobes about equal, broadly ovate, oblique with the apices rounded, pubescent; lip yellow, microscopically pubescent, obscurely bilaminate, with the blades thick, ovoid, with rounded ends, 1.5 mm long, with the connectives and body broad, thick, connate to the base of the column, with the anterior margin of the body (the appendix) broadly triangular, minutely ciliate; column 1.5 mm long, with the anther and the stigma apical.

Bolivia: without locality, collected by Fred Fuchs, Jr., ca. 1976, flowered in cultivation, 25 Apr. 1987, by J \& L Orchids, Easton, CT, C. Luer 12805 (Holotype: MO).

Obtained from Fred Fuchs, this species was successfully cultivated at J \& L Orchids, without collection data. Lepanthes fuchsii is distinguished by its long, loose, flexuous raceme, greatly exceeding small, elliptical leaves; entire, broad sepals with recurved, shortly caudate apices, the laterals singly veined; little reniform petals; and a lip with thick, ovoid blades with short connectives and a protruding, broadly triangular appendix.

Lepanthes garayi T.Hashim., J. Jap. Bot. 49: 12, 1974.
Ety.: Named for Leslie A. Garay, former curator of the AMES Orchid Herbarium.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $5-7.5 \mathrm{~cm}$ long, enclosed by 6-7 microscopically ciliate-scabrous, lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, acuminate, $20-33 \mathrm{~mm}$ long, $10-15 \mathrm{~mm}$ wide, with the base cuneate into a petiole $4-5 \mathrm{~mm}$ long. Inflorescence a congested, distichous, flexuous, successively many-flowered raceme up to 8 mm long, borne by a slender peduncle $5-8 \mathrm{~mm}$ long behind the leaf; floral bracts 1.75 mm long; pedicels 1.25 mm long; ovary 1 mm long; sepals yellow-green, minutely short-pubescent, carinate, the dorsal sepal with a purple vein, broadly ovate, obtuse, shortly acuminate, 3.75 mm long, 3 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , the lateral sepals ovate, oblique, 5 mm long including tails, 1.75 mm wide, 1 -veined, connate less than 1 mm , the apices acute, acuminate, contracted into relatively stout tails 1 mm long; petals yellow, suffused with rose, minutely pubescent, broadly ovate to triangular, obtuse, 1 mm long, 1.25 mm wide, 1 -veined; lip brown, minutely long-pubescent, bilaminate, with the blades thick, oblong, with rounded ends, 1.2 mm long, with the connectives broad from the basal half, the body thick, connate to the base of the column, with the anterior margin of the body incised, the appendix ciliate, external, thick with an apical pair of minute, oblong lobes; column 1.5 mm long, with the anther apical and the stigma ventral.

Cochabamba: Carrasco, 8.5 km en la carretera San Miguel a Comarapa, epiphyte on a tree in céja forest, alt. unknown, 12 Oct. 1971, Nishida, Hashimoto \& Maekawa s.n. (Holotype: TI).
Santa Cruz: Comarapa, alt. 2500 m, 1 Dec. 1978, C. Luer, J. Luer \& R. Vásquez 3601 (MO); Manuel Maria Caballero, 30 km de Comarapa a Siberia, alt. $2200 \mathrm{~m}, 3$ Nov. 1990, R. Vásquez, D. Ric \& A. Burela 1282 (MO); collecting data unknown, R. Vásquez \& D. Ric 2537 (MO).

This little species is apparently endemic in central Bolivia, near the southern extension of the Andes. It is distinguished by a small size with elliptical leaves shorter than the ramicauls, and an inflorescence shorter than the leaf. The sepals are broadly ovate with the broad dorsal spanning the width of both lateral sepals combined, and the lateral sepals single-veined and caudate. The petals are subtriangular and obtuse with the two halves, or lobes, more or less equal and widest at their junction. The blades of the lip are oblong and long-pubescent with thick connectives. Two narrow processes from an external appendix protrude beyond the incised margin of the body.

Lepanthes glaberrima Luer \& R.Vásquez, Phytologia 54: 344, 1983.
Ety.: From the Latin glaberrimus, "very smooth, without hair," referring to the petals and the lip.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-10 cm long, enclosed by 5-6 close, minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, narrowly ovate, acute, lightly acuminate, $2-4 \mathrm{~cm}$ long, $0.9-1.5 \mathrm{~cm}$ wide, the base cuneate into the petiole ca. 1.5 mm long. Inflorescence a congested, distichous, successively flowered raceme up to 20 mm long, borne either behind or on top of the leaf by a filiform peduncle 4-8 mm long; floral bracts 1 mm long; pedicels 2 mm long; ovary slender, 4 mm long; sepals red-orange, edged in yellow, glabrous, the dorsal sepal broadly ovate, 2.5 mm long, 2.25 mm wide, the apex obtuse to rounded, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals ovate, oblique, subacute, connate $1.5 \mathrm{~mm}, 2.2 \mathrm{~mm}$ long, 2.5 mm wide together, each 2-veined; petals orange, glabrous, transversely oblong, bilobed, 1 mm long, 2.75-3.5 mm wide, the outer margin incised near the middle, the lobes triangular-oblong with rounded ends, the lower lobe smaller; lip purple, tinged with orange, the blades elliptical, glabrous, 1.75 mm long, the ends rounded, the connectives narrowly cuneate, connate to the column above the base, the appendix ovoid, pubescent, hinged at the sinus, with an ovoid apical gland; column 1.5 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest on the road to Tablas, alt. $2500 \mathrm{~m}, 9$ Feb. 1980, C. Luer, J. Luer \& R. Vásquez 5181 (Holotype: SEL).
La Paz: Bautista Saavedra, epiphytic in trees along the river below Charazani, alt. $2470 \mathrm{~m}, 20$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16458 (MO).
Santa Cruz: near Khara Huasi, wet cloud forest, alt. 2000 m, 22 Nov. 1999, S. Dalström, J. Sönnemark \& R. Burian 2394 (MO).

This species, endemic in central Bolivia, is notable for the small, long-pedicellate flowers produced in a congested, distichous raceme far shorter than the narrowly ovate leaf. The sepals are broadly ovate and obtuse to rounded; the petals and blades of the lip are proportionately large and glabrous. The petals are incised on the outer margin between the upper and middle lobes. The relatively large, hinged appendix of the lip is the only part of the flower that is pubescent.

The flower of Lepanthes incisa Luer \& R.Vásquez bears a superficial similarity to that of L. glaberrima, but the inflorescence of the former is short-pedicelllate, the similar petals are pubescent, and the lip has long connectives elevating the blades above a short column with a four-lobed, hinged appendix.

Lepanthes hastata Luer \& Hirtz, Lindleyana 8: 108, 1992.
Ety.: From the Latin hastatus, "spear-shaped," referring to a ramicaul with a leaf.
Plant medium in size, epiphytic, caespitose; roots slender, numerous. Ramicauls slender, erect, 5-9 cm long, enclosed by 10-12 microscopically ciliate lepanthiform sheaths with dilated ostia. Leaf erect, coriaceous, narrowly ovate, acute, $4-5.5 \mathrm{~cm}$ long, $0.9-1.1 \mathrm{~cm}$ wide, the base cuneate into a petiole 2-3 mm long. Inflorescence a congested, distichous, successively many-flowered raceme up to 20 mm long, borne behind the leaf by a filiform peduncle $5-8 \mathrm{~mm}$ long; floral bracts 1 mm long, minutely subspiculate; pedicels $1.25-1.5 \mathrm{~mm}$ long; ovary 1.5 mm long, with erose crests; sepals yellow, broadly ovate, acute, microscopically subdenticulate, carinate, the dorsal sepal suffused with orange, 3 mm long, 3 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , the lateral sepals oblique, 3.5 mm long, 1.75 mm wide, 2 -veined, connate 1 mm , the apices acute, acuminate, diverging; petals orange, cellular, transversely bilobed, 1 mm long, 2.75 mm wide, the lobe upper lobe cuneate, subtruncate, the lower lobe oblong, obtuse; lip bilaminate, the blades glabrous, red, ovate, lightly concave, narrowly obtuse, 1.25 mm long, the connectives broadly cuneate, the body connate to the base of the column, the sinus deeply cleft with obtuse angles on both margins, the appendix oblong, pubescent, with an apical segment with a pair of minute tufts of hairs; column stout, 1 mm long, the anther dorsal, the stigma ventral.

La Paz: Larecaja, southwest of Tipuani, epiphytic in forest remnant above Santa Barbara, Alto Llipi, alt. 1350 m, 30 Aug. 1991, collected by A. Hirtz, J. del Hierro \& W. Teague, C. Luer 15384 (Holotype: MO).

This endemic species is closely allied to Lepanthes intricata Luer from southeastern Ecuador. Lepanthes hastata is distinguished by its narrowly ovate leaves; broad sepals with the apices of the lateral sepals acuminate and diverging; cuneate upper lobes of the petals; glabrous, concave blades of the lip; and a deeply cleft sinus with marginal angles on both sides. The appendix, very similar to that of $L$. intricata, is oblong with an apical segment with a pair of tufted hairs.

Lepanthes helicocephala Rchb.f., Xenia Orch. 1: 150, 1856.
Ety: From the Greek helicocephale, a "twisted head," probably referring to the petiole of the leaf with the flowers borne along the back side.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-6 cm long, enclosed by 6-9 glabrous to microscopically ciliate lepanthiform sheaths. Leaf erect, coriaceous, ellipti-cal-ovate, obtuse, $2-3 \mathrm{~cm}$ long, $1.5-2 \mathrm{~cm}$ wide, the base broadly cuneate or rounded, contracted into a petiole $1-1.5 \mathrm{~mm}$ long. Inflorescence a congested, distichous, successively many-flowered raceme up to 10 mm long, borne behind the leaf by a filiform peduncle $7-12 \mathrm{~mm}$ long; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 2.5 mm long; sepals light yellow-brown, glabrous, carinate, the dorsal sepal narrowly triangular, acute, 5.5 mm long, 2 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals ovate, oblique, acute, in apposition, 4.75 mm long, 2.25 mm wide, connate at the base, 2-veined; petals orange-brown, minutely pubescent, transversely bilobed, 1.4 mm long, 2.6 mm wide,
the upper lobe oblong-ovate, rounded at the apex, the lower lobe broad at the base but contracted about midway into a narrow apex; lip orange-brown, minutely pubescent, bilaminate, the blades convex, ovoid, the labellar lobe contracted above the middle to a narrow apex without forming a blade, 1.5 mm long, the connectives broadly cuneate, the body broad, connate to the column at the base, the appendix short, ovate, concave, pubescent, incurved, in association with a stigmatic process; column 1.5 mm long, the anther dorsal, the stigma ventral.
Cochabamba: Chapare, old road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. 700 m , 30 Jan. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18314A (MO); same location, Feb. 1997, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague s.n. (MO).

Also Suriname (Mariepaston, type: Kegel 1350); Guyana (Roche Touatou, Bassin du Sinnamary); Venezuela (Bolivar, Amazonas); Ecuador (Sucumbíos, Napo, Morona-Santiago); Brazil (Acre); and Peru (Pasco).

This species is widely distributed in lowland Amazonian South America from the Guyanas, through Brazil to Ecuador, Peru and Bolivia. Although it has not been reported from Colombia, it certainly must occur there. Despite the extensive range, it remains vegetatively and florally stable. The flowers are borne behind the leaf in a congested raceme. The sepals are acute, with the dorsal sepal narrow and the laterals broad at the base and held in apposition. Very characteristically, the lower lobes of the petals and the apices of the blades of the lip are contracted above the middle into narrow portions, with the apices of the labellar lobes not forming blades.

Lepanthes herzogii Luer, Rev. Soc. Boliv. Bot. 2(1): 23, 1998.
Ety.: Named for Birger Herzog, Department of Biochemistry, University of Leipzig, Germany, who collected this species.
Plant small, epiphytic, scandent, branching; roots slender. Ramicauls prolific, slender, 9-20 mm long, enclosed by 3-4 long-ciliate lepanthiform sheaths. Leaf erect, coriaceous, broadly elliptical, obtuse, apiculate, $6-9 \mathrm{~mm}$ long including a petiole 1 mm long, $5-6 \mathrm{~mm}$ wide, with the rounded base contracted into the petiole. Inflorescence a loose, distichous, flexuous, successively few-flowered raceme up to 3 cm long including the slender peduncle ca. 10 mm long; floral bracts 1 mm long, sparsely long-ciliate; pedicels 1 mm long; ovary 0.75 mm long; flowers dark purple; sepals carinate- spiculate, cellular-glandular within, ovate, subacute to obtuse, contracted into tails $2-2.5 \mathrm{~mm}$ long, the dorsal sepal 2.5 mm long, 2 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals diverging, oblique, longciliate, 2.5 mm long, 2.5 mm wide, 2 -veined, connate 1 mm ; petals long-pubescent, transversely bilobed, 0.5 mm long, 2.4 mm wide, the lobes oblong, obtuse, equal in size; lip bilobed, the lobes pubescent, long-ciliate, ovate, apices acute, bases rounded, 0.85 mm long, the connectives cuneate, the body broad, concave, connate to the base of the column, the appendix small, a dense tuft of hairs; column elongate, cylindrical, 1.25 mm long, with the anther apical and the stigma ventral.
La Paz: Bautista Saavedra, Charazani, east of Chullina, in forest, alt. 3380 m, 8 Jan. 1994, B. Herzog 195 (Holotype: LZ; Isotypes: LPB, MO), C. Luer illustr. 18911.

This little species is one of a few in the genus characterized by a scandent, proliferating habit. The leaves are small and broadly elliptical, and the inflorescence is a loose, flexuous, few-flowered inflorescence. The plant has the appearance of Trichosalpinx chamaelepanthes (Rchb.f.) Luer, with the base of one ramicaul proliferating from the apex of another. The tails of the sepals are about as long as the blades, with the lateral sepals long-ciliate; the petals are transversely oblong; and the lip is bilobed. The long-ciliate lobes are ovate without forming blades, and the appendix is reduced to a tuft of long hairs.

## Lepanthes incisa Luer \& R.Vásquez, Phytologia 54: 348, 1983.

Ety.: From the Latin incisus, "cut into," referring to the deeply incised petals.
Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 4-9 cm long, enclosed by 5-8 close, minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, narrowly ovate-elliptic, acute, acuminate, $3-5 \mathrm{~cm}$ long, $1-1.3 \mathrm{~cm}$ wide, the blade cuneate into a 3 mm long petiole. Inflorescence a congested, distichous, successively many-flowered raceme up to 13 mm long, borne
behind the leaf by a filiform peduncle 6-10 mm long; floral bracts $1.5-2 \mathrm{~mm}$ long; pedicels 2 mm long; ovary 2.5 mm long; sepals yellow-orange, suffused with purple basally, glabrous, the dorsal sepal broadly ovate, subacute, 2.8 mm long, 2 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals ovate, connate to above the middle, 2.2 mm long, 2.4 mm wide together, each 2 -veined, the apices obtuse; petals yellow-orange, suffused with purple at the base, minutely pubescent, transversely elliptical, bilobed, 1 mm long, 4 mm wide, the outer margin incised near the middle, the lobes obtusely triangular with rounded ends, the lower lobe smaller; lip red-orange, cellular-pubescent, the blades oblong with rounded ends, 1.5 mm long, the connectives narrow, lifting the blades above the column, the narrow body connate to the column above the base, the appendix pubescent, 4-lobed, hinged at the sinus in contact with the rostellum; column 1 mm long, the anther apical, the stigma ventral.

La Paz: Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. $2550 \mathrm{~m}, 27 \mathrm{Jan} .1981, C$. Luer. J. Luer \& R. Vásquez 5796 (Holotype: SEL).

This species of central Bolivia is superficially similar to Lepanthes glaberrima Luer \& R.Vásquez, even the petals being similar in size and shape with an incision on the outer margin. The flowers of $L$. incisa are borne by short pedicels, the petals are minutely pubescent, the lip has narrow connectives elevating the blades above a short column, and the appendix is four-lobed. In contrast, the inflorescence of $L$. glaberrima is long-pedicellate, the similar petals are glabrous, and the appendix is ovoid.

Lepanthes incredibilis Luer \& R.Vásquez, Rev. Soc. Boliv. Bot. 2(1): 19, 1998.
Ety: From the Latin incredibilis, "incredible," referring to its preposterous habit.
Plant very small, epiphytic, caespitose; roots thick. Ramicauls erect, slender, $1.5-3 \mathrm{~mm}$ long, enclosed by 2 microscopically pubescent lepanthiform sheaths. Leaf erect, coriaceous, elliptical, subacute to obtuse, $5-7 \mathrm{~mm}$ long including a petiole 1 mm long, $2.5-3.25 \mathrm{~mm}$ wide, cuneate below into the petiole. Inflorescence a congested, successively 2(?)-flowered raceme up to 7 mm long including the peduncle; floral bracts 1 mm long, minutely ciliate; pedicels 1.5 mm long; ovary 0.75 mm long; sepals purplebrown, carinate, the dorsal sepal triangular, acute, slightly acuminate, smooth, 6 mm long, 4 mm wide, 3veined, connate to the lateral sepals for 2 mm , the lateral sepals ovate, acute, oblique, 7.5 mm long including a slender tail 1.5 mm long, 2.5 mm wide, 2 -veined, connate 2 mm , densely short-ciliate, with the outer margin ciliate in 2 ranks; petals green with dark purple margins, microscopically pubescent, transversely bilobed, the upper lobe oblong, obtuse, convex, 2.5 mm long, 1.5 mm wide, the lower lobe narrowly triangular, acute, 1.5 mm long; lip pale yellow, suffused with rose at both ends, bilaminate, the blades oblong-subreniform with the ends rounded, flat to slightly concave, 1.8 mm long, the inner margin below the middle long-ciliate, with the connectives triangular-cuneate, with the body connate to the base of the column, the sinus obtuse with the appendix arising from the anterior surface, oblong, clavate, pubescent; column 1 mm long, with the anther dorsal and the stigma ventral.

Cochabamba: Chapare, epiphytic in forest between Cochabamba and Villa Tunari, alt. 1750 m, 31 Jan. 1997, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 18346 (Holotype: MO).

Vegetatively, this species is extremely small with ramicauls less than three millimeters long and leaves less than seven millimeters long. The flower is comparatively huge, thirteen millimeters long between tips of the dorsal and lateral sepals, and five millimeters wide, about four times the area of a leaf. The dorsal sepal is smooth while the margins of the lateral sepals are densely ciliate, with the outer margins more or less ciliate in two ranks. The upper lobe of the petals is oblong with an obscure, central convexity; the lower lobe is narrowly triangular and much smaller. The blades of the lip are oblong, with the basal half slightly everted and somewhat concave with the inner margins long-ciliate, resembling the ciliate blades of the comparatively gigantic Lepanthes menatoi Luer \& R. Vásquez. The appendix is small, clavate and pubescent.

Lepanthes ionoptera Rchb.f., Bonplandia 3: 70, 1855.
Ety.: From the Greek ionoptera, "violet-winged," referring to the flowers.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-5.5 cm long, enclosed by 4-6 minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, subacute to obtuse, 2-3.2 cm long, $0.8-1.5 \mathrm{~cm}$ wide, cuneate below into a petiole $2-3 \mathrm{~mm}$ long. Inflorescence a loose, successively many-flowered raceme up to 18 cm long, borne by a peduncle $3-5 \mathrm{~cm}$ long; floral bracts 2 mm long; pedicels 1-4 mm long; ovary 2 mm long; sepals purple to red-brown, with or without light green margins, margins entire to minutely ciliate, glabrous, ovate, acute, long-acuminate, the dorsal sepal 14-22 mm long, $3.5-4 \mathrm{~mm}$ wide, 3 -veined, connate 1 mm to the lateral sepals, the lateral sepals narrowly linearovate, long-attenuate, $14-24 \mathrm{~mm}$ long, 3.5 mm wide at the base, 2 -veined, connate 4 mm , apices approximate; petals orange-brown, microscopically pubescent, transversely bilobed, 1 mm long, $4.5-6 \mathrm{~mm}$ wide, the upper lobe narrowly ovate, acute, the lower lobe obliquely triangular, slightly shorter than the upper lobe; lip rose, bilaminate, the blades oblong, slightly convex, with both ends rounded, minutely pubescent, $1.5-2 \mathrm{~mm}$ long, the connectives cuneate, the body connate to the column above the base, the appendix pedunculate, inflated, shortly pubescent, hinged at the sinus; column stout, 2 mm long, the anther apical, the stigma ventral.

Cochabamba: Chapare, road to Tablas, alt. $2500 \mathrm{~m}, 28$ Nov. 1979, R. Vásquez 209 (MO), C. Luer illustr. 9480.
Also Colombia (Norte de Santander, type: Wagener s.n., W; Santander); Venezuela; and Peru.
This species is one of the few of the genus Lepanthes from the Andes that was represented in the herbaria of Europe during the nineteenth century. It was collected by Wagener in the old department of Ocaña in the Eastern Cordillera of Colombia. It is one of the more spectacular species with a long, loose raceme that slowly produces a succession of large, slender, flowers with long-acuminate, purplish sepals. Lepanthes vasquezii Luer, the only similar Bolivian species, is larger vegetatively with ramicauls five to nine centimeters long and a leaf about four centimeters long. The dorsal sepal of $L$. vasquezii is broader and concave. The transversely bilobed petals of both species are similar with the upper lobe of L. ionoptera narrowly ovate and the lower lobe obliquely triangular, while the upper lobe of $L$. vasquezii is elliptical and rounded at the tip with the lower lobe narrowly oblong. The lips of the two species are similar with oblong, pubescent blades and a pubescent appendix with a terminal segment.

Lepanthes llipiënsis Luer \& Hirtz, Lindleyana 7: 111, 1992.
Ety.: Named for Alto Llipi above Tipuani where this species was discovered.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $1-2.5 \mathrm{~cm}$ long, enclosed by 6-8 microscopically ciliate lepanthiform sheaths with dilated ostia. Leaf erect, coriaceous, ovate, acute, $12-18 \mathrm{~mm}$ long, $9-13 \mathrm{~mm}$ wide, the base rounded, contracted into a petiole $1-2 \mathrm{~mm}$ long. Inflorescence a congested, distichous, successively several-flowered raceme up to 8 mm long, borne behind the leaf by a filiform peduncle $4-5 \mathrm{~mm}$ long; floral bracts 1 mm long, minutely subspiculate; pedicels 0.75 mm long; ovary 1.5 mm long; sepals light yellow to white, ovate, acute, lightly acuminate, the dorsal sepal 3.3 mm long, 2.1 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals oblique, 3 mm long, 1.6 mm wide, 3 -veined, connate 0.5 mm ; petals yellow, cellular, transversely bilobed, 1 mm long, 2 mm wide, the lobes obliquely subquadrate with a small apiculum on the outer margin between the lobes, the upper lobe slightly larger; lip bilaminate, the blades red to purple, glabrous except for minutely ciliate margins of the apices, oblong, narrowly obtuse, 1.5 mm long, the connectives cuneate, short, the body narrow, connate to the base of the column, the sinus deeply cleft, the appendix ovoid, pubescent, with an oblong apical segment; column stout, 1 mm long, the anther apical, the stigma ventral.

La Paz: Larecaja, southwest of Tipuani, epiphytic in forest remnant above Santa Barbara, Alto Llipi, alt. 1350 m, 30 Aug. 1991, collected by A. Hirtz, J. del Hierro \& W. Teague, C. Luer 15387 (Holotype: MO).

This species, apparently endemic in central Bolivia, is allied to Lepanthes chorista Luer from southeastern Ecuador and northeastern Peru. Lepanthes llipiënsis is
distinguished by a smaller size and entire sepals, with the lateral sepals threeveined. The petals of the two species are practically identical, but the lip differs in several respects. The blades of the lip of L. Ilipiënsis are narrow and do not adhere over the column, and are not prominently convex above the middle. The terminal segment of the ovoid appendix is oblong, and not subclavate and forked.

Lepanthes longipedicellata C.Schweinf., Bot. Mus. Leafl., Harvard Univ. 15: 79, 1951.
Ety.: From the Latin longipedicellatus, "long-pedicellate," referring to the inflorescence.
Plant small, epiphytic, caespitose; roots fleshy, wider than the ramicaul. Ramicauls erect, slender, $1.5-4 \mathrm{~cm}$ long, enclosed by 4-7 long-ciliate, lepanthiform sheaths. Leaf erect, suffused with purple beneath, coriaceous, ovate, obtuse, $8-20 \mathrm{~mm}$ long, $5-10 \mathrm{~mm}$ wide, with the base broadly cuneate into a petiole 2-3 mm long. Inflorescence 1 to 3 loose, distichous, flexuous, successively several-flowered racemes of 5-7 flowers up to 15 mm long, borne by a slender peduncle $7-10 \mathrm{~mm}$ long, eventually equalling or shortly surpassing the leaf; floral bracts 1.5 mm long; pedicels 3 mm long; ovary 1 mm long; sepals cream, suffused with dull purple centrally, long-denticulate along the carinate veins externally, the dorsal sepal ovate, acute, contracted into a slender tail 2 mm long, 5 mm long including the tail, 1.5 mm wide, 3-veined, the lateral sepals narrowly ovate, oblique, diverging, acute, acuminate, with upcurving, slender tails, 5 mm long, including the tails, 1.5 mm wide, 1 -veined, barely connate basally; petals yellow-brown, microscopically pubescent, transversely bilobed, 0.5 mm long, 2.5 mm wide, 1 -veined, the upper lobe oblong, obtuse, 1.5 mm long, the lower lobe 1 mm long, slightly incurved; lip red-purple, glabrous to cellular-pubescent, bilaminate, with the blades thick, oblong, curved, with rounded ends, 1.6 mm long, with the connectives broad from the center, the body thick, connate to the column above the base, with the anterior margin of the body incised, the appendix a group of long cilia; column 2.5 mm long, with the anther and the stigma apical.

La Paz: Nor Yungas, west of Coroico, alt. $2550 \mathrm{~m}, 27$ Jan. 1983, C. Luer, J. Luer \& R. Vásquez 8609 (SEL); Bautista Saavedra, epiphytic in trees along the river below Charazani, alt. $2700 \mathrm{~m}, 19$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16437 (MO); epiphytic in trees along the river below Charazani, alt. 2470 m, 20 Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16461 (MO); Murillo, epiphytic in trees along Río Zongo, alt. $2750 \mathrm{~m}, 22$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 16477 (MO).
Also Peru (Puno, type: C. Vargas 3128, AMES).
This little species occurs in the Andes of southern Peru and adjacent central Bolivia. It is distinguished by the small size with ovate leaves surpassed by loose inflorescences with long-pedicellate flowers. The sepals are acute, caudate, and long-denticulate along the veins externally. The narrow petals are transversely bilobed. The blades of the lip are crescent-shaped, and the appendix is represented by a group of long cilia.

Lepanthes megalocephala Luer \& R.Vásquez, Phytologia 55: 188, 1984.
Ety.: From the Latinized Greek megalocephalus, "with a large head," referring to the proportionately large flower for the plant.
Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $5-10 \mathrm{~mm}$ long, enclosed by 4-5 microscopically scabrous lepanthiform sheaths. Leaf erect, coriaceous, purple beneath, reticulated, ovate, subacute, $8-10 \mathrm{~mm}$ long, $6-7 \mathrm{~mm}$ wide, the rounded base contracted into a petiole 1 mm long. Inflorescence a congested, distichous, successively large-flowered raceme up to 5 mm long, borne behind the leaf by a filiform peduncle $3-5 \mathrm{~mm}$ long; floral bracts ciliate, 0.75 mm long; pedicels 0.75 mm long; ovary 1.5 mm long; sepals red with yellow margins, triangular-ovate, acute, densely ciliate and carinate-ciliate, the dorsal sepal 4.5 mm long, 3 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , the lateral sepals 4.5 mm long, 2 mm wide, 2-veined, connate for 1.5 mm , minutely pubescent above the middle; petals red-orange, pubescent, transversely bilobed, 3.75 mm wide, 1 mm long, the lobes narrowly triangular, acute, the upper larger; lip yellow, suffused with red-orange, the blades linear-ovate, 2 mm long, long-ciliate, the ends narrowly obtuse, the connectives narrowly cuneate, originating from the base of the column without forming a body, the sinus acute, with an oblong, truncate, pubescent appendix; column slender, 2 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $1850 \mathrm{~m}, 29$ Jan. 1984, C. Luer, J. Luer \& R. Vásquez 9470 (Holotype: SEL).
La Paz: Nor Yungas, road between Caranavi and Bella Vista, alt. 1300 m, collected Aug. 1991, flowered in cultivation in Quito, Ecuador, Dec. 1991, A. Hirtz 5573 (MO); Nor Yungas, Bella Vista, alt. 1800 m, collected Aug. 1991, flowered in cultivation in Quito, Ecuador, Dec. 1991, A. Hirtz 5700 (MO).

The first plant of this central Bolivian species, found by Roberto Vásquez, was minute with the brightly colored flower as large as the reticulate leaf. Subsequent collections have been thrice larger vegetatively, but with similar flowers. The sepals are densely ciliate and the narrowly triangular lobes of the petals are pubescent. The linear-ovate, long-ciliate blades of the lip are supported by connectives that do not form a body. Instead, an acute sinus is formed from which the appendix originates.

Lepanthes megalostele Luer, Phytologia 54: 352, 1983.
Ety.: From the Greek megalostele, "a large column," referring to the size of the column.
Syn.: Lepanthes micropogon Luer, Phytologia 54: 353, 1983.
Ety.: From the Greek micropogon, "a small beard," referring to the ciliate appendix.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-9 cm long, enclosed by 5-8 blackish, close, microscopically ciliate lepanthiform sheaths, with the ostia essentially not dilated. Leaf erect, coriaceous, elliptical, acute, 2-4 cm long, $1-1.8 \mathrm{~cm}$ wide, the base cuneate into a petiole 2-3 mm long. Inflorescence a congested, distichous, long-pedicellate, successively flowered raceme up to 7 mm long, borne behind the leaf by a filiform peduncle $10-22 \mathrm{~mm}$ long; floral bracts 1 mm long, echinate; pedicels 2 mm long; ovary 2 mm long; sepals light yellow, glabrous, carinate, subacute to obtuse, the dorsal sepal ovate-triangular, 2.5 mm long, $1.5-1.9 \mathrm{~mm}$ wide, 3 -veined, connate to the lateral sepals for 0.75 mm , the lateral sepals ovate, connate $1.5 \mathrm{~mm}, 2.5 \mathrm{~mm}$ long, $2.25-2.5 \mathrm{~mm}$ wide together, each 2-veined; petals yellow or orange, suffused with red, transversely oblong, $0.8-1 \mathrm{~mm}$ long, 3.5 mm wide, microscopically pubescent, the upper lobe elliptical, obtuse, the lower lobe smaller, oblong, obtuse; lip red, bilaminate, the blades elliptical, poorly developed above the middle, 1 mm long, the apices acute, long-ciliate, the bases rounded, the connectives cuneate, the body narrow, connate to the base of the column, the appendix thick, broadly triangular, pubescent, with an acute, ciliate, incurved apex; column proportionately large, 1.5 mm long, the anther and stigma apical.

La Paz: Nor Yungas, between Coroico and Coripata, alt. 2000m, 3 Feb. 1980, C. Luer, J. Luer \& R. Vásquez 5069 (SEL).
Also Ecuador (Mapo, type of L. megalostele, A. Hirtz 917B, SEL; type of L. micropogon, C. Luer \& A. Hirtz 6952, SEL).

This species, first collected and described from Ecuador, has been subsequently collected in central Bolivia. It is recognized by dark, non-dilated lepanthiform sheaths; elliptical leaves; short, congested, distichous, long-pedicellate racemes; entire, ovate-triangular sepals; proportionately large petals; and small blades of the lip that are long-ciliate at the apex in the Bolivian collection. The remarkable column is as large or larger than one of the blades of the lip, but the appendix is minute. The body of the lip was erroneously interpreted as being a large appendix in the description of Lepanthes megalostele in the Lepanthes of Ecuador (Luer, 1996).

Lepanthes menatoi Luer \& R.Vásquez, Phytologia 55: 189, 1984.
Ety.: Named in honor of Dino Menato of Chulumani, Bolivia, who discovered this species.
Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, $10-25 \mathrm{~cm}$ long, enclosed by 10-15 pale, ciliate lepanthiform sheaths. Leaf erect, thinly coriaceous, more or less suffused with purple, elliptical-ovate, obtuse, shortly acuminate, $6-11 \mathrm{~cm}$ long, $2.5-6 \mathrm{~cm}$ wide, the base rounded, contracted into a twisted petiole 3-5 mm long. Inflorescence a congested, distichous, successively many-flowered raceme up to 6 cm long, borne behind the leaf by a filiform peduncle $1.5-3.5 \mathrm{~cm}$ long; floral bracts 1.5 mm long; pedicels $1-1.5 \mathrm{~mm}$ long; ovary 3 mm long; sepals yellow, glabrous, the dorsal sepal triangular,
acute or subacute, 8 mm long, 5.5 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals oblique, ovate, subacute, in apposition, 8 mm long, $3-3.5 \mathrm{~mm}$ wide, 2 -veined, connate $2-3 \mathrm{~mm}$; petals yellow or orange, with red margin, glabrous, transversely bilobed, $1.25-1.75 \mathrm{~mm}$ long, $4-4.75 \mathrm{~mm}$ wide, the upper lobe oblong, truncate, the lower lobe smaller, narrowly triangular; lip yellow, sometimes suffused with rose, bilaminate, the blades oblong, convex, with rounded ends, 1.5 mm long, the surfaces and outer margins glabrous, the inner margins long-ciliate, covering the column, the connectives narrow from the bases of the blades, the body connate to the base of the column, the sinus obtuse with a small, oblong, pubescent appendix; column stout, 1 mm long, the anther dorsal, the stigma ventral.

La Paz: Sud Yungas, collecting data unknown, flowered in cultivation by Dino Menato in Chulumani, Bolivia, 24 June 1984, C. Luer 9428 (Holotype: MO).
Santa Cruz: Manuel Maria Caballero, alt. 2200 m, 2 Feb. 1992, R. Vásquez, L.R. Moreno \& D. Ric 1591 (MO).
Also Ecuador (Napo, Tungurahua, Morona-Santiago); Peru (Amazonas).
This large species is widely distributed on the eastern slopes of the Andes of Ecuador, Peru and Bolivia. It is stable morphologically, usually robust and large, with a broad, shortly acuminate leaf with a congested raceme borne along the back surface. The sepals are acute; the upper lobe of the petals is oblong and truncate, and the lower lobe is narrowly triangular. It is distinguished from the host of other yellow-flowered, large species of Lepanthes by the lip with oblong, curved blades, with long-ciliate inner margins that partially cover the column.

## Lepanthes microphallica Luer, sp. nov.

Ety.: From the Greek microphallos, "a minute phallus," referring to the appendix.
Species haec Lepanthides sillarensis Schltr. similis, sed inflorescentia congesta folio breviore, columna minore nonarcuata quam labelli laminis breviore, et appendice minuta cum glandula terminali differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $1-5 \mathrm{~cm}$ long, enclosed by 3-8 minutely ciliate, lepanthiform sheaths. Leaf erect, suffused with purple beneath, coriaceous, elliptical, acute, $10-30 \mathrm{~mm}$ long, $6-11 \mathrm{~mm}$ wide, the base cuneate into a petiole 1.5 mm long. Inflorescence 1 or 2 congested, successively many-flowered racemes up to 15 mm long, borne behind the leaf by a filiform peduncle $3-6 \mathrm{~mm}$ long; floral bracts $0.75-1 \mathrm{~mm}$ long; pedicels $0.75-1 \mathrm{~mm}$ long; ovary $1-2 \mathrm{~mm}$ long; sepals yellow, sometimes suffused with rose, carinate, the dorsal sepal ovate, acute, $3.5-4 \mathrm{~mm}$ long, 2 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals ovate, acute, oblique, 3.5 mm long, $1.5-1.75 \mathrm{~mm}$ wide, 2 -veined, connate 1.5 mm ; petals yellow-orange to purple, microscopically pubescent, transversely bilobed, 1 mm long, 2.75 mm wide, 1 -veined, the lobes oblong with obtuse ends, the upper lobe larger than the lower; lip bilaminate, the blades red to purple, cellular-glandular, oblong with rounded ends, 1.75 mm long, the connectives narrowly cuneate, from the bases, the body narrow, connate to the base of the column, the appendix in the sinus, deflexed, minute, oblong with a terminal gland; column terete, 1.5 mm long, the anther dorsal, the stigma ventral.
La Paz: Nor Yungas, Chuspipata, alt. $2600 \mathrm{~m}, 21$ Jan. 1988, C. Luer, J. Luer \& R. Vásquez 12899 (Holotype of L. microphallica: MO); between Coroico and Coripata, alt. $2000 \mathrm{~m}, 3$ Feb. 1980, C. Luer, J. Luer \& R. Vásquez 5068 (SEL); Sud Yungas, along Río Unduavi, alt. 2480 m, 6 Feb. 1980, C. Luer, J. Luer, R. Vásquez \& M. Mannon 5138A (SEL).

Lepanthes microphallica is superficially similar to L. sillarensis Schltr., with similar, small, elliptical leaves and small flowers borne by a congested raceme that apparently remains shorter than the leaf. The sepals and petals are not remarkably different, but the blades of the lip of $L$. microphallica are nearly as long as the column they flank, while the blades of $L$. sillarensis are proportionately smaller as they partially cover a larger, arcuate column. The connectives of both species originate from the base of the column with the appendix in the sinus. The appendix of L. microphallica is minute and slender, with a terminal gland, not at all resembling the triangular, flaplike appendix of $L$. sillarensis.

Lepanthes miraculum Luer \& R.Vásquez, Phytologia 54: 353, 1983.
Ety.: From the Latin miraculum, "a marvel," referring to the grotesque features of the flowers.
Plant medium in size, epiphytic, caespitose; roots relatively coarse. Ramicauls slender, erect to suberect, 3-9.5 cm long, enclosed by 6-9 ciliate lepanthiform sheaths with markedly dilated ostia. Leaf erect, coriaceous, suffused with purple beneath, elliptical, acute, $2-3 \mathrm{~cm}$ long, $0.9-1.1 \mathrm{~cm}$ wide, the base cuneate into a petiole $2-4 \mathrm{~mm}$ long. Inflorescence a loose, subflexuous, distantly successively flowered raceme up to 10 cm long including the slender peduncle $2.5-4 \mathrm{~cm}$ long; floral bracts 1.5 mm long, ciliate; pedicels 2.5 mm long; ovary 1.5 mm long, papillose-winged; sepals dark red, the margins erose, the carinae serrate, the dorsal sepal triangular, acute, shortly acuminate, 10.5 mm long, 6.5 mm wide, 3veined, connate to the lateral sepals for 3 mm , the lateral sepals connate 5 mm into a bifid lamina 11.5 mm long, 8.5 mm wide, shortly pubescent, concave basally, the apices ovate, acute, shortly acuminate, 3veined; petals red, ciliate, bilobed, the upper lobe 1 mm long, acute, reflexed, the lower lobe falcate, acute, 3 mm long, 1 mm wide, long-ciliate; lip bright purple, the blades oblong, 1.75 mm long, glabrous except for short cilia at the narrowly obtuse apices, the bases rounded and continuous with the cuneate connectives connate to the column near the middle below the stigma, the sinus obtuse with a broad, membranous, retuse, ciliate appendix in contact with a clavate appendage from the stigma; column 2 mm long, the apical half dilated with the dorsal anther and ventral stigma, the shaft extremely slender.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2500 \mathrm{~m}, 22$ Jan. 1980, C. Luer, J. Luer \& R. Vásquez 4906 (Holotype: SEL); same area, alt. 2600 m, 26 Nov. 1978, C. Luer, F. Fuchs et al. 3490 (SEL); same area, collected by B. Wuerstle, alt. $2700 \mathrm{~m}, 13$ Jan. 1981, C. Luer 5662 (SEL); Pampa Tambo, alt. $2800 \mathrm{~m}, 24$ Dec. 1979, R. Vásquez 234 (SEL).

The proportionately small leaves of this remarkable species are borne by long, slender ramicauls. The large, dark red flowers are produced in loose racemes as long as the ramicauls. The sepals are erose, shortly pubescent and shortly acuminate. The lower lobes of the ciliate petals flank the column, while the minute upper lobes twist behind. The lobes of the lip are oblong and cover the column, the shaft of which is very slender like that of Lepanthes vespa Luer \& R.Vásquez. The weblike appendix is in contact with a clavate process from the stigma as is seen in L. contingens Luer of Ecuador and Colombia.

Lepanthes monitor, Luer, Phytologia 54: 354, 1983.
Ety.: From the Latin monitor, "a reminder," referring to the morphological features reminiscent of Lepanthes elata Rchb. f. and its relatives.
Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls slender to stout, erect, 6-28 cm long, enclosed by 9-14 minutely ciliate lepanthiform sheaths. Leaf erect, thinly coriaceous, oblong-ovate, acute, acuminate, $6-12 \mathrm{~cm}$ long, 2-6 cm wide, the base cuneate or rounded, contracted into a petiole $3-5 \mathrm{~mm}$ long. Inflorescence a congested, distichous, successively many- flowered raceme up to 40 mm long, borne by a filiform peduncle up to 40 mm long behind the leaf; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 2 mm long; sepals pale yellow, glabrous, ovate, acute, the dorsal sepal tri-angular-ovate, $5-7 \mathrm{~mm}$ long, $2.5-4 \mathrm{~mm}$ wide, 3 -veined, connate to the lateral sepals for $1.5-2 \mathrm{~mm}$, the lateral sepals oblique, $5-7 \mathrm{~mm}$ long, 2 -veined, connate $2.5-5 \mathrm{~mm}$ into an ovate, bifid lamina 4-8 mm wide, the acute apices shortly acuminate; petals yellow or white with purple margins, cellular-glandular, transversely bilobed, $1.25-1.5 \mathrm{~mm}$ long, $3.5-4 \mathrm{~mm}$ wide, the upper lobe ovate-oblong with the apex subtruncate, oblique, the lower lobe obliquely and narrowly contracted below the middle; lip orange, white or purple, bilaminate, blades ovate, minutely pubescent, $1.5-2 \mathrm{~mm}$ long, the apices narrowly rounded, the bases rounded, the connectives short, cuneate, the body connate to the base of the column, the sinus obtuse with the appendix small, triangular, pubescent, with a minute apical lobule; column 1.5 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, alt. 2820 m, 12 Dec. 1989, R. Vásquez 1172 (MO).
Also Ecuador (Loja, type: C. Luer, D. D’Alessandro \& S. Dalström 7096, SEL; Napo, Morona-Santiago, Zamora-Chinchipe); Colombia (Antioquia, Quindio); and Peru (Amazonas).

Lepanthes monitor, a large species with sharply pointed sepals borne by large flowers in a congested raceme, is widely distributed from Colombia into Bolivia. It is variable vegetatively and florally, especially in the shape of the petals. Although the oblique, subtruncate apices of the upper lobes of typical L. monitor are easily recognized, the shape is sometimes obscure. Elliptical, shallowly concave blades of the lip mostly cover the column. The appendix is small, triangular and pubescent.

Lepanthes monoptera Lindl., J. Bot. 1: 10, 1834.
Ety.: From the Greek monopteron, "single-wing," referring to an ovarian carina which was prominent on the dorsum of the ovary of Lindley's only flower.
Syn.: Lepanthes roseola Rchb.f., Linnaea 41: 46, 1877.
Ety.: From the Latin roseolus, "rosy," referring to the flowers.
Syn.: Lepanthes dolichopus Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 96, 1920.
Ety.: From the Greek dolichopous, "long-footed," referring to the proportionately long ramicaul.
Plant small to large, epiphytic, caespitose; roots slender. Ramicauls slender to stout, erect, 6-30 cm long, enclosed by 7-11 lightly colored, microscopically scabrous lepanthiform sheaths with slightly dilated ostia. Leaf erect, coriaceous, often suffused with purple beneath, narrowly elliptical, acute, 4-13 cm long, $0.5-1.3 \mathrm{~cm}$ wide, the base cuneate into a petiole $2-3 \mathrm{~mm}$ long. Inflorescence a subcongested, successively several- to many-flowered raceme $1-9 \mathrm{~cm}$ long, borne behind the leaf by a filiform peduncle ca. 1 cm long; floral bracts 2-3 mm long, enclosing the pedicels 1 mm long; ovary trialate, $1.5-2 \mathrm{~mm}$ long; flowers variable in color from green, yellow, rose, to purple-brown; sepals denticulate, carinate, ovate, acute, slightly acuminate, the dorsal sepal $4.75-7 \mathrm{~mm}$ long, $3-3.5 \mathrm{~mm}$ wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals oblique, 4.75-7 mm long, 2 mm wide, 1 -veined, connate $1-1.5 \mathrm{~mm}$; petals minutely pubescent, transversely bilobed, $1-1.3 \mathrm{~mm}$ long, $3-4 \mathrm{~mm}$ wide, the lobes oblong to triangular, obtuse, subequal; lip bilaminate, the blades variably elliptical, long-ciliate, 2-3 mm long, the bases rounded, the apices narrowly obtuse, the connectives short, from near or below the middle of the blades, the body broad, connate to the base of the column, the sinus obtuse, with a minute, ovate, pubescent appendix; column slender, clavate, $2-3 \mathrm{~mm}$ long, the anther dorsal, the stigma ventral.

La Paz: Nor Yungas, west of Coroico, epiphytic in cloud forest, alt. 2550 m, 27 Jan. 1983, C. Luer, J. Luer \& R. Vásquez 8601 (MO).

Also Ecuador (Azuay, type of L. monoptera: W. Jameson s.n.,, K; Carchi, Imbabura, Sucumbíos, Pichincha, type of L. roseola: R. Spruce 5954, W; Napo, Tungurahua, Morona-Santiago, Cañar, Loja, Zamora-Chinchipe); Colombia (Antioquia, Norte de Santander, Quindio, Cundinamarca, Cauca, type of L. dolichopus: Madero s.n., destroyed at B).

This species was described and illustrated by Lindley from a single plant and a single flower. Although crude, enough details are included to leave no doubt about its identity. Jameson had collected the plant near Cuenca, Ecuador, where it is known to be especially common today. It is common at high altitudes in much of Ecuador, but less common in Colombia and known from only a single collection in Bolivia.

The leaves are narrowly elliptical, not much longer than the ramicaul when the plant is small, but in larger plants the ramicaul is noticeably much longer than the leaf. The subcongested racemes reach about half the length of the leaf. The sepals are denticulate, and the lateral sepals are one-veined. The transverse petals are variously shaped, often overlapping above the column. The blades of the lip are variably elliptical and ciliate, and the appendix is short and pubescent.

Lepanthes mucronata Lindl., Companion Bot. Mag. 2: 356, 1834.
Ety.: From the Latin mucronatus, "mucronate," referring to the tip of the leaves.
Syn.: Lepanthes andrenoglossa Rchb.f., Bonplandia 3: 241, 1855.
Ety.: From the Greek andrenoglossa, "a masculine tongue," without obvious reference.
Syn.: Lepanthes mesochlora Rchb.f., Xenia Orch. 1: 147, 1856.
Ety.: From the Greek mesochloros, "green in the middle," referring to the colors of the flower.
Syn.: Lepanthes macroura Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 55, 1921.
Ety.: From the Greek makroura, "a large or long tail," referring to the mucronate tip of the leaf.
Plant small to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-23 cm long, enclosed by 7-12 closely fitting, microscopically ciliate-scabrous lepanthiform sheaths with narrowly dilated, acuminate ostia. Leaf more or less horizontal, often purple beneath, thinly coriaceous, ovate to narrowly ovate, acute, acuminate, $1-8 \mathrm{~cm}$ long, $0.5-2 \mathrm{~cm}$ wide, the base broadly to narrowly cuneate into a petiole $1-2 \mathrm{~mm}$ long. Inflorescence a congested, successively many-flowered raceme up to 10 mm long, borne on top of the leaf by a filiform peduncle $3-20 \mathrm{~mm}$ long, a short and a long peduncle frequently co-existing; floral bracts $1-2 \mathrm{~mm}$ long; pedicels $2-4 \mathrm{~mm}$ long; ovary $1.5-2 \mathrm{~mm}$ long; sepals yellow, brown or purple, glabrous, the dorsal sepal ovate, obtuse, $3-4 \mathrm{~mm}$ long, $2.75-3.25 \mathrm{~mm}$ wide, 3 -veined,
connate to the lateral sepals for 0.5 mm , the lateral sepals connate into a broadly ovate, $3-4 \mathrm{~mm}$ long synsepal, 3-3.75 mm wide, each 2-veined, the apex obtuse, often shortly bifid; petals green, brown or purple, microscopically pubescent, transversely bilobed, with a slender, marginal process between the lobes, 1-1.5 mm long, 3-5 mm wide, the upper lobe oblong, truncate, with the angles often shortly acuminate, sometimes erose, the lower lobe triangular, acute; lip purple or brown, bilaminate, blades thin, elliptical with rounded ends, minutely ciliate, $1.5-2.25 \mathrm{~mm}$ long, borne at the base by short connectives, the body narrow, connate to the base of the column, the sinus obtuse with a comparatively large, oblong, concave, ciliate appendix; column $1.5-2.5 \mathrm{~mm}$ long, the anther dorsal, the stigma ventral.

Cochabamba: Carrasco, Sehuencas, alt. 2100 m, 13 Sept. 1993, P. Ibisch 93.1103A (MO).
Also Ecuador (Pichincha, type of L. mucronata: Col. Hall s.n., , K; type of L. andrenoglossa: W. Jameson 78, K; type of L. mesochlora, W. Jameson 27, K; type of L. macroura, Sodiro 2a, destroyed at B; Carchi, Sucumbíos, Imbabura, Napo, Pastaza, Tungurahua, Morona-Santiago, Azuay, Loja, ZamoraChinchipe); Colombia (Santander, Boyacá, Antioquia, Chocó, Cundinamarca, Quindio, Valle del Cauca, Cauca, Nariño, Putumayo); and Peru (Pasco).

Lepanthes mucronata is one of the most frequently encountered species of the genus in the Andes. It is exceedingly variable vegetatively, no two populations being alike. The plants vary from small to relatively large, but always with very slender ramicauls bearing more or less horizontal leaves. The leaves are thin and vary from ovate, short- to long-acuminate, to narrowly ovate, and rarely to nearly linear. A small variation with ovate leaves was recognized by Reichenbach as $L$. andrenoglossa; he recognized tall variations with narrow leaves as $L$. mesochlora. The tips of the leaves are often prominently mucronate, but this feature occurs in varying degrees in all species of the genus.

Commonly, two inflorescences lie upon the upper surface of the leaf, usually within the central groove. Curiously, a raceme borne by a short peduncle usually accompanies a second raceme with a twice longer peduncle. The racemes often bear their single, brownish or greenish flower simultaneously. Double racemes are also sometimes seen in related species. The flowers vary somewhat, especially in the upper margin of the upper lobe of the petals, but the flower is always readily recognized. The upper margin varies from broadly obtuse to truncate, sometimes with the corners narrowly pointed, and sometimes erose. A narrow process, or a third lobe, projects laterally from the margin between the two lobes. The lip is distinct with the pair of thin, fragile blades overlying a proportionately large, scaphoid appendix.

Lepanthes nebulina Luer \& R.Vásquez, Phytologia 54: 355, 1983.
Ety.: From the Latin nebulinis, "belonging to fog," referring to the cool, wet, foggy habitat.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $3.5-9 \mathrm{~cm}$ long, enclosed by 7-9 ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, 2.5-4 cm long including the petiole $2-3 \mathrm{~mm}$ long, $10-17 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a loose, subflexuous, successively several- to many-flowered raceme up to 15 cm long including the filiform peduncle, 2-3 flowers open simultaneously; floral bracts 1.5 mm long, spiculate; pedicels 1 mm long; ovary 1 mm long; sepals purple to yellow suffused with purple, margins minutely ciliate, otherwise glabrous, ovate, acute, acuminate, the dorsal sepal concave, 7 mm long, 3.25 mm wide unexpanded, 3veined, connate to the lateral sepals for 1 mm , the lateral sepals connate $2 \mathrm{~mm}, 7 \mathrm{~mm}$ long, 3.75 mm wide together, each 1-veined; petals orange, suffused with purple or brown, transversely oblong, microscopically pubescent, 1 mm long, 2.75 mm wide, the upper lobe oblong, rounded, the lower lobe much smaller, triangular, curved, narrowly obtuse; lip red, minutely pubescent, the blades oblong with rounded ends, 1.6 mm long, the connectives broadly cuneate above the middle of the blades, connate to the column above the base, the sinus obtuse with a small, thin, slender, revolute appendix; column 1.5 mm long, the anther and stigma apical.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2650 \mathrm{~m}, 9$ Feb. 1980, C. Luer, J. Luer \& R. Vásquez 5185 (Holotype: SEL); same area, alt. 2600 m, 26 Nov. 1978, C. Luer, F. Fuchs et al. 3494 (SEL); same area, alt. $2500 \mathrm{~m}, 4$ Feb. 1983, C. Luer, J. Luer, R. Vásquez \& E. Besse 8679 (SEL); Chapare, alt. $2800 \mathrm{~m}, 12$ Dec. 1989, R. Vásquez 1169 (MO); without further data, R. Vásquez 1317 (MO).

This species, apparently endemic in central Bolivia, is characterized by a long, loose raceme of flowers with acuminate, minutely ciliate sepals, the lateral sepals single-veined; obtuse petals; and a lip with oblong blades, and a tiny, slender, revolute appendix.

Lepanthes nycteris Luer \& R.Vásquez, Phytologia 54: 357, 1983.
Ety.: From the Greek nykteris, "a bat," referring to the resemblance of the central apparatus to the face of a star-nosed bat.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, 4-7 cm long, enclosed by 7-9 minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, broadly elliptical to subcircular, $10-23 \mathrm{~mm}$ long including a $2-4 \mathrm{~mm}$ long petiole, $8-14 \mathrm{~mm}$ wide, the rounded apex minutely notched, the rounded base abruptly contracted into the slender petiole. Inflorescence a loose, flexible, successively flowered raceme $4-10 \mathrm{~cm}$ long including the filiform peduncle; floral bracts and pedicels each 1.5 mm long; ovary $1-1.5 \mathrm{~mm}$ long, the ribs long-papillose; sepals light rose suffused with purple, the margins and carinate veins conspicuously lacerate externally, the dorsal sepal subcircular, shallowly concave, 13 mm long, 9 mm wide, 7 -veined, the rounded apex abruptly contracted into a fine apiculum $2-3 \mathrm{~mm}$ long, the lateral sepals connate ca. 10 mm into a multiangular, more or less ovate, bifid lamina 15 mm long, 7 mm wide, abruptly and deeply concave in the basal third, forming a pair of convexities below the middle, narrowed and pubescent in the middle third with revolute margins, the pair of apices attenuate, acute, approximate, 5 mm long, 2 -veined, with the lateral vein branching into 2 ; petals purple, microscopically pubescent, transversely bilobed, narrowly lunate, 0.8 mm long, 4 mm wide, the upper lobe oblong-sigmoid, obtuse, the lower lobe falcate, acute; lip purple, long-pubescent, transversely bilobed, 1.5 mm long, 5.5 mm wide expanded, the lobes falcate, acute, bilobed, erect to either side of the column, with the acute angle or lobe on the anterior margin meeting with the angle from the other petal above the column, the base connate near the base of the column, the sinus with a short, obtuse, pubescent appendix; column slender, 2.5 mm long, the anther dorsal, the stigma subapical.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $1750 \mathrm{~m}, 21$ Nov. 1982, R. Vásquez \& N. Williams 682 (Holotype: SEL), C. Luer illustr. 8525; Chapare, between Cochabamba and Villa Tunari, alt. 1750 m , Nov. 1982, R. Vásquez 829 (MO).
La Paz: Murillo, Río Zongo, collected by Tineke Mulder, January 1988, cultivated at Wageningen, Holland, Sep. 1988, C. Luer 13770 (MO).

This remarkable species, endemic in Bolivia, is characterized by a long, loosely flowered raceme of peculiar flowers with irregularly lacerate margins of the sepals. The dorsal sepal is large, rounded, shortly apiculate and multiveined. The synsepal is concave below a central, convex portion. Similarly shaped sepals are seen in few other species. The lobes of the petals are narrow, more or less lunate. The unique, erect, long-pubescent lobes of the lip are angled on the anterior margin that surrounds the protruding column behind the anther, altogether suggesting the face of some bats.

Lepanthes orchestris Luer \& R.Vásquez, Phytologia 54: 358, 1983.
Ety.: From the Greek orchestris, "a dancer," in allusion to the dainty, tailed flowers.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, more or less horizontal, 4-7 cm long, enclosed by 8-10 ciliate lepanthiform sheaths with thin, markedly dilated ostia. Leaf more or less pendent, coriaceous, suffused with purple beneath, elliptical, acute, acuminate, 4-5.5 cm long, $1.2-1.8 \mathrm{~cm}$ wide, the base cuneate into a petiole 2 mm long. Inflorescence a dense, secund, successively flowered raceme up to 15 mm long, borne behind the leaf by a filiform peduncle $5-15 \mathrm{~mm}$ long; floral bracts 1 mm long; pedicels 2.5 mm long; ovary 2 mm long; sepals red-brown with yellow margins, the margins minutely and distantly denticulate, the blades ovate, carinate, acute, acuminate into short, slender tails, the dorsal sepal 6.25 mm long, 3.75 mm wide, connate to the lateral sepals for 1 mm , the lateral sepals 7.5 mm long, 2.3 mm wide, connate 1.5 mm ; petals yellow, suffused with red, transversely oblong with rounded ends, 1 mm long, 4.5 mm wide, broadly angled near the middle on the outer margin, the upper lobe narrowly oblong; lip brown, glabrous, with the blades narrowly oblong, the ends rounded, 3 mm long, microscopically ciliate at the apices, the connectives short, cuneate, connate to the column above the middle, the appendix small, subquadrate with an equally long apiculum in contact with a stigmatic process; column 2 mm long, the anther dorsal, the stigma ventral.

La Paz: Nor Yungas, west of Coroico, alt. $2550 \mathrm{~m}, 27$ Jan. 1983, C. Luer, J. Luer \& R. Vásquez 8610 (Holotype: SEL); Nor Yungas, epiphytic in forest north of Caranavi toward Alto Beni, alt. $1550 \mathrm{~m}, 26$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. Mulder, D. Mulder \& A. Vogel 12947 (MO); Nor Yungas, road between Caranavi and Bella Vista, alt. 1300 m, Aug. 1991, flowered in cultivation by Hirtz, Quito, Ecuador, Dec. 1991, A. Hirtz 5576 (MO); Nor Yungas, Alto Llipe, alt. 1700 m, Aug. 1991, flowered in cultivation by Hirtz, Quito, Ecuador, Dec. 1991, A. Hirtz 5699 (MO).

This pretty species is distinguished by pendent, purple leaves with short racemes of graceful, caudate flowers; transversely oblong petals; and narrowly oblong blades of the lip, with an apiculum of the small appendix in contact with a process from the stigma.

The species described and illustrated as Lepanthes orchestris in Lepanthes of Ecuador is now identified as L. mimica Luer. The flowers share the same general appearance, with denticulate, caudate, diverging sepals, but those of L. orchestris are half again as large. Vegetatively, L. mimica is smaller, with erect ramicauls at most 4 cm long, bearing leaves that are erect, ovate and subacute, instead of acuminate and pendent.

Lepanthes oxyphylla Luer \& R.Vásquez, Phytologia 54: 359, 1983.
Ety.: From the Greek oxyphyllon, "a pointed leaf," referring to the narrowly ovate leaf.
Plant medium in size, caespitose, epiphytic; roots slender. Ramicauls slender, erect, 3-7.5 cm long, enclosed by 6-10 minutely ciliate lepanthiform sheaths with dilated ostia. Leaf erect, coriaceous, suffused with purple beneath, very narrowly ovate, acute, $3-5.5 \mathrm{~cm}$ long including the petiole $2-3 \mathrm{~mm}$ long, $6-9 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a subdense, flexuous, successively several-flowered raceme up to 25 mm long, borne behind the leaf by a filiform peduncle $6-12 \mathrm{~mm}$ long; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 2.5 mm long; sepals bright purple, edged in white, sparsely and minutely denticulate, ovate, acute, acuminate, the dorsal sepal 4.5 mm long, 3.25 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , the lateral sepals oblique, 4.5 mm long, 2 mm wide, 2 -veined, connate 1 mm ; petals yellow, suffused with purple, glabrous, at most microscopically cellular-pubescent, transversely oblong, 1 mm long, 2.8 mm wide, with a small obtuse angle on the outer margin near the middle, the lobes more or less oblique, obtuse; lip yellow, suffused with purple, glabrous, microscopically ciliate, the blades narrowly oblong, 1.75 mm long, the ends obtuse, the connectives narrowly cuneate, the body narrow, connate to the column above the base, the sinus deeply cleft, the appendix pubescent, ovoid basally, narrowed centrally, with a bilobed apical segment; column 1.5 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. 1900 m , 26 Nov. 1978, C. Luer, F. Fuchs et al. 3533 (Holotype: SEL); Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. $1900 \mathrm{~m}, 15$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12838, 12840A (MO).
La Paz: Sud Yungas, cloud forest along the Río Unduavi, alt. 2450 m, 6 Feb. 1980, C. Luer, J. Luer, R. Vásquez \& M. Manon 5150 (SEL).

This endemic species is notable for the narrowly ovate blades of the leaves with shorter, flexuous, subdensely flowered racemes; sparsely, minutely denticulate sepals; and a lip with narrowly oblong blades and an appendix with a bilobed apical segment. Both vegetatively and florally, Lepanthes oxyphylla resembles L. hastata Luer \& Hirtz. The flower of L. oxyphylla is distinguished by its larger size; sepals bright purple bordered with white, rather than yellow; a lip with blades flat, rather than concave; and a deeply cleft sinus lacking the marginal angles that characterize the equally deeply cleft sinus of $L$. hastata.

## Lepanthes paivana Rchb.f., Xenia Orchid. 3: 26, 1881, as Lepanthes paivaeana.

Ety.: Named in honor of Sr. Castello de Paiva of Bolivia who aided Mandon in collecting plants.
Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-11 cm long, enclosed by 6-8 dark, ciliate, lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, 25.5 cm long, $5-8 \mathrm{~mm}$ wide, cuneate below into a subpetiolate base. Inflorescence 1 or 2, loose, distichous, slightly flexuous, successively several-flowered racemes up to 12 mm long, borne by a slender
peduncle $5-8 \mathrm{~mm}$ long; floral bracts dark brown, 1 mm long; pedicels 1.75 mm long; ovary 2 mm long; sepals light green with purple veins, entire, microscopically pubescent, the dorsal sepal broadly ovate, subacute, slightly acuminate, 5 mm long, 4 mm wide, 3 -veined, connate to the lateral sepals for ca. 1 mm , the lateral sepals ovate, oblique, acute, acuminate, 4.75 mm long, 2 mm wide, 1 -veined, connate 1 mm ; petals orange, suffused with red on the margins, microscopically pubescent, transversely bilobed, minutely apiculate between the lobes, 1 mm long, 2 mm wide, 1 -veined, the upper lobe oblong, rounded, 1 mm long and wide, the lower lobe slightly smaller; lip orange, suffused with red, minutely pubescent, bilaminate, the blades oblong with rounded ends, 2 mm long, with the connectives cuneate, below the middle, the body narrow, connate to the column at the base, the appendix elliptical, ciliate, in the sinus; column 2 mm long, the anther apical, the stigma ventral.

La Paz: Larecaja, near Sorata, Cerro Chilieca, alt. 2900 m, Oct 1859-May, 1869, G. Mandon 1133 (Holotype: W; Isotype: NY); Nor Yungas, epiphytic in forest west of Chuspipata, alt. $3100 \mathrm{~m}, 21$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. Mulder, D. Mulder \& A. Vogel 12886A, 12887A (MO); same area, alt. $2650 \mathrm{~m}, 21$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. Mulder, D. Mulder \& A. Vogel 12898 (MO); Nor Yungas, near the pass between Coroico and La Paz, alt. 3000 m , collected in August 1991, flowered in cultivation in Quito Dec. 1991, A. Hirtz 5578 (MO); Nor Yungas, Coroico, alt. 1800 m, collected in August 1991, flowered in cultivation in Quito Dec. 1991, A. Hirtz 5675 (MO).
Cochabamba: Chapare, road to Villa Tunari, alt. $2600 \mathrm{~m}, 26$ Nov. 1978, C. Luer, J. Luer, F. Fuchs et al. 3493 (SEL); Chapare, alt. $3300 \mathrm{~m}, 7$ Dec. 1980, R. Vásquez 469 (MO); Chapare, 2900 m , Dec. 1981, R. Vásquez 653 (MO); El Balconcillo, epiphytic in scrub, subpáramo trees, alt. $3200 \mathrm{~m}, 18$ Nov. 1984, C. Luer, J. Luer \& R. Vásquez 10499 (MO); Chapare, epiphytic on trees along a quebrada northeast of Cochabamba toward Villa Tunari, alt. $3150 \mathrm{~m}, 14$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 16406 (MO); old road from Cochabamba to Villa Tunari, epiphytic in cloud forest, alt. $3350 \mathrm{~m}, 1$ Feb. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18361 (MO).

Lepanthes paivana, not uncommon in the Andes of northern and central Bolivia, was the first species Reichenbach described from Bolivia, in 1881. It is distinguished by a medium-sized plant with acute, elliptical leaves. Short, successively flowered racemes bear small, light green flowers with purple veins; a broadly ovate, slightly acuminate dorsal sepal and acuminate, single-veined lateral sepals; short, transverse petals; and a lip with oblong, pubescent blades and a ciliate appendix.

Lepanthes panicellus Luer \& R.Vásquez, Phytologia 54: 360, 1983.
Ety.: From the Latin panicellus, "a roll, a small loaf of bread," referring to the appearance of the lobes of the lip.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 6-10 cm long, enclosed by 7-9 ciliate lepanthiform sheaths. Leaf erect, coriaceous, ovate, acute, acuminate, apiculate, $4-6 \mathrm{~cm}$ long including a petiole $3-4 \mathrm{~mm}$ long, $2-2.8 \mathrm{~cm}$ wide, the base rounded to broadly cuneate into the petiole. Inflorescence a congested, distichous, successively flowered raceme up to 8 mm long, borne behind the leaf by a filiform peduncle up to 15 mm long; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 2 mm long; sepals white, glabrous, the dorsal sepal triangular, acute, shortly acuminate, 6 mm long, 3.5 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals ovate, acute, shortly acuminate, connate $3 \mathrm{~mm}, 6 \mathrm{~mm}$ long, 5 mm wide together, each 2 -veined; petals white with purple margins, microscopically pubescent, transversely oblong, 1 mm long, 2.2 mm wide, the upper lobe oblong, obtuse, the lower lobe smaller, broadly falcate, obtuse; lip white, microscopically pubescent, the blades lunate, convex, with rounded ends, 1 mm long, longitudinally sulcate, the connectives broad, connate to the column below the middle by a short claw, the obtuse sinus with a short, ligulate, pubescent appendix; column 1.5 mm long, the anther dorsal, the stigma ventral.
Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2500 \mathrm{~m}, 4$ Feb. 1983, C. Luer, J. Luer, R. Vásquez \& E. Besse 8673 (Holotype: SEL).
La Paz: Sud Yungas, epiphytic in cloud forest along the Río Unduavi, alt. $2450 \mathrm{~m}, 6$ Feb. 1980. C. Luer, J. Luer, R. Vásquez \& M. Manon 5139 (SEL); Nor Yungas, epiphytic in cloud forest east of the pass near Chuspipata, alt. 2800 m, 27 Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15367 (MO).

Although closely related to many other species with a similar habit, this species is distinguished by snow white flowers with purple-bordered petals, at least in the specimens seen, and a lip with thick, convex, sulcate blades resembling bread rolls. The appendix is a small, pubescent flap beneath the stigma.

Lepanthes panisca Luer \& R.Vásquez, Phytologia 54: 360, 1983.
Ety.: Named for the diminutive of Pan, Paniskos, the Greek god of the satyrs.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-6 cm long, enclosed by 7-8 ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, subacute, $22-25 \mathrm{~mm}$ long including the petiole $4-5 \mathrm{~mm}$ long, $8-9 \mathrm{~mm}$ wide, cuneate below into the petiole. Inflorescence an erect, loose, successively few-flowered raceme up to ca. 15 mm long, borne behind the leaf by a filiform peduncle up to 20 mm long; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; sepals yellow-green with purple veins, the veins thickened, verrucose externally, pubescent within, ovate, acute, acuminate, concave, the margins narrowly involute, the dorsal sepal 3.5 mm long, 2.25 mm wide, 3 -veined, connate 0.75 to the lateral sepals, the lateral sepals oblique, diverging, 3.25 mm long, 1.5 mm wide, 1 -veined, connate 1 mm ; petals green, suffused with purple, transversely elliptical, 1.25 mm long, 3.5 mm wide, the upper lobe long-ciliate, triangular, the lower lobe short-ciliate, narrowly triangular, obtuse; lip green, suffused with purple, the blades oblong, 1.6 mm long, pubescent and long-ciliate, with obtuse ends, the connectives broadly rectangular, connate to the base of the column, the sinus protruding, subacute, triangular, shortly pubescent, shallowly cleft centrally, without an appendix; column 2 mm long, the anther dorsal, the stigma long-protruding, apical.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. 1500 m , 26 Nov. 1978, C. Luer, F. Fuchs, et al. 3526 (Holotype: SEL); Chapare, alt. 1800 m, 16 Mar. 1991, R. Vásquez, L. R. Moreno \& D. Ric 1470 (MO).
La Paz: Larecaja, Unutuluni, alt. 1500 m, collected in August 1991, flowered in cultivation in Quito, Ecuador, A. Hirtz 5703 (MO).

Lepanthes panisca is characterized by a loose raceme that surpasses the tip of a small, elliptical leaf. The margins of the single-veined lateral sepals are narrowly involute, exposing the exterior, verrucose surface, the interior being pubescent. The margins of the lateral sepals of $L$. ringens Luer \& Hirtz are similarly involute. The petals of $L$. panisca are large with triangular lobes. The long-ciliate blades of the lip are borne above the column by unusually broad connectives that form a triangular, protruding margin beneath a snoutlike protrusion of the column that bears the stigma at the tip.

Lepanthes papilio Luer \& R.Vásquez, Phytologia 54: 361, 1983.
Ety.: From the Latin papilio, "a butterfly," in allusion to the proportionately large pair of petals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-6 cm long, enclosed by 5-6 microscopically scabrous lepanthiform sheaths. Leaf erect, coriaceous, narrowly ovate, acute, 2-3 cm long, $0.7-0.8 \mathrm{~cm}$ wide, the base cuneate into a petiole 1.5 mm long. Inflorescence a congested, distichous, successively several-flowered raceme up to 7 mm long, borne behind the leaf by a filiform peduncle $8-10 \mathrm{~mm}$ long; floral bracts 0.75 mm long, minutely muriculate; pedicels 1.25 mm long; ovary 2.5 mm long; sepals yellow-orange, glabrous, ovate, subacute, the dorsal sepal 3 mm long, 2 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm , the lateral sepals connate $1 \mathrm{~mm}, 2.25 \mathrm{~mm}$ long, 2.5 mm wide together, each 2 -veined; petals proportionately large, bright orange, cellular-pubescent, transversely oblong, 1.25 mm long, 3 mm wide, the upper lobe oblong, subtruncate, the lower lobe obtusely triangular, smaller; lip bright rose, cellular-pubescent, the blades obovate, convex, 1.33 mm long, the ends rounded, the connectives and body narrow, verrucose, connate to the base of the lip, the appendix large, pubescent, flaplike, concave, hinged from the sinus; column 1.33 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $1900 \mathrm{~m}, 26$ Nov. 1978, C. Luer, F. Fuchs et al. 3532 (Holotype: SEL); Carrasco, Sehuencas, alt. 2100 m, 15 Dec. 1993, P. \& C. Ibisch 93.1967 (MO); old road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. 1650 m, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18333 (MO).

This Bolivian "butterfly" species with narrowly ovate leaves and short, congested racemes is distinguished by small, brightly colored flowers. The petals are proportionately large, resembling the wings of a butterfly. The appendix of the lip is large, ovoid and pubescent, filling the broad sinus.

Lepanthes pileata Luer \& R.Vásquez, Phytologia 54: 363, 1983.
Ety.: From the Latin pileatus, "with a cap," referring to the appearance of the concave dorsal sepal.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $3.5-9 \mathrm{~cm}$ long, enclosed by 8-9 minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical, acute, 20-33 mm long including the $2-3 \mathrm{~mm}$ long petiole, $10-15 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a loose, subflexuous, several to many-flowered raceme up to 20 cm long including the filiform peduncle, flowers small, 2-3 open simultaneously; f1oral bracts 1.5 mm long; pedicels 0.5 mm long; ovary 1 mm long; sepals yellow, suffused with purple centrally, the dorsal sepal ovate, deeply concave, cucullate, acute, acuminate, 4.5 mm long, 2 mm wide unexpanded, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals 1 -veined, connate 3 mm into a triangular lamina, 5 mm long, 2.25 mm wide, the surface cellular-pubescent, the margins narrowly involute, split at the acute apex into two approximate tails 1.5 mm long; petals red, transversely oblong, microscopically pubescent, 0.5 mm long, 1.75 mm wide, the upper lobe oblong, rounded, the lower lobe much smaller, triangular; lip red, microscopically pubescent, the blades oblong with rounded ends, the connectives cuneate, connate to the column near the middle, the appendix minutely pubescent, minutely bilobed at the sinus with a third lobule beneath; column 1.5 mm long, the anther and stigma apical.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2650 \mathrm{~m}, 9$ Feb. 1980, C. Luer, J. Luer, R. Vásquez 5184 (Holotype: SEL); same area, alt. $2500 \mathrm{~m}, 26$ Nov. 1978, C. Luer, F. Fuchs et at. 3566 (SEL); road to Tablas Montes, wet cloud forest, alt. 2550 m, 27 Nov. 1999, S. Dalström, J. Sönnemark \& R. Burian 2417 (MO).

Lepanthes pileata, apparently endemic in Bolivia, is recognized by a long raceme of small flowers with a pointed, caplike dorsal sepal; a bifid synsepal with narrowly involute margins; small, transverse petals; and oblong blades of the lip with a minute trilobulate appendix. It is the only species related to L. complicata Luer with the lateral sepals deeply connate to form a triangular lamina.

Lepanthes pilosa Luer \& R.Vásquez, Rev. Soc. Boliv. Bot. 2(1): 21, 1998.
Ety: From the Latin pilosus, "hairy," referring to the apices of the lip.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $15-28 \mathrm{~mm}$ long, enclosed by 5-6 lepanthiform sheaths with long-ciliate ostia. Leaf erect, coriaceous, broadly elliptical, obtuse to rounded, $8-10 \mathrm{~mm}$ long, $6-7 \mathrm{~mm}$ wide, contracted below into a petiole 1 mm long. Inflorescence a loose, successively several- to many-flowered raceme up to 7 cm long including the peduncle ca. 1 cm long; floral bracts 1 mm long, spiculate; pedicels $1-1.5 \mathrm{~mm}$ long; ovary 0.75 mm long, sparsely spiculate; sepals long-ciliate, carinate-spiculate, the dorsal sepal brown with the outer fourth yellow, ovate-triangular, acute, acuminate into a slender tail 3 mm long, the blade 4 mm long, 3.75 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals yellow with the inner third red-brown, ovate, oblique, acute, 4.5 mm long, 2.5 mm wide, 2-veined, connate 1.5 mm , with a slender tail 3.5 mm long; petals purple-brown, microscopically pubescent, transversely bilobed, 1 mm long, 3.5 mm wide, the upper lobe oblong, obtuse, convex, the lower lobe triangular, acute; lip pur-ple-brown, bilaminate, the blades microscopically pubescent, oblong with the ends rounded, convex, 1 mm long, the apices long-pubescent, the connectives short, triangular-cuneate, with the body connate to the column near the stigma, the sinus obtuse with the appendix arising externally, oblong, pubescent; column 1 mm long, very slender, with the anther dorsal and the stigma ventral.

Cochabamba: Chapare, epiphytic in forest between Cochabamba and Villa Tunari, alt. $1750 \mathrm{~m}, 31$ Jan. 1997, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 18349 (Holotype: MO), 18342 (MO).

With a long, loose inflorescence, and a long, very slender column, this species is closely allied to Lepanthes vespa Luer \& R.Vásquez, but it is distinguished by slender-tailed, long-ciliate sepals. The apices of the lateral sepals of $L$. vespa are acuminate, and the dorsal sepal has smooth margins. The apices of the blades of the lip of $L$. pilosa are long-pubescent, while the blades of the lip of $L$. vespa are only microscopically pubescent.

Lepanthes profusa Luer \& Hirtz, Die Orchidee 41: 10, 1990.
Ety: From the Latin profusus, "profuse," referring to the multiple, simultaneous inflorescences.
Plant large, epiphytic, shortly ascending, caespitose; roots coarse. Ramicauls stout, erect, 10-40 cm long, enclosed by 10-14 glabrous, closely fitting lepanthiform sheaths, microscopically ciliate on the margins of the upper ostia. Leaf erect, coriaceous, elliptical-ovate, acute, slightly acuminate, $7-12 \mathrm{~cm}$ long, 2-5 cm wide, the base rounded or broadly cuneate, contracted into a petiole $3-6 \mathrm{~mm}$ long. Inflorescence a successively many-flowered raceme, loosely flowered below, congested above, up to 5 cm long including the peduncle $1.5-2 \mathrm{~cm}$ long, borne behind the leaf; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 2.5 mm long; sepals pale yellow, denticulate, carinate, ovate-triangular, acute, slightly acuminate, the dorsal sepal 6-7 mm long, 4-5 mm wide, 3 -veined, connate to the lateral sepals for 1.5-2 mm , the lateral sepals oblique, $6.5-7 \mathrm{~mm}$ long, 3 mm wide, 2 -veined, connate $1.5-2.5 \mathrm{~mm}$; petals yellow with a red inner margin, glabrous, transversely bilobed, $1-1.5 \mathrm{~mm}$ long, $3.5-4 \mathrm{~mm}$ wide, narrowed between the lobes, the lobes subequal, the upper lobe broadly ovate, the lower lobe oblong, narrower, with the ends rounded; lip bilaminate, the blades red-purple, elliptical, concave-sloping above the middle, 2.25 mm long, glabrous, the rounded apices ciliate, the connectives shortly cuneate, the body broad, connate to the base of the column, the sinus obtuse, with a minute, biglandular appendix; column 1.5 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. 2800 m, 18 Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12880 (MO).
Also Ecuador (Loja, type: C. Luer, J. Luer, A. Hirtz \& W. Flores 10751, MO; Zamora-Chinchipe).
This large, robust species, found in high altitude cloud forest in central Bolivia and southeastern Ecuador, has not yet been identified from Peru. It is identified by tall, stout ramicauls clad in essentially glabrous, non-dilated lepanthiform sheaths; elliptical-ovate, acuminate leaves; short inflorescences laxly flowered below, becoming congested above; denticulate, broad but acuminate sepals; glabrous, bilobed petals with a constriction near the middle; and a lip with elliptical, concavesloping blades, ciliate at the apex, and with a minute, biglandular appendix.

This species was considered to be synonymous with Lepanthes caudatisepala C.Schweinf., but recent examination of preserved specimens argues for maintaining separate species. Both are known from Cochabamba, Bolivia. The pedicels of $L$. caudatisepala are approximately twice as long as the subtending bracts; those of $L$. profusa are about the same length as the bracts. Lepanthes caudatisepala is distinguished by entire sepals and a lip with flat blades, rather than denticulate sepals and a concave slope of the blades of the lip as in L. profusa.

Lepanthes ptyxis Luer \& R.Vásquez, Phytologia 54: 365, 1983.
Ety.: From the Greek ptyxis, "a fold," referring to the folded margins of the lateral sepals.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-7 cm long, enclosed by 4-7 long-ciliate lepanthiform sheaths. Leaf erect, coriaceous, suffused with purple beneath, elliptical, acute, $17-27 \mathrm{~mm}$ long including a petiole $2-3 \mathrm{~mm}$ long, $7-15 \mathrm{~mm}$ wide, the base broadly cuneate into the petiole. Inflorescence a congested, distichous, successively several-flowered raceme up to 10 mm long, borne behind the leaf by a filiform peduncle $3-7 \mathrm{~mm}$ long; floral bracts 1.5 mm long, lightly muricate; pedicels $1.5-2 \mathrm{~mm}$ long; ovary 1.5 mm long, sparsely papillose; sepals red-orange to yellow suffused with purple, spiculate along the margins and externally, the dorsal sepal ovate, concave, acute, acuminate, $4.5-6 \mathrm{~mm}$ long, $2.5-3 \mathrm{~mm}$ wide unexpanded, 3 -veined, connate to the lateral sepals for ca. 1 mm , the lateral sepals ovate, oblique, acute, acuminate, connate $1 \mathrm{~mm}, 4.5-6.5 \mathrm{~mm}$ long, $1.75-2 \mathrm{~mm}$ wide together, each 1-veined, the lateral margins acutely folded over the surface of the blades about one-fourth the width, the edges of the folds as well as the margins and carinae spiculate; petals yellow with red to purple margins, microscopically pubescent, transversely oblong, 1 mm long, 3.4 mm wide, the ends rounded, the lower lobe slightly smaller; lip red-purple, microscopically pubescent, the blades ovateoblong, 2 mm long, the apices narrowly obtuse and incurved beneath the apex of the column, the bases rounded, the connectives broadly cuneate, connate to the base of the lip, the sinus protuberant and rounded with a minute, rounded appendix at the summit; column 2 mm long, the anther and stigma apical.

La Paz: Sud Yungas, epiphytic in cloud forest along the Río Unduavi, alt. $2450 \mathrm{~m}, 6$ Feb. 1980, C. Luer, J. Luer, R. Vásquez \& M. Manon 5140 (Holotype: SEL); Nor Yungas, lower cloud forest, 13.2 km northeast of Chuspipata ( 16.5 km S of Yolosa), alt. $2150 \mathrm{~m}, 19$ July 1982, J.C. Solomon 8082 (MO); Murillo, epiphytic in trees along Río Zongo, alt. $2800 \mathrm{~m}, 30$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. Mulder, D. Mulder \& A. Vogel 12964 (MO); Bautista Saavedra, epiphytic in trees along the river below Charazani, alt. $2550 \mathrm{~m}, 19$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16441, 16444 (MO); same area, alt. $2250 \mathrm{~m}, 20$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16456 (MO); Murillo, epiphytic in trees along Río Zongo, alt. 2750-2900 m, 22 Nov.1992, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 16471, 16476 (MO).

With acutely folded, lateral margins of ovate lateral sepals that reveal the spiculate, exterior surface, Lepanthes ptyxis resembles L. crista-piscis Luer \& R.Vásquez. In both, the folded margins of the lateral sepals extend only about a fourth of the distance to the inner margin, as compared to the marked folding for nearly the entire width in L. complicata Luer. Lepanthes ptyxis is best distinguished from $L$. crista-piscis by a lip with a thick, protuberant, rounded margin of the body with a small, rounded appendix at the summit, while the latter has a microscopic appendix within an acutely cleft sinus.

Lepanthes puck Luer \& R.Vásquez, Phytologia 54: 367, 1983.
Ety.: Named for Puck, a mischievous elf.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $1.5-5 \mathrm{~cm}$ long, enclosed by 4-6 close, minutely ciliate-scabrous lepanthiform sheaths, Leaf erect, coriaceous, narrowly elliptical, acute, $12-23 \mathrm{~mm}$ long, $3-6 \mathrm{~mm}$ wide, the base cuneate into a 1 mm long petiole. Inflorescence an erect, subdense, distichous raceme up to 10 mm long, borne behind the leaf by a filiform peduncle $6-9 \mathrm{~mm}$ long; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 2.3 mm long; sepals light yellow, glabrous, narrowly ovate, acute, acuminate, the dorsal sepal 6.5 mm long, 2.75 mm wide, 3 -veined, connate 1 mm to the lateral sepals, the lateral sepals oblique, connate $1.5 \mathrm{~mm}, 6 \mathrm{~mm}$ long, 4.25 mm wide together, each 2-veined; petals bright red, cellular-pubescent, transversely oblong, 1 mm long, 3.5 mm wide, the upper lobe subquadrate, truncate, the lower lobe ovate, obtuse; lip bright red, cellular-pubescent, the blades ovate, the apices obscurely notched, the bases rounded, the connectives narrow, from the bases of the blades, connate to the base of the column, the appendix narrowly triangular, pubescent, protruding from the sinus; column 2 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2500 \mathrm{~m}, 4$ Feb. 1983, C. Luer, J. Luer, R. Vásquez \& E. Besse 8672 (Holotype: SEL); Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. $1900 \mathrm{~m}, 15 \mathrm{Jan}$ 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12837 (MO); same area, 18 Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12869 (MO); new road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. $1750 \mathrm{~m}, 31$ Jan. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18347 (MO).
La Paz: Murillo, epiphytic in trees along the Río Zongo, alt. $1550 \mathrm{~m}, 25$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15357 (MO); Nor Yungas, epiphytic in cloud forest east of the pass near Chuspipata, alt. $2800 \mathrm{~m}, 27$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15364 (MO); Nor Yungas, epiphytic in cloud forest between Chuspipata and Corioco, alt. $1800 \mathrm{~m}, 27$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15373 (MO); Nor Yungas, epiphytic in forest northeast of Caranavi, alt. $1300 \mathrm{~m}, 31$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15391 (MO).

This dainty little plant with narrowly elliptical leaves and short inflorescences is most notable for the flowers with acuminate sepals and a protruding lip and column, petals with the upper lobes truncate, and a lip with ovate blades borne along the column by narrow connectives from the bases. The slender, pubescent appendix protrudes from the sinus below the base of the column. Superficially, Lepanthes puck resembles $L$. microphallica Luer, but the latter has broader leaves, acute sepals, and a lip with oblong blades and a minute, oblong appendix.

Lepanthes recurva Luer \& Hirtz, Lindleyana 7: 114, 1992.
Ety.: From the Latin recurvus, "recurved," referring to the short, recurved inflorescence.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $10-15 \mathrm{~cm}$ long, enclosed by 10-12 dark lepanthiform sheaths with dilated, ciliated ostia. Leaf erect, coriaceous, often suffused with purple, elliptical, acute, $5-7 \mathrm{~cm}$ long, $1.5-2 \mathrm{~cm}$ wide, the base cuneate into a petiole 3-5 mm long. Inflorescence a loose, successively few-flowered raceme ca. 1 cm long including the arcuate peduncle ca. 0.5 cm long; floral bracts 2 mm long; pedicels $1-1.5 \mathrm{~mm}$ long; ovary 1 mm long; sepals translucent light yellow, suffused with purple along the veins as stripes, carinate, microscopically ciliate, the dorsal sepal triangular, acute, 8 mm long, 4.75 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals triangular, acute, 8 mm long, 2.75 mm wide, 1 -veined, connate 1 mm ; petals purple, microscopically pubescent, transversely bilobed, 1.25 mm long, 3.25 mm wide, the lobes more or less oblong, oblique and inflexed, about equal in size; lip bilaminate, purple, the blades pubescent, oblong, 2- 3 mm long, the connectives short, cuneate, the body narrow, connate to the base of the column, the sinus acute with an oblong, pubescent appendix, bifid at the apex; column stout, 2 mm long, the anther dorsal, the stigma ventral.

La Paz: Nor Yungas, epiphytic in forest between Chuspipata and Coroico, alt. 2000 m , collected in Aug. 1991 by A. Hirtz, J. del Hierro \& W. Teague, flowered in cultivation in Quito, Ecuador, Dec. 1991, A. Hirtz 5660 (Holotype: MO), C. Luer illustr. 16202.

This species is distinguished by the medium-sized plant with purplish, acute, elliptical leaves and a short, few-flowered inflorescence that curves downward from the apex of the ramicaul. The acute sepals are yellow and striped in purple. The petals are obliquely bilobed, and in the specimen examined and illustrated the tips of the lower lobes of the petals were incurved in the only collection known. The oblong blades of the lip are pubescent with short connectives that produce an acute sinus with an oblong, bifid appendix.

## Lepanthes ringens Luer \& Hirtz, Lindleyana 7: 118, 1992.

Ety.: From the Latin ringens, "gaping," referring to the appearance of the lip.
Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-6 cm long, enclosed by 6-8 long-pubescent lepanthiform sheaths. Leaf erect, coriaceous, narrowly elliptical, acute, $25-35 \mathrm{~mm}$ long, $8-10 \mathrm{~mm}$ wide, the base cuneate into a petiole 3 mm long. Inflorescence a subdense, successively several-flowered raceme up to 25 mm long, borne behind the leaf by a filiform peduncle 10 mm long; floral bracts 1 mm long; pedicels 0.5 mm long; ovary 0.5 mm long; sepals translucent, suffused with rose, carinate, the dorsal sepal ovate, subacute, lightly acuminate, 3 mm long, 1.75 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals muricate externally, ovate, oblique, concave in the outer half, convex in the inner half, 3 mm long, 1.25 mm wide, 1 -veined, connate 1 mm , with the lateral margins involute, the apices subacute, contracted into thickened tail-like apicula; petals orange-brown, pubescent, transversely bilobed, 0.5 mm long, 2.5 mm wide, the lobes narrowly triangular, about equal in size; lip bilaminate, the blades orange-brown, pubescent, ovoid, 0.7 mm long, the connectives subquadrate, the body connate to the base of the column, the sinus broadly expanded anteriorly into a rounded lobe; column stout, 1.5 mm long, the anther and the stigma apical.

La Paz: Larecaja, southwest of Tipuani, epiphytic in forest remnant above Unutuluni, alt. $1150 \mathrm{~m}, 29$ Aug. 1991, C. Luer, J. Luer, R. Vásquez, A. Hirtz, J. del Hierro \& W. Teague 15379 (Holotype: MO); Nor Yungas, alt. 1600 m, 3 Apr. 2000, T. Krömer. \& C. Acebey 986 (MO).

This species exhibits a feature peculiar to the species of Bolivian Lepanthes relared to Lepanthes complicata Luer. The outer margins of the lateral sepals are involute to expose the muriculate exterior. Lepanthes ringens is allied to L. panisca Luer \& R. Vásquez; both possess a protuberant, anterior margin of the body of the lip without an obvious appendix. In $L$. ringens this broad, liplike margin is much larger and round, giving the impression of a gaping mouth.

Lepanthes rupicola Schltr., Repert. Spec. Nov. Regni Veg. 12: 485, 1913.
Ety.: From the Latin rupicola, "dwelling on rocks," referring to a habitat of the species.
Plant very small, epiphytic to lithophytic fide Herzog, caespitose; roots slender. Ramicauls erect, slender, 20-30 mm long, enclosed by 3-4 minutely ciliate, lepanthiform sheaths. Leaf erect, coriaceous, elliptical, obtuse to rounded at the apex, $12-17 \mathrm{~mm}$ long, $5-7 \mathrm{~mm}$ wide, cuneate below into a petiole 2 mm long. Inflorescence a loose, successively flowered raceme 4 or more cm long, borne beyond the leaf by a slender peduncle ca. 1 mm long; floral bracts 1.5 mm long; pedicels 3 mm long; ovary 0.75 mm long; sepals light yellow, suffused with purple along the veins, the dorsal sepal entire, ovate-triangular, acute, acuminate, 7.5 mm long, 3.25 mm wide, 3 -veined, connate to the lateral sepals for less than 1 mm , the lateral sepals with long, purple cilia, ovate, oblique, acute, acuminate, 7 mm long, 2.4 mm wide, 2 -veined, connate 2 mm ; petals minute, minutely pubescent, transversely bilobed, 0.5 mm long, 1 mm wide, 1 -veined, the lobes triangular, incurved, rounded at the tips; lip bilaminate, the blades narrowly crescent-shaped, ciliate, with acute ends, 1.75 mm long, embracing the column, with the connectives cuneate, from near the middle, the body broad, connate to the column above the base, the appendix minute, ovoid, ciliate; column terete, 4 mm long, with the anther and stigma apical.

Santa Cruz: mossy rocks at lake near Comarapa, alt. ca. 2000 m, Apr, 1911, Th. Herzog 2163 (Holotype destroyed at B); near Comarapa, alt. 2500 m, 1 Dec. 1978, C. Luer, J. Luer \& F. Fuchs 3579, (Neotype, here designated, SEL); Manuel Maria Caballero, alt. 2530 m, 18 Jan. 1983, R. Vásquez, C. Luer \& J. Luer 690 (MO).

This very small species, from near the southern extremity of the Andes, is characterized by little, elliptical leaves with rounded tips that are far surpassed by a loose, flexible, successively flowered raceme. The sepals are acuminate, the laterals denticulate with long, purple cilia; the petals are minute; and the narrowly cres-cent-shaped blades of the lip embrace a proportionately long, terete column.

## Lepanthes schoonenii Luer, sp. nov.

Ety.: Named for Jan Schoonen, formerly of Putti, Holland, who collected and cultivated this species.
Species haec Lepanthidis falcatae Luer \& R.Vásquez affinis, sed sepalo dorsali latiore, sepalis latioribus nondivergentibus, petalorum lobo inferiore subnullo et labello unguiculato lobis triangularibus columnam amplectentibus differt.

Plant vegetative material lacking; ovary 1.5 mm long; sepals light yellow, suffused with brown centrally, margins spiculate, the dorsal sepal ovate, acute, acuminate into a tail 2 mm long, 8 mm long including the tail, 3.5 mm wide, 3 -veined, connate to the lateral sepals ca. 1 mm , the lateral sepals narrowly ovate, oblique, acute, acuminate into a tail 3 mm long, 10 mm long including the tail, 2.5 mm wide, 1-veined, connate ca. 0.5 mm ; petals orange, microscopically pubescent, transversely bilobed, 0.5 mm long, 3.5 mm wide, the upper lobe erect, narrowly oblong, obtuse, 3 mm long, the lower lobe 0.5 mm long, oblique; lip orange, microscopically pubescent, bilobed, the lobes triangular with acute angles, surrounding the column, 2.2 mm long, 2.2 mm wide expanded, each lobe 1.25 mm long and wide, the bases connate into a claw 1 mm long beneath the column, the body narrow with a minute, external, decurved appendix, the claw connate to the base of the column; column terete, 3 mm long, the anther and the stigma apical.
La Paz: Nor Yungas, collected near Chuspipata, alt. 3200 m , by J. Schoonen, flowered in cultivation at Putti, Holland, April 1994, J. Schoonen s.n. (Holotype of L. schoonenii: MO), C. Luer illustr. 17172.

This species was collected by Jan Schoonen and cultivated by him at his home in the Netherlands. Probably the plant was too small to permit more than a flower to be sent for identification, because no further vegetative material was preserved. The flower seems most closely allied to Lepanthes falcata Luer \& R.Vásquez.

Lepanthes schoonenii differs from L. falcata in a broader dorsal sepal, more or less as wide as the two lateral sepals combined, with the lateral sepals diverging less than $45^{\circ}$ from the perpendicular axis, rather than being approximately the same width as a lateral sepal, with the apices of the lateral sepals diverging $90^{\circ}$; petals with an upper lobe approximately four times the length of the minute lower lobe, rather than lobes subequal in length; and a lip with triangular, rather than sickleshaped, lobes.

Lepanthes scolops Luer \& R.Vásquez, Phytologia 54: 371, 1983.
Ety.: From the Greek skolops, "a thorn, or anything pointed," referring to the long, acuminate, spiculate sepals.
Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-10 cm long, enclosed by $6-8$ ciliate lepanthiform sheaths with markedly dilated ostia. Leaf erect, coriaceous, suffused with purple beneath, elliptical-ovate, acute, $21-35 \mathrm{~mm}$ long including the petiole $2-3 \mathrm{~mm}$ long, $9-13 \mathrm{~mm}$ wide, the base cuneate into the petiole. Inflorescence a loose, fractiflex, successively flowered raceme up to 35 mm long including the filiform peduncle ca. 10 mm long, approaching the leaf in length; floral bracts 1.5 mm long, spiculate; pedicels $1.5-2 \mathrm{~mm}$ long; ovary 1.75 mm long, papillose; sepals light green suffused with red, or brown, widely spread, free to near the base, carinate-spiculate externally, the dorsal sepal ovate, concave, acute, acuminate, 7.5 mm long, 3 mm wide, 3 -veined, the lateral sepals narrowly triangular, concave with narrowly involute margins, acute, acuminate, 8 mm long, 1.5 mm wide, 1 -veined; petals yellow to brown, transversely oblong, 1 mm long, 4 mm wide, the lobes narrowly obtuse, slightly curved; lip yellow, suffused with red, cellular-pubescent, the blades ovate, 1.3 mm long, shortly obtuse at the apices, with bases rounded, the connectives broad, curved forward with a protuberant, rounded sinus, cleft centrally, with the appendix a minute, pubescent lobule at the apex, connate to the column above the base; column 2.75 mm long, the clavate apex protruding beyond the lip, the anther and stigma apical.
Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2650 \mathrm{~m}, 9$ Feb. 1980, C. Luer, J. Luer \& R. Vásquez 5187 (Holotype: SEL); Chapare, alt. $2750 \mathrm{~m}, 27$ Dec. 1990, R. Vásquez, M.I. Vásquez \& Ma.E. Vásquez 1311 (MO); Chapare, epiphytic in humid forest northeast of Cochabamba toward Villa Tunari, alt. $2700 \mathrm{~m}, 14$ Nov. 1982, C. Luer, J. Luer, R. Vásquez, D. Ric \& W. Teague 16423 (MO).
La Paz: Sud Yungas, epiphytic in cloud forest along Río Unduavi, alt. $2450 \mathrm{~m}, 6$ Feb. 1980, C. Luer, J. Luer, R. Vásquez \& M. Manon 5141 (SEL).

The flowers of this species are similar to those of Lepanthes falcata Luer \& R.Vásquez, but the blades of the lip of $L$. scolops are well-developed and ovate; and the connectives are also well-developed with a prominent, protruding sinus with a minute, pubescent appendix at the summit.

Lepanthes serriola Luer \& R.Vásquez, Phytologia 54: 373, 1983.
Ety.: From the Latin serriolus, "with little serrations," referring to the denticulate sepals.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $5-9 \mathrm{~cm}$ long, enclosed by 7-9 minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, suffused with purple beneath, ovate, elliptical, acute, $2.5-3 \mathrm{~cm}$ long, $1-1.4 \mathrm{~cm}$ wide, the base cuneate into a petiole 2 mm long. Inflorescence a subdense, flexuous, successively several-flowered raceme up to 30 mm long including the filiform peduncle $3-5 \mathrm{~mm}$ long; floral bracts and pedicels each 1 mm long; ovary 1 mm long, sparsely papillose; sepals light red-purple, edged in yellow, denticulate, carinate-spiculate. ovate, acuminate, shortly caudate, the dorsal sepal concave, 5.2 mm long, 2.6 mm wide, 3 -veined, connate 1 mm to the lateral sepals, the lateral sepals oblique, 5 mm long, 1.75 mm wide, 2 -veined, connate 1 mm ; petals orange, edged in red, minutely pubescent, transversely oblong, 1.25 mm long, 2.75 mm wide, the ends rounded, the upper lobe oblong, larger, the lower lobe narrowly oblong; lip red, glabrous, at most microscopically cellular-pubescent, the blades elliptical, 2 mm long, the apices narrowly obtuse, the bases rounded, the connectives cuneate, connected to the column above the base, the sinus cleft with a minute, pubescent, ligulate appendix; column 1.5 mm long, the anther dorsal, the stigma ventral.

Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $2650 \mathrm{~m}, 9$ Feb. 1980, C. Luer, J. Luer \& R. Vásquez 5186 (Holotype: SEL); epiphytic in forest north of Siberia, alt. 2470 m, 5 Feb. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18404 (MO).
Santa Cruz: around Fortaleza between Comarapa and Siberia, alt. 2500 m, 15 Jan. 1965, S. Vogel 506 (WU).

This species, apparently endemic in central Bolivia, is distinguished by a flexuous raceme nearly as long as the elliptical leaf; denticulate, ovate, shortly caudate sepals; and a lip with elliptical blades and a minute, ligulate appendix emerging from a cleft sinus.

Lepanthes sillarensis Schltr., Repert. Spec. Nov. Regni Veg. 12: 486, 1913.
Ety.: Named for Bolivian Mount Sillar, where this species was collected.
Syn: Lepanthes ligulata Luer \& Hirtz, Lindleyana 7: 111, 1992.
Ety: From the Latin ligulatus, "with a tongue," referring to the appearance of the appendix.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $2-3 \mathrm{~cm}$ long, enclosed by 5-6 minutely ciliate lepanthiform sheaths. Leaf spreading to suberect, thinly coriaceous, elliptical, acute, $16-21 \mathrm{~mm}$ long, $7-8 \mathrm{~mm}$ wide, the base cuneate into a petiole 1 mm long. Inflorescence a successively several-flowered raceme up to 30 mm long, loosely flowered below to more or less secund and densely flowered above, borne behind the leaf by a filiform peduncle $7-10 \mathrm{~mm}$ long; floral bracts 1 mm long; pedicels 1 mm long; ovary 0.75 mm long; sepals pale yellow, more or less suffused with rose, carinate, the dorsal sepal ovate, acute, lightly acuminate, 3.5 mm long, 1.75 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals ovate, subacute, shortly acuminate, oblique, 3 mm long, 1.5 mm wide, 2 -veined, connate 0.6 mm ; petals rose to purple, microscopically pubescent, transversely bilobed, 0.75 mm long, 1.75 mm wide, the lobes oblong with rounded ends, bent obliquely inward, the upper lobe larger than the lower; lip bilaminate, the laminae rose to purple, cellular-glandular, oblong with rounded ends, 1 mm long, the connectives narrow, the body connate to the base of the column, the sinus broad with a deflexed, triangular appendix; column terete, arcuate, 1.5 mm long, the anther dorsal, the stigma ventral.

La Paz: on tree trunk at the top of Mt. Sillar, alt. 1750 m, Feb. 1911, Th. Herzog 1638 (Holotype of $L$. sillarensis destroyed at B, A. Hirtz 5572, Neotype, here designated: MO). Nor Yungas, epiphytic in forest between Caranavi and Bella Vista, alt. 1300 m, collected in Aug. 1991 by A. Hirtz, J. del Hierro \& W. Teague, flowered in cultivation in Quito, Ecuador, Dec. 1991, A. Hirtz 5572 (holotype of L. ligulata: MO), C. Luer illustr. 16204; same collection data, A. Hirtz 5577, 5680 (MO).
Cochabamba: new road from Villa Tunari to Cochabamba, epiphytic in wet forest, alt. $1750 \mathrm{~m}, 31 \mathrm{Jan}$. 1997, C. Luer, J. Luer, W. Teague, R. Vásquez \& D. Ric 18345, 18350 (MO).

Lepanthes sillarensis, one of the earliest species to be described from Bolivia, was published by Schlechter in 1913. Although parts of the original description are inscrutable, it seems clear that the species described as L. ligulata Luer \& Hirtz is a synonym. Lepanthes sillarensis is distinguished by a small, weak habit and an inflorescence that eventually surpasses the leaf, although Schlechter's original specimen probably had an early inflorescence. The inflorescence is distantly flowered below, becoming densely flowered and more or less secund above. The sepals are glabrous and shortly acuminate. The lobes of the petals are oblong, with upper lobes overlapping. The arcuate column, with the smaller blades of the lip borne on top, stands erect in the center of the flower. This distinctive, proportionally long, decurved column is clearly illustrated in Schlechter's drawing. The appendix is a triangular, tonguelike structure that protrudes downwards from the narrow body near the base of the column.

Lepanthes usitata Luer \& R.Vásquez, Phytologia 54: 375, 1983.
Ety.: From the Latin usitatus, "usual, familiar," referring to the lack of any unusual floral or .pm16 vegetative character.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $25-35 \mathrm{~mm}$ long, enclosed by $4-5$ shortly ciliate-scabrous lepanthiform sheaths. Leaf erect, coriaceous, ovate, subacute, $15-17 \mathrm{~mm}$ long, 8 mm wide, the rounded base contracted into a petiole 1.5 mm long. Inflorescence a dense, distichous, successively flowered raceme up to 5 mm long, borne behind the leaf by a filiform peduncle 3-4 mm long; floral bracts 1 mm long; pedicels 0.75 mm long; ovary 1 mm long; sepals dull purple, dorsal sepal glabrous, broadly ovate-triangular, concave, acute, acuminate, 4.25 mm long, 2.75 mm wide, 3veined, connate to the lateral sepals for 1 mm , lateral sepals minutely pubescent within, ovate, acute, acuminate, connate $1 \mathrm{~mm}, 4.25 \mathrm{~mm}$ long, 3 mm wide together, each 1 -veined; petals minutely pubescent, transversely bilobed, 0.75 mm long, 2 mm wide, the upper lobe broadly oblong, rounded, the lower lobe narrowly oblong, obtuse; lip purple, the blades minutely pubescent, ovate, 1.25 mm long, the apices narrowly obtuse, the bases rounded, the connectives oblong, connate to the column above the middle, the sinus cleft with a small, Iigulate, decurved, glabrous appendix; column 1.25 mm long, the anther dorsal, the stigma ventral.

Santa Cruz: epiphytic in cloud forest near Siberia, alt. 2500 m, 1 Dec. 1978, C. Luer, F. Fuchs et al. 3595 (Holotype: SEL); around Fortaleza between Comarapa and Sibiria, alt. $2500 \mathrm{~m}, 15$ Jan. 1965, S. Vogel 507 (WU); Manuel Maria Caballero, Siberia, cloud forest, between Comarapa and Cochabamba, alt. $2550 \mathrm{~m}, ~ 4-6$ Nov. 2003, I.G. Vargas \& C.G. Jordan 7007 (MO).

This little species possesses no single, distinctive feature, but a combination of all the seemingly usual, non-outstanding, morphological characters distinguish Lepanthes usitata: a small size with ovate leaves; the short, dense inflorescence; ovate sepals, with the dorsal sepal concave and the lateral sepals minutely pubescent and one-veined; unequally bilobed petals, with the upper lobe larger than the lower; and the lip with a minute, glabrous appendix. It resembles the equally unremarkable $L$. brevis Luer \& R.Vásquez, but the inflorescence of the latter is loose, bearing flowers with glabrous sepals.

Lepanthes vasquezii Luer, Phytologia 54: 375, 1983.
Ety.: Named in honor of Roberto Vásquez Ch., investigator and artist of orchids of Bolivia.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-9 cm long, enclosed by 5-7 close, glabrous to microscopically scabrous lepanthiform sheaths. Leaf erect, coriaceous, elliptical, subacute, $3.5-4 \mathrm{~cm}$ long including the $3-4 \mathrm{~mm}$ long petiole, $1.8-2.2 \mathrm{~cm}$ wide, lightly suffused with purple beneath, the base cuneate into the petiole. Inflorescence a weak, loose, secund, few-flowered raceme $13-18 \mathrm{~cm}$ long including the slender peduncle, 2-3 flowers open simultaneously; floral bracts 2.5 mm long; pedicels $5-6 \mathrm{~mm}$ long; ovary 1.5 mm long, costate; sepals light green, suffused with brown centrally, glabrous, the dorsal sepal ovate, concave, acute, long-acuminate, 16 mm long, 6 mm wide, 3 -veined, connate to the lateral sepals for 1.5 mm , the lateral sepals connate to about the middle into a narrowly triangular, acute lamina 19 mm long, 4 mm wide, the attenuate apices approximate, each 2-veined; petals dark green, minutely pubescent, unequally bilobed, 1.75 mm long, 5 mm wide, the upper lobe broadly ovate to rounded, the lower lobe much smaller, narrowly oblong, obtuse; lip blue-green, minutely pubescent, the blades elliptical with rounded ends, 1.6 mm long, the inner margins ciliate, the connectives short, from the bases of the blades, connate to the column above the middle, the appendix pubescent, narrowly oblong-sigmoid; column 1.5 mm long, the anther dorsal, the stigma ventral.

La Paz: Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. $2550 \mathrm{~m}, 27 \mathrm{Jan} .1981, C$. Luer, J. Luer \& R. Vásquez 5801 (Holotype: SEL, Isotype: Herb. Vasquezianum 823).

Known from only one collection, this showy species with a long, few-flowered raceme of large, gaping flowers with long-acuminate sepals is similar to Lepanthes ionoptera Rchb.f., and it may eventually be proven to be a variation. Vegetatively larger, L. vasquezii differs with a concave, twice broader dorsal sepal. The upper lobe of the petals is broader with a rounded tip, and the lower lobe is narrowly oblong. The upper lobe of the petals of $L$. ionoptera is narrowly ovate, amd the lower lobe is obliquely triangular. The lips of the two species are similar with oblong blades and an appendix with a terninal segment.

Lepanthes versicolor Luer \& R.Vásquez, Phytologia 55: 195, 1984.
Ety.: From the Latin versicolor, "of various colors," referring to the variation of colors seen in the flowers.
Plant medium to large in size, epiphytic, caespitose; roots numerous, filiform. Ramicauls slender, erect, $8-23 \mathrm{~cm}$ long, enclosed by $9-16$ ciliate lepanthiform sheaths. Leaf erect, thinly coriaceous, elliptical, $5.5-8 \mathrm{~cm}$ long, 1.6-2.7 cm wide, the apex acute, acuminate, the base obtuse, contracted into a petiole $3-4 \mathrm{~mm}$ long. Inflorescence a congested, successively flowered raceme up to 3 cm long, borne behind the leaf by a filiform peduncle up to 4 cm long; floral bracts 1 mm long; pedicels 1.25 mm long; ovary 3 mm long; sepals translucent rose to yellow, glabrous, ovate, acuminate, acute, the dorsal sepal triangu-lar-ovate, $7-12 \mathrm{~mm}$ long, $3-4.75 \mathrm{~mm}$ wide, 3 -veined, connate to the lateral sepals for $1-2 \mathrm{~mm}$, the lateral
sepals oblique, connate $2-3.5 \mathrm{~mm}, 7-11.5 \mathrm{~mm}$ long, $4.75-7 \mathrm{~mm}$ wide together, each 2 -veined; petals yellow to orange, suffused with red to purple, pubescent, transversely bilobed, $1-1.75 \mathrm{~mm}$ long, $4-5.25$ mm wide, the lobes subequal, obliquely triangular; lip purple, the blades ovate with rounded ends, pubescent, 2.25 mm long, the connectives cuneate, the body attached to the end of the ovary with the column, the appendix oblong, 0.5 mm long, long-pubescent at the apex; column 2 mm long, the anther dorsal, the stigma ventral.
Cochabamba: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. $1850 \mathrm{~m}, 17$ Jan. 1984, C. Luer, J. Luer \& R. Vásquez 9382 (Holotype: SEL); Chapare, 100 km between Cochabamba and Villa Tunari, alt. 1750-1850 m, 21 Nov. 1982, R. Vásquez, N. Williams \& F. Thompson 685 (MO); same area, 29 Jan, 1984, R. Vásquez et al. 889 (LPB); Chapare, epiphytic in forest along road between Cochabamba and Villa Tunari, alt. $1900 \mathrm{~m}, 15$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. Mulder, D. Mulder \& A. Vogel 12836 (MO); Chapare, collected by Janet Kuhn, Dec. 1978, flowered in cultivation by Phil Jesup in Bristol, Connecticut, 10 Dec. 1988, C. Luer 13834 (MO); Tiraque, El Limbo, alt. 2000 m, 19 Aug. 2003, S. Altamirano, E. Zurita, T. Camacho, M. Aliaga, M. Alem \& A. Lacaze 1226 (MO).

Locally abundant in one area of cloud forest in Chapare, Lepanthes versicolor has also been found in the neighboring province of Tiraque. One of the largest flowered of Bolivian species of Lepanthes, the acuminate sepals sometimes attain a length of 12 millimeters, or both for 22 millimeters in an expanded flower. Two or three flowers mature simultaneously, and fruit is frequently formed.

Lepanthes vespa Luer \& R.Vásquez, Phytologia 54: 377, 1983.
Ety.: From the Latin vespa, "a wasp," referring to the wasplike shaft of the column.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3.5 cm long, enclosed by 4-7 close, minutely ciliate lepanthiform sheaths. Leaf erect, coriaceous, broadly elliptical, obtuse, 1214 mm long including the 1.5 mm long petiole, $6-8 \mathrm{~mm}$ wide, the base broadly cuneate into the petiole. Inflorescence a weak, loose, lightly flexuous, successively several-flowered raceme up to 5 cm long; floral bracts 1 mm long; pedicels 0.75 mm long; ovary 1 mm long; sepals translucent pale rose, the dorsal sepal ovate, acute, acuminate, 6.5 mm long, 3.25 mm wide, the margins slightly irregular, 3veined, connate to the lateral sepals for 1 mm , the lateral sepals ovate, acute, acuminate, connate $3 \mathrm{~mm}, 6$ mm long, 4.25 mm wide together, each 2 -veined, the margins long-ciliate; petals rose, suffused with tan, microscopically pubescent, transversely oblong, 1 mm long, 5.25 mm wide, the upper lobe triangularsubfalcate, acute, the lower lobe triangular-acute, acuminate; lip rose, suffused with tan, microscopically pubescent, the blades oblong with obtuse ends, 1.3 mm long, the connectives short, cuneate, connate to the column below the stigma, the appendix narrowly ligulate, pubescent; column 2 mm long, the apical half dilated with the dorsal anther larger than usual, and the stigma ventral, the lower half of the column extremely slender.

Santa Cruz: epiphytic in cloud forest near Siberia, alt. 2500 m, 1 Dec. 1978, C. Luer, J. Luer, F. Fuchs et al. 3591 (Holotype: SEL); Manuel Maria Caballero, Yungas de Santa Rosa, 1 Feb. 1992, R. Vásquez, L.R. Moreno \& D. Ric 1577 (MO); Manuel Maria Caballero, Siberia, below La Fortaleza, 22 July 1995, R. Vásquez 2534 (MO); near Khara Huasi, in wet cloud forest, alt. 2300 m, 22 Nov. 1999, S. Dalström, J. Sönnemark \& R. Burian 2400 (MO).

This species is most remarkable for the extremely slender shaft of the column supporting the seemingly oversized anther and stigma, and the surrounding lip. The column is reminiscent of the waist of a wasp. Among several others, Lepanthes pilosa Luer \& R.Vásquez shares this characteristic column, but the flowers of $L$. vespa are distinguished by acuminate tips of the sepals without caudae, and the long-ciliate margins of the sepals are limited to the lateral sepals.

Lepanthes vogelii Luer \& R.Vásquez, Lindleyana 6: 83, 1991.
Ety.: Named in honor of Artur Vogel, former curator of living orchids, Vrije Universitat, Amsterdam, Holland, co-discoverer of this species.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4 cm long, enclosed by 6-7 shortly but densely ciliate lepanthiform sheaths. Leaf erect, coriaceous, elliptical-ovate, acute, $12-18 \mathrm{~mm}$ long, $5-6 \mathrm{~mm}$ wide, with the base cuneate into a petiole 2 mm long. Inflorescence a congested, distichous, successively many-flowered raceme up to 8 mm long, borne behind the leaf by a peduncle $4-6 \mathrm{~mm}$ long; floral bracts muriculate, $0.75-1 \mathrm{~mm}$ long; pedicels $1-1.25 \mathrm{~mm}$ long; ovary 1 mm long; sepals entire, with the dorsal sepal dark purple, ovate, obtuse, 3 mm long, 2 mm wide, 3 -
veined, connate to the lateral sepals for 0.5 mm , with the lateral sepals ovate, oblique, acute, 3 mm long, 1.5 mm wide, 2 -veined, connate 0.5 mm ; petals orange, suffused with brown on the margins, glabrous, transversely bilobed, 1 mm long, 3 mm wide, with the lobes triangular, oblique, acute, with the upper lobe slightly larger; lip brown-orange, glabrous, bilaminate, the blades oblong, flat with the ends rounded, 1.8 mm long, the connectives short, cuneate, the body narrow, connate to the base of the column, the sinus acute, the appendix broad, oblong, concave, with a bipartite, pubescent, apical gland; column 1.5 mm long, with the anther dorsal and the stigma ventral.

Cochabamba: Carasco, Sehuencas, epiphytic in forest along Río Lope Mendoza, alt. $2450 \mathrm{~m}, 13$ Jan. 1988, C. Luer, J. Luer, R. Vásquez, T. \& D. Mulder \& A. Vogel 12808 (Holotype: MO).

This little species from central Bolivia is distinguished by a congested raceme shorter than the tiny, ovate leaf; small flowers with entire sepals; proportionally large petals with triangular, oblique lobes; and a lip with oblong blades, short connectives, a narrow body, and a comparatively large, bisegmented appendix. With Lepanthes papilio Luer \& R.Vásquez, it shares a small size; a short, congested raceme; and relatively large petals. Lepanthes papilio differs in ovate, obtuse sepals, with the lateral sepals shorter than the dorsal sepal; and an oblong upper lobe of the petals.

Lepanthes wageneri Rchb.f., Bonplandia 3: 70, 1855.
Ety.: Named for the 19th century traveler, Hermann Wagener, who first collected this species in Colombia.
Syn.: Lepanthes dalstroemii Luer, Orchideer 4: sub 192, 1983.
Ety.: Named for Stig Dalström, who collected this species.
Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-7 cm long, enclosed by 4-8 minutely ciliate lepanthiform sheaths. Leaf erect, suffused with purple, thickly coriaceous, elliptical to ovate, subacute to obtuse, $1.5-3.5 \mathrm{~cm}$ long, $7-16 \mathrm{~mm}$ wide, the base broadly cuneate into a petiole $1-2$ mm long. Inflorescence a congested, successively several-flowered raceme up to 8 mm long, borne behind the leaf by a slender peduncle $3-10 \mathrm{~mm}$ long; floral bracts $0.5-1.25 \mathrm{~mm}$ long; pedicels $0.75-1.25$ mm long; ovary 1-2 mm long; sepals yellow, variously suffused with red or purple, the dorsal sepal ovate to obovate, obtuse, sometimes shortly acuminate, $3.5-5 \mathrm{~mm}$ long, $1.5-2.5 \mathrm{~mm}$ wide, 3 -veined, barely connate to the lateral sepals, the lateral sepals ovate, oblique, acute to subacute, sometimes shortly acuminate, $2.5-4.5 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide, 2 -veined, connate about 0.5 mm ; petals yellow or orange, variously suffused with red or purple, minutely pubescent, transversely bilobed, 1-1.3 mm long, 2.25-4 mm wide, the upper lobe ovate-triangular to oblong, obtuse, sometimes acute, the lower lobe usually similar; lip orange to red or purple, cellular-pubescent, bilaminate, the blades more or less oblong, longitudinally concave, 1.5 mm long, with everted or revolute, obtuse to truncate apices and rounded bases, the connectives posterior, obliquely cuneate, the body narrow with an external, boat- shaped appendix that protrudes forward beyond the sinus, the body connate to the base of the column; column 1.5 mm long, the anther apical, the stigma ventral.

La Paz: Nor Yungas, northeast of Chuspipata, road to Coroico, alt. 1900 m, 28 May 1988, J.C. Solomon 18496 (MO); Nor Yungas, forest between Chuspipata and Coroico, alt. 1800 m, 27 Aug. 1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15374 (MO); Bautista Saavedra, epiphytic in trees along the river below Charazani, alt. $2700 \mathrm{~m}, 19$ Nov. 1992, C. Luer, J. Luer, R. Vásquez, D. Ric, J. del Hierro \& W. Teague 16432 (MO); Bautista Saavedra, alt. 2650 m, 19 Nov. 1992, R. Vásquez, C. Luer, J. Luer \& D. Ric 1696 (MO).

Cochabamba: Carrasco, Sehuencas, alt. 2100 m, 13 Sept. 1993, P. Ibisch 93.110 (MO).
Also Colombia (Norte de Santander, type of L. wageneri: H. Wagener s.n., W; Santander, Boyacá, Antioquia, Putumayo); Venezuela (Táchira); and Ecuador (Napo, Tungurahua, Morona-Santiago, Pastaza, Azuay, Loja, type of L. dalstroemii: S. Dalström 485, SEL; Zamora-Chinchipe).

This species is frequent and locally common in its wide distribution in the Andes from Venezuela into Bolivia. Although it is variable both vegetatively and florally, it is usually readily recognized. The leaves are small, thick, broadly elliptical to ovate, and suffused with purple. The inflorescence is short and borne behind the leaf. The flowers are colorful with various combinations of yellow, orange, red and purple. The sepals are very shallowly connate, and sometimes shortly acuminate. The petals are variable in size and shape, in no two popula-
tions being the same. The lip, however, is distinguished by oblong blades that are longitudinally channeled or concave medially with the obtuse or truncate apex more or less recurved. Morphologically constant throughout the distribution, the appendix is longitudinal and boat-shaped on the external surface of the body, and extends forward beyond the sinus. It can be recognized easily from a lateral view when the blade of the lip is lifted.

Lepanthes zongoënsis Luer \& R.Vásquez, Phytologia 54: 378, 1983.
Ety.: Named for the valley of Río Zongo where this species was discovered.
Plant medium in size, epiphytic, caespitose; roots relatively fleshy. Ramicauls erect, slender, 5-7.5 cm long, enclosed by 5-7 long-ciliate lepanthiform sheaths with markedly dilated ostia. Leaf erect, suffused with purple beneath, coriaceous, elliptical, obtuse, $25-27 \mathrm{~mm}$ long including the petiole $2-3 \mathrm{~mm}$ long, $14-17 \mathrm{~mm}$ wide, the base broadly cuneate, abruptly contracted into a petiole $2-5 \mathrm{~mm}$ long. Inflorescence a subdensely, successively several-flowered, subflexuous raceme up to 10 mm long, borne behind the leaf by a slender peduncle 5 mm long; floral bracts ciliate, 1.5 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; sepals brown, carinate-spiculate externally, minutely pubescent within, the dorsal sepal concave, ovate, acute, acuminate into a slender tail $1.5-2 \mathrm{~mm}$ long, 5.25 mm long including the tail, 2.25 mm wide unexpanded, connate 0.5 mm to the lateral sepals, the lateral sepals narrowly triangular-ovate, oblique, with both margins narrowly involute, acute, acuminate, 6 mm long, 1.5 mm wide, connate ca. 0.5 mm ; petals purple-brown, minutely pubescent, transversely bilobed, 0.5 mm long, 3 mm wide, the lobes narrowly oblong, nearly equal, with the tips rounded; lip purple- brown, cellularpubescent, bilobed, the blades more or less oblong as thickened margins of triangular lobes, 1.5 mm long, apices acute, bases obtuse, embracing the column, the connectives broadly cuneate, forming a broad body, connate to the base of the column, the appendix a triangular tuft of hairs in the sinus; column stout, 1.5 mm long, the anther and stigma apical.

La Paz: Murillo: valley of the Río Zongo, alt. $2600 \mathrm{~m}, 29$ Jan. 1980, C. Luer, J. Luer, R. Vásquez \& R. Lara 4972 (Holotype: SEL, Isotype: Herb. Vásquezianum 271); same area, alt. 2650 m, 30 Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. Mulder, D. Mulder \& A. Vogel 12968, 12971 (MO); same area, alt. 2300 m, 25 Aug.1991, C. Luer, J. Luer, R. Vásquez, L. Moreno, A. Hirtz, J. del Hierro \& W. Teague 15352 (MO); Murillo, below dam at Lago Zongo, trail up Río Jachcha Cruz, alt. 2200 m, 16-17 Dec. 1982, J.C. Solomon 9091 (MO).

This species, from the spectacular valley of the Río Zongo, is characterized by a medium-sized plant with a raceme shorter than elliptical, obtuse leaves. The sepals are acuminate with spiculate carinae, the lateral sepals with both margins narrowly incurved; the petals are transverse and narrowly oblong; the lip has broadly triangular lobes with thickened margins and the appendix is represented by a tuft of hairs.

Lepanthes zongoënsis is most similar to L. crista-piscis Luer \& R.Vásquez, but is distinguished by the lateral sepals, minutely pubescent within rather than glabrous, and narrower, more incomplete blades of the lip. From L. longipedicellata C.Schweinf., L. zongoënsis is distinguished by pedicels only a millimeter and a half long, as long as the subtending bract, while those of $L$. longipedicellata are two to three millimeters long. The apices of the lateral sepals diverge from each other about $90^{\circ}$, while those of $L$. longipedicellata diverge $180^{\circ}$.

## Species of Lepanthes excluded from Bolivia

Lepanthes intonsa Luer, Phytologia 54: 348, 1983.
Lepanthes doloma Luer, known from Cochabamba, Bolivia, was mistakenly reduced to synonymy of $L$. intonsa. No specimens of $L$. intonsa are known from Bolivia.

Lepanthes minutipetala C.Schweinf., Bot. Mus. Leafl. 15: 81, 1951.
This species was reported from Santa Cruz by Makoto Nashida, Y. Hashimoto \& Fumio Maekawa in 1971. The specimen was unavailable for examination.

Lepanthes tridentata (Sw.) Sw., Nov. Act. Soc. Sc. Upsal. 6: 86, 1799.
Schlechter published a list of four species of Lepanthes known from Bolivia in 1913, including an unidentified species from Santa Cruz erroneously attributed to L. tridentata (Sw.) Sw. by Kränzlin. Lepanthes tridentata is endemic to the Blue Mountains in the eastern part of Jamaica.


LUER, C.A., 1996. The genus Lepanthes subgenus Lepanthes in Ecuador. Icones Pleurothallidinarum XIV. Monogr. Syst. Bot. Missouri Bot. Gard. 61: 1-255.
SCHLECHTER, R., 1922. Die Orchideenflora der südamerikanischen kordilleren staaten V. Bolivia. Repert. spec. nov. regni veg. Beih. 10: 65-66.

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sillarensis 1, 4, 7, 8, 27, 41, 62, Fig. 60.
tridentata 46.
usitata 4, 6, 41, 62, Fig. 61.
vasquezii 4, 6, 24, 42, 62, Fig. 62.
versicolor 4, 6, 8, 42, 62, Fig. 63.
vespa 4, 7, 35, 43, 63, Fig. 64.
vogelii $4,8,43,63$, Fig. 65.
wageneri $4,8,44,63$, Fig. 66.
zongoënsis 4, 5, 45, 63, Fig. 67.
Trichosalpinx chamaelepanthes 22

## SYSTEMATICS OF OCTOMERIA <br> (ORCHIDACEAE)


#### Abstract

A brief history of Octomeria R.Br. is given. The genus is divided into two groups, those species north and west of Brazil, treated herein with a key, descriptions and illustrations, and those species of Brazil and southern neighbors to be treated in a subsequent Icones Pleurothallidinarum.


New species

| Octomeria acicularis Luer | Octomeria marsupialis Luer |
| :--- | :--- |
| Octomeria condorensis Luer \& Hirtz | Octomeria moscosoae Luer |
| Octomeria deceptrix Luer | Octomeria napoleon Luer |
| Octomeria georgei Luer | Octomeria odontoglossoides Luer |
| Octomeria jauaënsis Luer | Octomeria zygoglossa Luer |

New typifications

| Octomeria brachypetala Schltr. | Octomeria petulans Rchb.f. |
| :--- | :--- |
| Octomeria bradei Schltr. | Octomeria robusta Barb.Rodr. |
| Octomeria buchtienii Schltr. | Octomeria seegeriana Kraenzl. |
| Octomeria colombiana Schltr. | Octomeria serpens Schltr. |
| Octomeria concolor Barb.Rodr. | Octomeria steyermarkii Garay \& Dunst. |
| Octomeria costaricensis Schltr. | Octomeria taracuana Schltr. |
| Octomeria guentheriana Kraenzl. | Octomeria tenuis Schltr. |
| Octomeria longifolia Schltr. | Octomeria xanthina Barb.Rodr. |
| Octomeria mocoana Schltr. | Octomeria yauaperyensis Barb.Rodr. |

Based on the Epidendrum graminifolium of Linnaeus, Robert Brown proposed the genus Octomeria in 1813 with O. graminifolia as the only pleurothallid species with eight pollinia. Before the genus was well defined, 14 Old World, non-pleurothallid species with eight pollinia were described in Octomeria, 11 in the genus Eria Lindl., one in Octadesmia Benth., and two with the proper genus undetermined today. Lindley described a collection of the vegetatively variable and widely distributed Octomeria graminifolia as $O$. baueri in 1830 . and in 1836 , he published the Brazilian O. crassifolia and O. pusilla, and from Barbados, O. loddigesii nom. inval. referred to $O$. graminifolia. These were followed by two more pleurothallid genera (Enothrea Raf. in 1836, and Aspegrenia Poepp. \& Endl. in 1837) that were also distinguished by eight pollinia, and these were eventually reduced to the synonymy of Octomeria. Brachionidium, described by Lindley in 1859, is another pleurothallid genus with eight pollinia, but six pollinia occur in nearly half the species. In Octomeria, six pollinia occur only rarely.

Nearly four dozen species were described in Octomeria during the remainder of the nineteenth century, most by Barbosa Rodrigues. In 1896, in Martius's Flora Brasiliensis, volume 3(4) Orchidaceae, Cogniaux divided the genus into two sections: sect. Planifoliae for those species with flat leaves, and sect. Teretifoliae for those species with terete leaves. Neither of these sections are recognized herein, Pleurothallopsis Porto \& Brade, a genus similar to Octomeria, but with eight or four pollinia, was proposed by Porto and Brade in 1937. In 2004, Atopoglossum Luer, another pleurothallid genus with eight pollinia, was identified.

Stelis Sw. and Octomeria R.Br. are two pleurothallid genera that have been avoided by most taxonomists, and unfortunately, also by horticulturists and hobbyists, because of a sameness of small flowers that are not horticulturally attractive. The flowers of Stelis are usually produced in a raceme, while the flowers of Octomeria are single, but often many may be produced simultaneously in a fascicle. Many species of Octomeria are poorly documented, and no satisfactory taxonomic treatment exists for the genus as a whole.


Fig. 1. The northern and southern distribution of Octomeria

The genus Octomeria is divided here by distribution into two treatments. The Central American, West Indian, Andean and South American species north and west of Amazonian Brazil are treated as a group of northern species. Species from Brazil and her neighbors to the south will be treated separately as a group of southern species. Of 240 names and varieties published in Octomeria, approximately 158 species are accepted herein; 57 are treated here among the species of the northern group, and about 100, in the southern group. Six species [O. concolor Barb.Rodr., O. graminifolia (L.) R.Br., O. grandiflora Lindl., O. robusta Rchb.f. \& Warm., O. seegeriana Kraenzl., and O. tridentata Lindl.] are widely distributed, occurring in both the northern and the southern regions. About a dozen species [e.g., O. scirpoidea (Poepp. \& Endl.) Rchb.f. and O. yauaperyensis Barb.Rodr.] of the northern group stray as far south as the Amazon basin, but very few southern Brazilian species (e.g., O. diaphana Lindl.) venture into the southern Andes.

The taxonomy of this genus can be made too simple by lumping, or too complex by splitting, with the recognition of too many variations. If a minor variation of the lip is considered a species level difference, the taxonomy of this genus becomes impossible. It is much simpler when it is understood that the morphology of the lip of most, if not all the species, is variable. To complicate matters, the vegetative morphology is also variable in practically all species. Because of the similarity of so many flowers, vegetative morphology is often most important in the determination of a species. The size of both vegetative and floral parts sometimes varies remarkably, two-fold or more in some widely distributed, frequently encountered species, e.g., Octomeria graminifolia (L.) R.Br. Variations of the flowers of Octomeria grandiflora Lindl., O. hirtzii (Luer), O. peruviana D.E.Benn. \& Christenson, O. seegeriana Kraenzl., and O. tridentata Lindl. may be so similar that identification often depends wholly upon vegetative characters.


Fig, 2. Morphology of Octomeria [Octomeria yauaperyensis]

Octomeria R.Br., Ait., Hort. Kew. ed. 2, 5: 211, 1813.
Ety.: From the Greek Octomeros, "with eight parts," referring to the eight pollinia.
Type: Epidendrum graminifolium L., Sp. Pl. ed. 2, 1353, 1763, lectotype designated by Garay and Sweet in Howard, Fl. Lesser Antilles, Orchidaceae 116, 1974. [Icon.] "Convallaria? Caule articulato?" in Plummer in Burman. Pl. Amer.: 171, tab. 176, fig. 1, 1758. [=Octomeria graminifolia (L.) R.Br.].

Syn.: Enothrea Raf., Fl. Tellur. 4: 43, 1836 [1838].
Ety.: According to Rafinesque, named for an obscure nymph.
Type: Epidendrum graminifolium L. [=Octomeria graminifolia (L.) R.Br.].
Syn.: Aspegrenia Poepp. \& Endl., Nov. Gen. Sp. Pl. (Poeppig \& Endlicher) 2: 12, 1837.
Ety.: Named for Gustav Karsten Aspegren, nineteenth century Swedish botanist and naturalist.
Type: Aspegrenia scirpoidea Poepp. \& Endl. [= Octomeria scirpoidea (Poepp. \& Endl.) Rchb.f.]
Syn.: Gigliolia Barb.Rodr., Gen. Spec. Orchid. 1: 25, July 1877, not Gigliola Beccari, May 1877.
Ety.: Named for Enrico H. Giglioli, Professor of Natural History, University of Florence.
Type: Gigliolia geraënsis Barb.Rodr. Gen. Sp. Orchid. 1: 26, 1877 [= Octomeria geraënsis Barb.Rodr.] Gen. Sp. Orchid. 2: 295, 1881.
Syn.: Octandrorchis Brieger, Orchideen, 1A(7): 425, 1975; Trab. Congr. Nac. Bot, (Rio de Janeiro) 26: 43, 1977.

Ety.: From the Greek or Latin Octandrorchis, "an orchid with eight stamens," referring to the pollinia.
Type: Octandrorchis leptophylla (Barb.Rodr.) Brieger [= Octomeria leptophylla Barb.Rodr.].
Syn.: Octomeria sect. Planifoliae Barb.Rodr., Gen. Sp. Orchid., 2: 96, 1881.
Ety.: From the Latin planifolius, "flat-leaved," referring to the blades of the leaf.
Type: Octomeria robusta Barb.Rodr., Gen. Sp. Orchid., 2: 97, late 1881, nom. illeg. [= Octomeria seegeriana Kraenzl., 1892.].
Syn.: Octomeria sect. Teretifoliae Barb.Rodr,. Gen. Sp. Orchid. : 634, 1881.
Ety.: From the Latin teretifolius, "terete-leaved," referring to the blades of the leaf.
Type here designated: Octomeria leptophylla Barb.Rodr., the first species treated in the section.
Syn.: Octomeria subgen. Pleurothallopsis (Porto \& Brade) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 80, 1991.
Ety.: Named for the similarity to the genus Pleurothallis R.Br.
Type: Octomeria nemorosa (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 80, 1991.
Plant perennial, minute to large, epiphytic, lithophytic to terrestrial, repent, repent to caespitose, the rhizome thick to thin; roots slender to fleshy. Ramicauls slender to stout, ascending to erect, or pendent, terete to compressed, enclosed by few to many tubular sheaths that are often early-shredded, or lost. Leaf erect, thinly to thickly coriaceous, terete to variously ovate or elliptical, sessile or petiolate. Inflorescence a single-flowered peduncle produced successively or simultaneously, from the apex or near the apex of the ramicaul; floral bracts shorter or longer than the pedicel; the ovary tricarpellate; sepals glabrous, entire, more or less similar, free, the lateral sepals rarely connate; petals entire, usually similar to the sepals, but usually smaller; lip entire or lobed, infrequently fimbriate, usually bicallous, the base truncate, hinged to the tip of the column-foot; column more or less terete, with the anther subapical, pollinia 8 , usually in pairs of 4 , and the stigma ventral.

A caespitose habit is about as frequent as a repent habit, but it is uncommonly long-repent. The distance between ramicauls, especially in a shortly repent-ascending habit, can be influenced by the habitat. The ramicaul varies from vestigial to massive, longer or shorter than the leaf, terete to compressed, and in the number of sheaths that are frequently deciduous, or shredded. The ramicaul has often been described as having joints, referring to the circumferential scars where sheaths have been shed. These are not actual joints, which would imply a junction, or even an articulation, between two anatomical elements.

In 1896, Cogniaux proposed two sections based on morphology of the leaf: terete and not terete (more or less flat), key characters for identification. When narrow, fleshy leaves approach being terete, sometimes the distinction being a personal opinion. Flowers of some terete-leaved species are practically identical to those of some non-terete-leaved species. The bases of the leaves are sessile, subpetiolate to distinctly petiolate and are sometimes twisted. Because of shrinkage, the width of narrow leaves when dried is difficult to determine. Narrow leaves become linear and may appear terete. The two sections of Cogniaux are not recognized herein.

The inflorescence emerges terminally at the abscission layer between the leaf and ramicaul at the base of the leaf or petiole, or laterally a very short distance below the abscission layer. From a small, usually deciduous spathe, single flowers are produced successively, or simultaneously in a congested fascicle of short, overlapping, ribbed sheaths. The floral bracts are usually short and inconspicuous, often about as long as the pedicel.

The size of the flowers of many species, especially those with a wide distribution, varies considerably. In some species may have flowers twice or even thrice larger than the smallest occurring within the same species.

The three sepals are similar and mostly free. The number of veins in the dorsal sepal are helpful in many determinations. Unfortunately, the veins often are not noted. They were not included in either Barbosa Rodrigues's illustrations or descriptions. The lateral sepals are sometimes barely connate to each other at the base or shortly overlap, and in a few species the connation is deep. The petals are similar to, but usually slightly smaller than, the sepals.

Three major divisions in morphology of the lip are recognizable. In the majority of species, the lip is "standard," herein called type A, when it is more or less oblong and not deflexed, with a pair of calli near the middle, and with a pair of lateral lobes at or below the middle. The details of a type A lip are often variable within a species, hence a source of synonymous epithets. Much depends on the interpretation of the illustrator's rendition. Some are crude caricatures. If the lateral lobes are drawn as viewed from above, in a two dimensional drawing, they will not appear the same as when they are expanded under a heavy thumb. No two collections of the same species will have identical lips.


Fig. 3. Variations of Type A lip

Many type A lips are so similar among so many species that identification depends wholly upon vegetative characters. The lips of some species with terete leaves are indistinguishable from those of some species with broad leaves. Only species with a type A lip and their modifications occur in the southern group; species with type B and type C in addition to type A , occur in species of the northern group. A type A lip in Octomeria is basically similar to the lips of Acianthera Scheidw., Arthrosia Luer, Chamelophyton Garay, Muscarella Luer, Physosiphon Lindl., Pleurothallopsis Porto \& Brade, and even Restrepia Kunth, Scaphosepalum Pfitz., and Zootrophion Luer, all with their own recognizable modifications.

The type B lip is distinguished by being acutely deflexed with the basal claw lying against the back of the blade (e.g., Octomeria lancipetala C.Schweinf.). The


Fig. 4. Variations of Type B lip


Fig. 5. Variations of Type C lip
type C lip is reserved for those lips with a basically different design (e.g., Octomeria exigua C.Schweinf.). The lip is non deflexed without the usual lateral lobes, and without the usual pair of calli on the disc. Calli may be totally absent or replaced by single, central callosity (e.g., O. oncidioides Luer). Neither type B nor type C lip occurs in Brazil and its southern neighbors.

The simple column is more or less semiterete with the deciduous anther mostly exposed at the apex, and with the simple stigma beneath on the ventral surface. With or without a minute viscidium, eight pyriform pollinia are produced singly, in two groups of four, or in a double row of four, never eight in a single row on the same plane. Rarely, six pollinia are present, as in Octomeria splendida Garay \& Dunst. and $O$. marsupialis Luer.

> Illustrations of species of Octomeria attributed to the northern region.
> (excluding Brazil and bordering lands to the south) Names in boldface indicate an accepted name; names in italics are synonyms.

Octomeria acicularis Luer \& R.Vásquez ......................................................Fig. 1.
Octomeria anomala Garay \& Dunst. ............................................................Fig. 2.
Octomeria amazonica Pabst = O. colombiana Schltr.
Octomeria apiculata (Lindl.) Garay \& H.R.Sweet = O. graminifolia (L.) R.Br.
Octomeria arcuata $\mathrm{Rolfe}=\mathbf{O}$. grandiflora Lindl.
Octomeria auriculata Luer \& Dalström = O. colombiana Schltr.
Octomeria baueri Lindl. = O. graminifolia (L.) R.Br.
Octomeria boliviensis $\mathrm{Rolfe}=\mathbf{O}$. robusta Rchb.f. \& Warm.
Octomeria boliviensis Rolfe var. grandifolia C.Schweinf. $=\mathbf{O}$. peruviana
D.E.Benn. \& Christenson

Octomeria bomboizae Luer
Octomeria brachypetala Schltr. = O. scirpoidea (Poepp. \& Endl.) Rchb.f.
Octomeria brevifolia Cogn. = O. scirpoidea (Poepp. \& Endl.) Rchb.f.
Octomeria buchteinii Schltr. $=\mathbf{O}$. guentheriana Kraenzl.
Octomeria callosa Luer.
Fig. 4.
Octomeria colombiana Schltr.
.Fig. 5a., 5b.
Syn.: Octomeria amazonica Pabst
Syn.: Octomeria auriculata Luer \& Dalström
Octomeria complanata C.Schweinf. $=\mathbf{O}$. yauaperyensis Barb.Rodr.
Octomeria concolor Barb.Rodr.
.Fig. 6.
Octomeria condorensis Luer \& Hirtz...........................................................Fig. 7.
Octomeria connellii Rolfe............................................................................Fig. 8.
Syn.: Octomeria flaviflora C.Schweinf.
Octomeria cordilabia C.Schweinf. ..............................................................Fig. 9.
Octomeria costaricensis Schltr. ...................................................................Fig. 10a., 10b.
Syn.: Octomeria ventii H.Dietrich
Octomeria dalstroemii Luer ........................................................................Fig. 11.
Octomeria deceptrix Luer ...........................................................................Fig. 12.
Octomeria deltoglossa Garay $=\mathbf{O}$. exigua C.Schweinf.
Octomeria dentifera C.Schweinf.
Fig. 13.
Octomeria diaphana Lindl.
Fig. 14.
Syn.: Octomeria glazioveana Regel
Syn.: Octomeria recchiana Hoehne
Octomeria erosilabia C.Schweinf. $=\mathbf{O}$. longifolia Schltr.
Octomeria exigua C.Schweinf. ..... Fig. 15.
Syn.: Octomeria exigua C.Schweinf. var. elata C.Schweinf.
Syn.: Octomeria deltoglossa Garay
Syn.: Octomeria kestrochila Garay \& Dunst.
Octomeria ffrenchiana Ph.Feldmann \& Barré = O. integrilabia C.Schweinf.Octomeria filifolia C.Schweinf.Fig. 16.
Octomeria flaviflora C.Schweinf. = O. connellii Rolfe
Octomeria gemmula Carnevali \& I.Ramírez ..... Fig. 17.
Octomeria georgei Luer ..... Fig. 18.
Octomeria glazioveana Regel $=\mathbf{O}$. diaphana Lindl. Octomeria graminifolia Lodd. = O. graminifolia (L.) R.Br. Octomeria graminifolia (L.) R.Br. ..... Fig. 19.
Syn.: Octomeria baueri Lindl.
Syn.: Octomeria graminifolia var. ophioglossoides Griseb.
Syn.: Octomeria longirepens Schltr.
Syn.: Octomeria serpens Schltr.
Syn.: Pleurothallis apiculata Lindl.
Octomeria grandiflora LindlFig. 20a., 20b.
Syn.: Octomeria arcuata Rolfe
Syn.: Octomeria lobulosa Rchb.f.
Syn.: Octomeria truncata Rchb.f. ex Hoffmannsegg.
Octomeria grandiflora var. robusta Cogn. $=\mathbf{O}$. seegeriana Kraenzl.
Octomeria grandiflora var. seegeriana (Kraenzl.) Barb.Rodr. = O. seegeriana Kraenzl.
Octomeria guentheriana Kraenzl.Fig. 21.
Syn.: Octomeria buchtienii Schltr.
Octomeria harantiana I.Bock ..... Fig. 22.
Octomeria heleneana Carnevali \& Delascio ..... Fig. 23.
Octomeria hirtzii Luer ..... Fig. 24.
Octomeria hondurensis Ames $=\mathbf{O}$. yauaperyensis Barb.Rodr.
Octomeria integrilabia C.Schweinf. ..... Fig. 25.
Syn.: Octomeria ffrenchiana Ph.Feldmann \& Barré
Octomeria jauaënsis LuerFig. 26.
Octomeria kestrochila Garay \& Dunst. = O. exigua C.Schweinf.Octomeria lamellaris Luer $=\mathbf{O}$. nana C.Schweinf.Octomeria lancipetala C.Schweinf.Fig. 27.
Octomeria lobulosa Rchb.f. = O. grandiflora Lindl.
Octomeria loddigesii Lindl. = O. graminifolia (L.) R.Br.
Octomeria longerepens Schltr. = O. graminifolia (L.) R.Br.
Octomeria longifolia Schltr.Fig. 28.
Syn.: Octomeria erosiabia C.Schweinf.
Syn.: Octomeria rhizomatosa C.Schweinf.
Syn.: Octomeria schultesii Pabst
Octomeria marsupialis Luer ..... Fig. 29.
Octomeria medinae Luer \& J.Portilla ..... Fig. 30.
Octomeria minor C.Schweinf. ..... Fig. 31a., 31b.
Octomeria mocoana Schltr. ..... Fig. 32.
Octomeria monticola C.Schweinf. ..... Fig. 33.
Octomeria moscosoae Luer ..... Fig. 34.
Octomeria nana C.Schweinf. Fig. 35.
Syn.: Octomeria lamellaris Luer
Octomeria napoleon Luer ..... Fig. 36.
Octomeria odontoglossoides Luer ..... Fig. 37.
Octomeria oncidioides Luer ..... Fig. 38.
Octomeria parvifolia Rolfe ..... Fig. 39.
Octomeria parvula C.Schweinf. ..... Fig. 40.
Octomeria peruviana D.E.Benn. \& Christenson ..... Fig. 41.
Syn.: Octomeria boliviensis Rolfe var. grandifolia C.Schweinf.
Octomeria petulans Rchb.f. $=\mathbf{O}$. tridentata Lindl.
Octomeria portillae Luer \& HirtzFig. 42.
Octomeria pygmaea C.Schweinf. ..... Fig. 43.
Octomeria recchiana Hoehne $=\mathbf{O}$. diaphana Lindl.
Octomeria rhizomatosa C.Schweinf. $=\mathbf{O}$. longifolia Schltr.
Octomeria robusta Barb.Rodr. = O. seegeriana Kraenzl.
Octomeria robusta Rchb. \& Warm. ..... Fig. 44.
Octomeria romerorum Carnevali \& I.Ramírez. ..... Fig. 45.
Octomeria rotundata Luer \& Hirtz ..... Fig. 46.
Syn.: Octomeria ruthiana Hoehne $=\mathbf{O}$. seegeriana Kraenzl. ..... Fig. 47.
Octomeria schultesii Pabst $=\mathbf{O}$. longifolia Schltr.
Octomeria scirpoidea (Poepp. \& Endl.) Rchb.f. ..... Fig. 48.
Syn.: Octomeria brachypetala Schltr.
Syn.: Octomeria brevifolia Cogn.
Syn.: Octomeria tenuis Schltr.
Octomeria seegeriana Kraenzl.Fig. 49.
Syn.: Octomeria grandiflora var. robusta (Barb.Rodr.) Cogn.
Syn.: Octomeria grandiflora var. seegeriana (Kraemzl.) Cogn.
Syn.: Octomeria robusta Barb.Rodr., not O. robusta Rchb.f. \& Warm.
Syn.: Octomeria, ruthiana Hoehne
Octomeria semiconnata C.Schweinf.Fig. 50.
Octomeria serpens Schltr. $=\mathbf{O}$. graminifoliaOctomeria splendida Garay \& Dunst.Fig. 51.
Octomeria steyermarkii Garay \& Dunst. ..... Fig. 52.
Octomeria surinamensis H.Focke $=\mathbf{O}$. tridentata Lindl.
Octomeria tapiricataractae G.A.Romero \& Luer. ..... Fig. 53.
Octomeria taracuana Schltr. ..... Fig. 54.
Octomeria tenuis Schltr. = O. scirpoidea (Poepp. \& Endl.) Rchb.f.
Octomeria tridentata Lindl. ..... Fig. 55a., 55b.
Syn.: Octomeria petulans Rchb.f.
Syn.: Octomeria surinamensis H.Focke
Syn.: Octomeria xanthina Barb.Rodr.
Octomeria truncata Rchb.f. ex Hoffmannsegg.
Octomeria valerioi Ames \& C.Schweinf.Fig. 56.
Octomeria ventii H. Dietr. $=\mathbf{O}$ costaricensis Schltr.
Octomeria xanthina Barb.Rodr. $=\mathbf{O}$. tridentata Lindl.
Octomeria ximenae Luer \& HirtzFig. 57.
Octomeria yauaperyensis Barb.Rodr. ..... Fig. 58.
Syn.: Octomeria complanata C.Schweinf.
Syn.: Octomeria hondurensis Ames
Octomeria zygoglossa LuerFig. 59.
Pleurothallis apiculata Lindl., = O. graminifolia (L.) R.Br.

## KEY TO THE NORTHERN SPECIES OF OCTOMERIA

1 Lip type A, with lateral lobes near or below the middle associated with a pair of calli
2 Habit repent, rhizome stout, 0.5 cm long or longer between ramicauls
3 Lip with lateral lobes uncinate, antrorse
4. Leaf elliptical, to 2.5 cm wide
O. seegeriana

4' Leaf linear, ca. 1 cm wide
O. guentheriana

3' Lip with lateral lobes rounded
5 Lip with lateral lobes rounded, retrorse..............................................O. mocoana
5 ' Lip with lateral lobes rounded, not retrorse
6 Mature leaf and ramicaul together usually less than 15 cm tall
7 Rhizome at least 1 cm long between ramicauls; roots slender.
O. graminifolia

7' Rhizome less than 1 cm long between ramicauls
8 Sepals 3-4 mm long....................................................................O. O concolor
8' Sepals 7 mm long ......................................................................... O. georgei
6' Mature leaf and ramicaul together usually more than 15 cm tall
9 Leaf usually more than 1.5 cm wide; lip with apical lobe erose,
often apiculate ............................................................................ O. valerioi
$9^{\prime}$ Leaf less than 1.5 cm wide............................................................O. longifolia
2' Habit caespitose, ascending to shortly repent with rhizome 1-2 mm long
10 Lip with lateral lobes uncinate-antrorse
11 Sepals 3-veined
12 Mature plant less than 2 cm tall
13 Leaf obtuse to rounded at the apex; spathe prominent.
o. gemmula

13' Leaf acute to subacute at the apex; without prominent spathe.
.O. pygmaea
12' Mature plănt more than 3 cm tall
14 Leaf linear, or nearly so
15 Lip with lateral lobes broad.
O. filifolia

15 ' Lip with lateral lobes narrow, falcate
16 Leaf much shorter than the ramicaul
17 Ramicaul compressed
O. yauaperyensis

17’ Ramicaul not compressed....................................................O. scirpoidea
16' Leaf not shorter than the ramicaul...........................................O. taracuana
14' Leaf narrowly elliptical to elliptical-ovate
18 Lip denticulate-erose
19 Lip with lateral lobes long, overhanging the midlobe...............O. monticola
$19^{\prime}$ Lip with lateral lobes not long, overhanging the midlobe..........O. dentifera
18' Lip not denticulate-erose
20 Plant large, more than 15 cm tall...............................................O. connellii
20' Plant small, less than 10 cm tall................................................O. napoleon
11' Dorsal sepal 5- to 7 -veined
21 Leaf narrowly elliptical to narrowly oblong, not widest below the middle, ca. 1 cm wide
22 Lip with lateral lobes below the middle, anterior lobe minutely denticulate......
22’ Lip with lateral lobes at the middle, anterior lobe entire.................O. ximenae
21' Leaf narrowly ovate, sharply acute, widest below the middle,more than 1 cm wide
23 Habit loosely caespitose; sepals less than 10 mm long. O. tridentata
23' Habit caespitose to repent; sepals at least 10 mm long
24 Plant caespitose; leaf usually less than 20 cm long O. grandiflora
24 ' Plant ascending to repent with rhizome thick; leaf more than 20 cm long
O. peruviana
10' Lip with lateral lobes rounded to obtuse, not uncinate-antrorse
25 Leaf 1 cm or more wide
26 Dorsal sepal 3-veined
27 ' Sepals broadly obtuse to rounded O. bomboizae
27' Sepals acute to subacute
28 Leaf ovate, 1.5 to 3 cm wideO. deceptrix
28' Leaf narrowly elliptical to narrowly elliptical-ovate, up to 1.5 cm wide
29 Lip with lateral lobes low, flush with anterior lobe O. harantiana
29' Lip with lateral lobes round, erect
30 Lip with lateral lobes retrorse O. mocoana
30' Lip with lateral lobes not retrorse
31 Plant large, robust; rhizome usually repent ..... O. valerioi
31' Plant small to medium in size
32 Mature ramicaul usually less than 8 cm tall; native of the Andes
$\qquad$O. medinae
32' Mature ramicaul usually more than 10 cm tall; native of Central America and Cuba O. costaricensis
26' Dorsal sepal 5- to 7 -veined
33 Rhizome stout, shortly repent O. robusta
33 Plant caespitose O. diaphana
25' Leaf less than 1 cm wide
34 Leaf narrowly linear, elongate
35 Lateral sepals free or connate basally. O. dalstroemii
35' Lateral sepals connate to each other about half their length O. semiconnata
34' Leaf narrowly ovate to narrowly elliptical
36 Dorsal sepal 2.5-4 mm long
37 Dorsal sepal ovate, acute; lip rhombic with narrow lateral lobes
. moscos
37' Dorsal sepal elliptical; lip oblong with round lateral lobes
38 Lip with the pair of calli thick ..... O. minor
$38^{\prime} \mathrm{Lip}$ with the pair of calli thin
39 Lip with low, broadly rounded lateral lobes, claw short O. portillae
39' Lip with erect, rounded lateral lobes, claw elongate. O. parvula
36' Dorsal sepal more than 5 mm long
40 Sepals 5-6 mm long O. colombiana
40' Sepals 8-9 mm long O. condorensis

1' Lip not type A; lip without lateral lobes near or below the middle associated with a pair of calli
41 Lip with the claw deflexed $180^{\circ}$, type B
42 Lip with the margin denticulate or fringed
O. sarthouae

42' Lip with the margin entire
43 Petals 1-veined; lip with basal angles not elongated
44 Petals ca. 4 mm long O. lancipetala

44' Petals ca. 2.5 mm long .O. splendida
43' Petals 3-veined, lip with basal angles elongated, partially surrounding column
45 Leaf usually 1 cm or more wide; lip more than 2 mm wide
O. rotundata

45' Leaf usually less than 1 cm wide; lip less than 1.5 mm wide........O. zygoglossa
$41^{\prime}$ Lip without a claw deflexed $180^{\circ}$, type C
46 Sepals and petals ovate, long-acuminate
47 Sepals and petals long-attenuate, 1 -veined
O. steyermarkii

47 Sepals and petals not long-attenuate, 3- to 7 -veined
48 Lip decurved near the middle, the apex with a ventral tuberosity.....O. anomala
$48^{\prime}$ Lip ovate, not decurved, the apex with a superficial pouch.........O. marsupialis
46 Sepals and petals variously ovate, not long-acuminate
49 Lip with the claw deflexed ca. $90^{\circ}$
50 Dorsal sepal broadly obtuse, shortly acuminate; lip with the claw nearly as large as the blade.
.O. jauaënsis

49' Lip without a deflexed claw
51 Lip cordate or subcircular
52 Lip slightly convex, with margins minutely erose-denticulate.....O. cordilabia
52' Lip shallowly sulcate between low, indistinct calli, with margins entire.
O. integrilabia

51' Lip neither cordate nor subcircular
53 Lip with a conspicuous central callus
54 Lip with a verrucose callus and basal lobes
55 Lip with triangular basal lobes
O. oncidioides

55' Lip with oblong, decurved basal lobes. O. odontoglossoides

54' Lip with horse shoe-shaped callus, without basal lobes.................O. callosa
53' Lip without a conspicuous central callus
56 Lip subquadrate with a pair of converging calli on middle third
57 Sepals and petals acute; lip thin, rectangular.................................... O. nana
57' Sepals and petals broadly obtuse; lip thick, subcordate....O. tapiricataractii 56' Lip without a pair of calli on middle third
58 Ramicauls ca. 1 mm long: plant long-repent. $\qquad$ O. romerorum

58' Ramicauls more than 1 cm long; plant caespitose
59 Lip thick, rhombic, studded with glandular cells.......................... O. exigua
59' Lip with basal lobes, not rhombic
60 Lip with the lobes formed by triangular calli.........................O. parvifolia
60' Lip with the lobes marginal.................................................. O. acicularis

Octomeria acicularis Luer \& R.Vásquez, sp. nov.
Ety.: From the Latin acicularis, "like a needle," referring to the leaves.
Species haec Octomeriae filifoliae C.Schweinf. affinis, sed flore minore, sepalis petalisque oblongis obtusis et labelli lobis erectis non antrorsis inter se concavis differt.

Plant small, slender, epiphytic, caespitose. Ramicauls slender, erect, terete, $3-4 \mathrm{~cm}$ long, enclosed by $4-5$ close, tubular sheaths. Leaf erect, coriaceous, narrowly linear, acute, thick, $4-5 \mathrm{~cm}$ long, $0.1-$ 0.1 .5 cm wide and thick in the dry state, linear into the base. Inflorescence a single flower produced successively by peduncles less than 1 mm long in a fascicle, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary $1-1.5 \mathrm{~mm}$ long; sepals yellow, membranous, glabrous, oblong, obtuse, free, 2.6 mm long, 0.75 mm wide, 1 -veined; petals similar, yellow, oblong, obtuse, 2.6 mm long, 0.4 mm wide, 1 -veined; lip type C, yellow, ovate-trilobed, 1 mm long, 1 mm wide across the lateral lobes expanded, the lateral lobes marginal, erect, broadly rounded, occupying the half below the middle, the anterior lobe obtuse, ovate-subquadrate, concave, with cellular-erose margins toward the apex, the disc shallowly but sharpely concave above a transverse callus between the lateral lobes, the base broadly truncate, hinged to the tip of the column-foot; column semiterete, thick, 0.5 mm long, the anther apical, the stigma subapical.
PERU: Amazonas: Bagua, Imaza, community of Wawas, alt. 1200 m, 21 Oct. 1997, R. Vásquez, J. Lirio \& G. Pitug 24634 (Holotype of O. acicularis: MO), C. Luer illustr. 21383.

Vegetatively, this little species is indistinguishable from a small plant of Octomeria filifolia C.Schweinf. In the dry state, the leaves are only about one millimeter wide and thick. A single flower, smaller than $O$. filifolia, is produced successively from the apex of the equally narrow ramicaul. The sepals and petals are oblong, single-veined and obtuse. The lip, type C, is only one millimeter long. Between proportionately large, erect lateral lobes that occupy the lower half of the lip, the disc is concave above a transverse callus across the basal third.

Octomeria anomala Garay \& Dunst., Venez. Orch. Ill. 6: 284, 1976.
Ety.: From the Latin anomalus, "aberrant, unusual," in allusion to the floral parts.
Plant small, lithophytic to epiphytic, very shortly repent, the rhizome ca. 1 mm long between ramicauls, roots slender. Ramicauls purple, slender, erect, terete, 5-7.5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, elliptical-ovate, acute, $4-5.5 \mathrm{~cm}$ long, 1.2 cm wide, cuneate below into a petiole ca. 5 mm long. Inflorescence a single flower produced successively, borne by abbreviated peduncles ca. 1 mm long; floral bracts 1 mm long; pedicels 1 mm long; ovary 1.5 mm long; flowers dark purple; sepals glabrous, elliptical, obtuse, long-acuminate, the dorsal sepal concave, 11 mm long, 5 mm wide, 7 -veined, the lateral sepals oblique, 10 mm long, 4 mm wide, connate 1 mm , with 4 to 6 branching veins; petals elliptical, oblique, acute, long-acuminate, 9 mm long, 3.5 mm wide, with 3 branching veins; lip type B, thick, glabrous, arcuate, decurved near the middle, broadly oblong-ovate, 1.75 mm long, 1.8 mm wide, the apex thickened, narrowed, subacute to obtuse, shallowly concave behind a small callus at the tip, with a solid, rounded callus externally below the tip, the disc convex and shallowly sulcate, the base broadly truncate, hinged to the tip of the column-foot; column short, broad, conical, 1.5 mm long, with the anther apical apical and the stigma ventral.

VENEZUELA: Amazonas: summit of Cerro Marahuaca, alt. 2750 m, May 1975, G.C.K. Dunsterville 1337 (Holotype of $O$. anomala: AMES), C. Luer illustr. 19218.

This species is rare, apparently known from only one locality in the Amazonas of Venezuela. The sepals and petals are elliptical-ovate with obtuse apices longacuminate. The most unusual type C lip is broadly ovate and arcuate, more or less decurved near the middle with a convex disc. The apex is shallowly concave below a callus at the narrowed, obtuse tip, with a rounded callus externally below the tip.

Octomeria bomboizae Luer, Selbyana 23(1): 29, fig. 21, 2002.
Ety.: Named for the Mission Bomboiza in Ecuador, near where the species was collected.
Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls stout, erect, 7-11 cm long, enclosed by 7-8 imbricating to shredded, tubular sheaths. Leaf erect, coriaceous, elliptical, subacute, $4.5-5.5 \mathrm{~cm}$ long, $1-2 \mathrm{~cm}$ wide, narrowly cuneate below into the sessile base. Inflorescence a single flower produced successively in a fascicle of abbreviated peduncles ca. 2 mm long, at the apex of the ramicaul; floral bracts 2-3 mm long; pedicels 2-3 mm long; ovary 1.5 mm long; sepals pale apricot, lightly suffused with rose, glabrous, free, the sepals broadly elliptical, obtuse to rounded at the apex, the dorsal sepal 7 mm long, $3.5-4 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals slightly oblique, overlapping below the middle, $7-7.25 \mathrm{~mm}$ long, $3.5-4 \mathrm{~mm}$ wide, 3 -veined; petals colored as the sepals, broadly obovate, obtuse, $5.5-6 \mathrm{~mm}$ long, $3-4 \mathrm{~mm}$ wide, 3 -veined; lip rose, glabrous, broadly elliptical-subtrilobed, 3.5 mm long, 3 mm wide, with obscure lateral lobes low, rounded, above the broad, thick claw, the anterior lobe elliptical with broadly undulating margins, the apex truncate-retuse, the disc shallowly concave between a pair of parallel calli on the middle third, and with a midline callus on the apical third, the claw broadly truncate, hinged to the free tip of the column-foot; column semiterete, 2 mm long, with a thick foot nearly as long, the anther apical and stigma subapical.

ECUADOR: Zamora-Chinchipe: Cordillera del Condor, near Paquisha, alt. 1500 m, collected Jan. 1989 by C. \& J. Luer \& A. \& P. Jesup, cultivated by P. Jesup in Bristol, CT, in flower 21 May 1982, C. Luer 16248 (Holotype" MO); Parqué Nac. Podocarpus, south of Zamora, 1 Nov. 2002, J. Grant et al. 02-4252 (NEU, MO, SEL), C. Luer illustr. 20437A.
Morona-Santiago: collected near Bomboiza, cultivated in Gualaceo by Ecuagenera, Mar. 2001, C. Luer 19841 (MO).

This species from southeastern Ecuador is characterized by stout ramicauls and elliptical, sessile leaves. Flowers are produced successively in a fascicle from the apex of the ramicaul. The sepals and petals are broadly elliptical, obtuse to rounded at the apex, and overlapping. The lip is short and broad with low, obscure lobes below the middle. On the disc are a pair of calli on the middle third and a midline callus on the apical third.

Octomeria callosa Luer, Phytologia 49: 197, 1981.
Ety.: From the Latin callosus, "with callus," referring to the large callus on the lip.
Plant small, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, $4-10 \mathrm{~cm}$ long, enclosed by 4-5 tubular sheaths on the lower half. Leaf erect, thickly coriaceous, narrowly ellipticalovate, acute, $4.5-8.5 \mathrm{~cm}$ long, $1-1.2 \mathrm{~cm}$ wide, cuneate below into a petiole $5-8 \mathrm{~mm}$ long. Inflorescence a single flower produced successively by abbreviated peduncles ca. 1 mm long, in a fascicle at the apex of the ramicaul; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; sepals translucent rose, suffused with darker rose, free, glabrous, the dorsal sepal elliptical, obtuse, 3 mm long, 1.75 mm wide, 3 veined, the lateral sepals elliptical-obovate, oblique, obtuse, 3 mm long, 1.6 mm wide, 3 -veined; petals translucent rose, elliptical, obtuse, 2.5 mm long, 1.5 mm wide, 3-veined; lip type C, dull yellow, suffused with purple, thick, ovate, obtuse, glabrous, 2.25 mm long, 1.5 mm wide, the disc with a large, inverted, U-shaped callus filling the middle third, shallowly concave between the limbs of the callus, the base broadly truncate, firmly fixed to an obsolescent column-foot; column white, semiterete, 1.25 mm long, with the anther apical and stigma ventral.
ECUADOR: Loja: south of Yangana, alt. $2450 \mathrm{~m}, 12$ May 1981, C. Luer, J. Luer \& D. D'Alessandro 6189 (Holotype of O. callosa: SEL); Cachaco, south of Yangana, alt. $2250 \mathrm{~m}, 26$ Sept. 1980, flowered in cultivation 10 May 1981, C. Luer \& D. D’Alessandro 6130 (SEL); between Yangana and Altos de Numbala, alt. 2750 m, July 1982, C.H. Dodson \& A. Embree 13249 (SEL, US); north of the pass south of Yangana, alt. 2400 m, 1 Nov. 1982, C. Luer \& R. Escobar 8255 (SEL); along army road to the antenna east of Yangana, alt. $2500 \mathrm{~m}, 22$ Mar. 1985, C. Luer, J. Luer, A. Hirtz \& W. Flores 10809 (MO).
Zamora-Chinchipe: east of the pass east of Loja, alt. $2500 \mathrm{~m}, 21$ Jan. 1992, C. Luer, J. Luer, A. \&. P. Jesup 16076 (MO).
PERU: Cajamarca: San Ignacio, alt. 2420 m, 19 Aug. 1998, J. Campos, L. Campos \& J. Zurita 5599 (MO).

This species from southeastern Ecuador and northern Peru is distinguished by the proportionately large, thick, ovate lip with a tall, prominent callus that occupies much of the disc. Two lamellae meet a short distance above the base to form an inverted, horse shoe-shaped callus.

Octomeria colombiana Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 121, 1920. Ety.: Named for the country of origin.
Syn.: Octomeria amazonica Pabst, Orquidea (Rio de Janeiro) 29(1): 8, 1967.
Ety.: Named for the state Amazonas, where the species was collected.
Syn.: Octomeria auriculata Luer \& Dalström, Selbyana 23(1): 26, 2002.
Ety.: From the Latin auriculatus, "with ears," referring to the lateral lobes of the lip.
Plant small to medium in size, epiphytic, densely caespitose, roots slender. Ramicauls slender, erect, terete, $2-10 \mathrm{~cm}$ long, enclosed by $2-5$ close, deciduous, tubular sheaths. Leaf erect, coriaceous, narrowly elliptical-linear, acute, $4-9 \mathrm{~cm}$ long, $0.2-0.6 \mathrm{~cm}$ wide, narrowed below into an ill-defined petiole less than ca. 0.5 cm long. Inflorescence a single flower produced successively by a pedicel less than 1 mm long, at the apex of the ramicaul; floral bracts numerous, shredded, $1.5-2 \mathrm{~mm}$ long; pedicels $1.5-2 \mathrm{~mm}$ long; ovary 1-2 mm long; sepals pale yellow, free, membranous, glabrous, the dorsal sepal elliptical-ovate, acute to subacute, $5-6 \mathrm{~mm}$ long, $1-2 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals oblong, oblique, subacute, 4-8 mm long, 1-3 mm wide, 3-veined; petals yellow, elliptical, acute to subacute, 2-7 mm long, $1-3 \mathrm{~mm}$ wide, incompletely 3 -veined; lip red, rose or yellow, ovate-trilobed, glabrous, 2-3 mm long, $0.75-2 \mathrm{~mm}$ wide expanded, the lateral lobes erect, rounded, below the middle, the apical lobe ovate, obtuse to subtruncate, the disc with a pair of thin, lamellate calli from about the middle of the lateral lobes onto the anterior lobe, the base unguiculate, truncate, hinged to the column-foot; column terete, 1.3-1.75 mm long, the anther apical, the stigma ventral.

COLOMBIA: Cauca: without specific locality, alt. 1500 m, M. Madero s.n. (Holotype of $O$. colombiana lost at B, Neotype here designated: C. Luer 17707, MO).
Antioquia: Repressa Miraflores, flowered in cultivation at Colomborquídeas, 3 June 1995, C. Luer 17707 (MO); Munic. San Luis, camino hacia Las Camilias, alt. $800 \mathrm{~m}, 20$ Feb. 1984, S. Hoyos \& J. Hernandez 941 (JAUM, MO).
Amazonas: Vaupés: Río Apaporis, alt. ca. 900 ft., Jan. 1952, R.E. Schultes \& I. Cabrera 19584A (AMES); Vaupés, Río Kudujari, near Mitú, alt. unk., 12 Aug. 1960, L.A. Garay et al., 98 (AMES).
ECUADOR: Napo: between Cotundo and Coca, alt. 1000 m, July 1984, A. Hirtz 1863 (MO), C. Luer illustr. 21391; north of Lumbaqui, Bermejo oil fields, alt. $850 \mathrm{~m}, 9$ Feb. 1986, C. Luer, J. Luer, A. Hirtz \& A. Embree 11722 (M0).
Morona-Santiago: Cordillera del Cutucú, new road between Mendez and Morona, alt. 950 m, C. Luer, J. Luer, A. Hirtz et al. 13957, 13981, 13985 (MO); same area, alt. $1050 \mathrm{~m}, 16$ Feb. 1993, S. Dalström, T. Höijer \& H. Wanntorp 1922 (holotype of O. auriculata: MO), C. Luer illustr. 19164.
Zamora-Chinchipe: Cordillera del Condor: east of Los Encuentros, alt. 1500 m, 19 May 1988, C. Luer, A. Hirtz, A. Andreetta \& W. Teague 13485 (MO); Cordilla del Condor, south of Paquisha, Río Nangaritza, alt. 950 m. 11 Feb. 1993, S. Dalström, T. Höijer \& H. Wanntorp 1889 (MO);
BOLIVIA: La Paz: Larecaja, above Tipuani, stream above Unutuluni, alt, $1150 \mathrm{~m}, 29$ Aug. 1991, C. Luer, J. Luer et al. 15377 (MO); Nor Yungas, north of Caranavi, Buena Vista, Aug. 1991, cultivated in Quito by Hirtz, C. Luer 15548 (MO).
BRAZIL: Amazonas: Reserva Florestal Ducke, near Manaus, 18 Jan. 1968, E. Ferreira 58-314 (holotype of $O$. amazonica: HB).
Espirito Santo: Linhares, 13 Jan. 1994, D.A. Folli 2167 (CVRD, SEL).
This species occurs frequently below 1500 meters above sea level in eastern Ecuador, but it is collected infrequently in southeastern Colombia and adjacent Venezuela, the Guyanas, Peru, Bolivia and Amazonian Brazil. It grades into the smaller-flowered Octomeria parvula C.Schweinf. Octomeria colombiana is a small plant characterized by slender ramicauls with more or less equally long, slender leaves about half a centimeter wide. The sepals of the yellow flowers vary from about four to six millimeters long, and the simple, red or yellow, type A lip varies from two or three millimeters long. All the above apply to Schlechter's description of $O$. colombiana, except for his illustration which shows the margins of the anterior lobe of the lip markedly undulate, which could be an artifact from a faulty interpretation of an old, rehydrated flower.

Octomeria concolor Barb.Rodr. Gen. Sp. Orchid., 2: 100, 1881.
Ety.: From the Latin concolor, "of one color," referring to the flowers.
Plant medium in size, epiphytic, shortly repent, the rhizome stout, $1-5 \mathrm{~mm}$ long between ramicauls, roots fleshy. Ramicauls stout, erect, ascending at the base, 3-7 cm long, enclosed by 3-4 shreddded, tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, acute, $3-7 \mathrm{~cm}$ long, $0.8-1.2 \mathrm{~cm}$ wide, narrow-
ly cuneate below into the subpetiolate base. Inflorescence 1-3 single flowers produced simultaneously in a fascicle, borne by peduncles 1 mm long, at the base of the leaf; floral bracts 3 mm long; pedicels 1 mm long; ovary 2 mm long; flowers yellow-white; sepals free, similar, glabrous, elliptical-ovate, subacute to acute, $3.5-4.5 \mathrm{~mm}$ long, $1.75-2 \mathrm{~mm}$ wide, 3 -veined; petals elliptical, subacute, $3-4 \mathrm{~mm}$ long, $1.75-2 \mathrm{~mm}$ wide, 3 -veined; lip suboblong-trilobed, glabrous, 3 mm long, 2 mm wide, the lateral lobes low, rounded, below the middle, the apical lobe ovate, subtruncate, with margins more or less slightly undulate and minutely irregular, with the disc broadly and shallowly concave between a pair of parallel calli below the middle, the base truncate, hinged to the tip of the column-foot; column semiterete, 1.5 mm long, the anther and stigma subapical.

BRAZIL: Rio de Janeiro: near Mendes, Barbosa Rodrigues s.n. [Syntype lost; Lectotype of O. concolor, here designated: fig. B, tab. 190, vol. 3, Barb.Rodr., Icon. Orchid. Brésil, orig. illustr. at the Library, Rio de Janeiro Bot. Gard., cited as tab. 616 (unpub.), Barb. Rodr., 1881; Cogn. in Mart., Fl. Bras. 3(4), tab. 129, fig. III, 1896; reprod. in Sprunger et al., 1996, 1: 248, fig. B].
São Paulo: in itinere Cerqueira, Fazenda Bellavista, July 1901, cultivated by Wettstein \& Schiffner 158 (W); Itatinga, Alex. Hummel 8 (BR).

Paraná: Villa Velha, cultivated 27 Mar. 1911, P. Dusén 11600 (AMES).
Bahia: Floresta-Azul-Fazanda Indaia, alt. 250 m, 7 Nov. 1967, Grupo de Piracicaba, A. Oliveira 17762 (M, SP).
BOLIVIA: Santa Cruz: Yapacaní, alt. 600 m, cultivated by and cultivated in Montero, 20 Aug. 1991, by Darwin Ric, C. Luer 15335 (MO).
La Paz: Parque Nacional Madidi, road to Tumupasa, alt. $830 \mathrm{~m}, 9$ Aug. 2000, T. Krömer \& C. Acebey 1408 (LPB, SEL), C. Luer illustr. 21476.
PERU: Amazonas: Bagua: Imaza, Comunidad Aguaruna de Wanás, between Bagua and Imacita, Cherros Chinim, alt. 700-800 m, 29 Aug. 1996, C. Diaz, A. Peña, L. Tsamajain \& M. Roca 8066 (MO), C. Luer illustr. 21385.

Octomeria concolor was treated by Barbosa Rodrigues (1881: 100) as collected in Rio de Janeiro, but his collections have been lost. His illustration serves as the lectotype, as well as a fine model for identifying the species. It is characterized by a shortly repent rhizome; a narrowly elliptical leaf about one centimeter wide borne by an equally long ramicaul; and a few small flowers with sepals about three and four millimeters long. The type A lip is broad with low, broadly rounded lateral lobes. Plants answering the description of Octomeria concolor occur at low altitudes from southern and eastern Brazil, and north through Bolivia and Peru.

Octomeria condorensis Luer \& Hirtz, sp. nov.
Ety.: Named for the Cordillera del Condor, where the species was collected.
Species haec Octomeriae colombianae Schltr. affinis, sed sepalis petalisque longioribus et labelli lobis lateralibus humilibus latissime rotundis differt.

Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls relatively stout, erect, $4-9 \mathrm{~cm}$ long, enclosed by 4-5 tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, acute, 5-7 cm long, $0.5-0.7 \mathrm{~cm}$ wide, narrowly cuneate below into a subpetiolate base. Inflorescence a single flower produced by a peduncle less than 2 mm long, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary $1.5-2 \mathrm{~mm}$ long; sepals orange, free, the sepals elliptical-ovate, acute, the dorsal sepal 8.5 mm long, 3 mm wide, 3 -veined, the lateral sepals slightly oblique, 9 mm long, 3 mm wide, 3 veined; petals orange, elliptical, acute, 7.5 mm long, 2 mm wide, 3 -veined; lip glabrous, red, suboblong, 3-lobed, 3.5 mm long, 2.5 mm wide, the lateral lobes erect, broadly rounded, concave, below the middle, the anterior lobe ovate, subtruncate, with undulate margins, the disc shallowly concave between a pair of parallel calli on the middle third, the base truncate, hinged to the free tip of the column-foot; column semiterete, 2.5 mm long, with a foot 1.5 mm long, the anther subapical, the stigma ventral.

ECUADOR: Zamora-Chinchipe: Cordillera del Conder, east of Quismé, alt. $1650 \mathrm{~m}, 20$ Jan. 1989, C. Luer, J. Luer, A. Hirtz et al. 14024 (Holotype of O. condorensis: MO; Isotype: SEL).

This species from the Cordillera del Condor is similar to the widely distributed pale yellow-flowered Octomeria colombiana Schltr. with sepals four to five millimeters long. It differs from the latter with wider leaves and larger, orange flowers with sepals eight to nine millimeters long. The lateral lobes of the lip are reduced to round, concave undulations, instead of erect lobes.

Octomeria connellii Rolfe, Trans. Linn. Soc. London, Bot. ser. 2, 6: 60, 1901.
Ety.: Named for F.V. McConnell, collector of this species.
Syn.: Octomeria flaviflora C.Schweinf., Bot. Mus. Leafl., 19: 207, 1961.
Ety.: From the Latin flaviflorus, "with yellow flowers."
Plant small to large, robust, epiphytic to terrestrial, caespitose with the rhizome thick, roots thick, fleshy. Ramicauls stout, erect, terete, occasionally prolific, $5-40 \mathrm{~cm}$ long, enclosed by 5-7 tubular, nonimbricating sheaths. Leaf erect, thickly coriaceous, narrowly ovate to nearly linear, acute, $5-18 \mathrm{~cm}$ long, $1-2.2 \mathrm{~cm}$ wide, cuneate below into a conduplicate petiole $3-5 \mathrm{~mm}$ long. Inflorescence several flowers produced simultaneously in a fascicle by peduncles $2-3 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts 3 mm long; pedicel 2-4 mm long; ovary $2-3 \mathrm{~mm}$ long; sepals yellow, glabrous, ellipticalovate, acute, similar, the dorsal sepal $5-14 \mathrm{~mm}$ long, $3-5 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals slightly oblique, free, $5-13.5 \mathrm{~mm}$ long, $3-4.5 \mathrm{~mm}$ wide, 3 -veined; petals yellow, eliptical-ovate, acute, $5-11 \mathrm{~mm}$ long, 3-4 mm wide, 3 -veined; lip yellow, glabrous, oblong-trilobed, obtuse, arcuate below the middle, 45 mm long, 2 mm wide, 3 mm wide across expanded lobes, the lobes above the base, erect, uncinate, antrorse, the apical lobe elliptical, subtruncate, with minutely erose margins, the disc channeled between a pair of parallel calli descending from the lateral lobes, the base truncate, hinged to the tip of the col-umn-foot; column yellow, semiterete, $2-3 \mathrm{~mm}$ long, the foot nearly as long, the anther subapical, the stigma ventral.

GUYANA: "summit of Mount Roraima, alt. 8,600 ft.," 1898, F.V. McConnell \& J.J. Quelch 700 (Holotype of $O$. connellii: K), C. Luer illustr. 19163; Mt. Roraima, southwest plateau, alt. 8,700 ft., Forest Dept. of British Guyana 2875 (K); Potaro-Siparumi, Mt. Wokomung, alt. 1600 m, 19 Nov. 1993, T.W. Henkel et al. 4513 (AMES, MO, US).
VENEZUELA: Amazonas: Cerro Huachamacari, Río Cunucunuma, alt. 1800 m, 6 Dec. 1950, B. Maguire, R.S. Cowan \& J.J. Wurdack 30024 (holotype of O. flaviflora: AMES; isotype: NY); Cerro Sipapo, Cano Profundo, alt. $1600 \mathrm{~m}, 12$ Jan. 1949, B. Maguire \& L. Politi 28315 (AMES, NY); Cerro Guaiquinima, Río Paragua, alt. $1500 \mathrm{~m}, 31$ Dec. 1951, B. Maguire 32877 (AMES, NY); Chimantá Massif, below upper falls of Río Tirica, alt. $1940 \mathrm{~m}, 7$ Feb. 1955, J.A. Steyermark \& J.J. Wurdack 607 (AMES); Cerro de la Neblina, Río Yatua, alt. 1200-2200 m, 1-2 Dec. 1957, B. Maguire, J.J. Wurdack \& C.K. Maguire 42280 (AMES, K, NY); Atabapo, Cerro Marahuaca, alt. 2850 m, 31 Jan. 1982, J.A. Steyermark et al. 125933 (K, MO, VEN), C. Luer illustr. 21382; Río Negro, Cerro Aracamuni, alt. 1400 m, 27 Oct. 1987, R. Liesner \& G. Carnevali 22558 (MO).
Bolívar: Mount Roraima, alt. 8,700 ft., 7 Jan. 1939, A.S. Pinkus 101 (AMES, NY); Mount Roraima, alt. 2560-2620 m, 27 Sept. 1944, J.A. Steyermark 58795 (AMES); Auyan-tepui, alt. 2200 m , Dec. 1937-Jan. 1938, G.H.H. Tate 1235 (AMES); Auyan-tepui, alt. 1800 m, 7 May 1964, J.A. Steyermark 93522 (AMES, K, NY); summit of Auyan-tepui, alt. $2150 \mathrm{~m}, 3$ Feb. 1988, F. Delascio 13639 (MO, VEN), C. Luer illustr. 21457; Meseta del Jáua, Cerro Sarisariñama, alt. $700 \mathrm{~m}, 12-15$ Feb, 1974, J.A. Steyermark et al. 109105 (K, VEN); same locality, alt. 1750 m, 22-28 Feb. 1974, J.A. Steyermark et al. 109396-A (AMES, VEN); Cerro Róraima, headwaters of Río Arabapó, alt. 2750-2800 m, 26 Aug.-2 Sept. 1976, J.A. Steyermark et al. 112567 (K, VEN); Kukenan Tepui, alt. 2550 m, 11 Apr. 1988, R. Liesner 23121 (MO); Roraima, Gran Sabana, alt. $2650 \mathrm{~m}, 15$ Aug. 1989, F. Zuloaga \& O. Huber 4452 (K, VEN); Roscio, Matahultepui, alt. 2700-3000 m, 22 Aug. 1982; Piar, Macizo del Chimanta, alt. $1850 \mathrm{~m}, 2$ Feb. 1983, J.A. Steyermark, O. Huber \& V. Carreño 128550 (MO, VEN); Ilu-tepui, alt. $2500 \mathrm{~m}, 15$ Apr. 1988, R. Liesner 23375 (MO).

This robust species, endemic in eastern Venezuela and adjacent Guyana, is not uncommon growing terrestrially on the tepuis of eastern Venezuela. It is characterized by a large habit with strong, terete ramicauls with narrowly ovate to nearly linear leaves. A few to several, simultaneous, large flowers, often described as being deep yellow in color, vary greatly in size. The sepals and petals are ellipticalovate, acute, free and three-veined. The type A lip is ovate with a minutely erose margin, and with a pair of small, erect lobules at the base. Apparently unnoticed by Rolfe, these lobules were not included in his description.

Octomeria cordilabia C.Schweinf., Bot. Mus. Leafl. 19: 204, 1961.
Ety.: From the Latin cordilabius, "with heart-shaped lip."
Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, 5-30 cm long, enclosed by 3-10 close, imbricating, tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical, acute, $3-7 \mathrm{~cm}$ long, $3-6 \mathrm{~mm}$ wide, cuneate below into a subpetiolate, conduplicate base. Inflorescence a single flower produced successively by peduncles ca. 1 mm long in a fascicle, at the base of the
leaf; floral bracts 5 mm long; pedicels 6 mm long with a filament sometimes 1 mm long; ovary 2.5 mm long; sepals yellow, glabrous, free, the dorsal sepal broadly obovate, with the apex broadly obtuse or rounded, 5 mm long, 3.5 mm wide, 3 -veined, the lateral sepals broadly elliptical, obtuse, slightly overlapping at the base, 5.5 mm long, 3 mm wide, 3 -veined; petals yellow, broadly elliptical, obtuse, oblique, 4.5 mm long, 2.75 mm wide, 3-veined; lip type C, yellow with red center, glabrous, subcircular-trilobed, with minutely erose margins, 1.25 mm long, 1.6 mm wide, the apex rounded with a pair of minute points, the lobes basal, erect, flanking the column, the disc shallowly concave between a pair of low, central calli, the base truncate, hinged to the tip of the column-foot at the base of the lip; column yellow, semiterete, 1.25 mm long, with the anther subapical and the stigma ventral

VENEZUELA: Amazonas: Atabapo, Cerro de la Neblina, Río Yatua, near Cumbre Camp, alt. 1800 m , 29 Nov. 1957, B. Maguire, J.J. Wurdack \& C. Maguire 42258 (Holotype of Octomeria cordilabia: NY); Cerro Huachamacarí, Río Cunucunuma, alt. $1800 \mathrm{~m}, 8$ Dec. 1950 m, B. Maguire, R.S. Cowan \& J. Wurdack 30035 (Paratype: NY); Cerro de la Neblina, Río Yatua, alt. 1700-1800 m, B. Maguire, J. Wurdack \& G. Bunting 37099 (Paratypes: AMES, NY); headwaters of Canyon Grande, alt. 1900 m, 1617 Oct. 1970, J.A. Steyermark 103952 (AMES), C. Luer illustr. 21239; Río Venamo, alt. 950-1400 m, 28 Dec. 1963, J.A. Steyermark, G.C.K. \& E. Dunsterville 92315 (AMES, K, VEN); Cerro de la Neblina, Pico Zoloaga, alt. $1900 \mathrm{~m}, 17$ Apr. 1984, B.A. Stein \& A. Gentry 1605A (MO); Río Negro, Cerro Aracamuni, alt. 1550 m, 18 Oct. 1987, R. Liesner \& F. Delascio 22089 (MO, VEN); Cerro de la Neblina. alt. $1670 \mathrm{~m}, 13$ Feb. 1985, B.M. Boom \& A.L. Weitzman 5841 (AMES, VEN).
Bolívar: Piar, Camarcaibarai-tepui, alt. $1800 \mathrm{~m}, 23$ May 1986, B. Holst, J.A. Steyermark \& R. Liesner 2881 (MO, VEN); south of El Dorado, alt. 1280, 21 Nov. 1960, J.A. Steyermark \& P. Maas 123681 (SEL, VEN).
BRAZIL: Amazonas: Cerro Neblina, ridge line on Venezuelan border, alt. 2100 m, 17 Apr. 1984, A. Gentry \& B. Stein 46739 (MO).

Octomeria cordilabia is a narrow-leaved species locally common in Amazonian Venezuela. Dunsterville noted that when growing in short, crowded, competitive vegetation, a plant of $O$. cordilabia produces a long ramicaul that bears the flowers far above the competiting vegetation. The sepals and petals are broadly obtuse, and three-veined. The base of the erose, cordate blade of the type C lip is attached to the base of the column.

Octomeria costaricensis Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 111, 1923. Ety.: Named for Costa Rica, the country of origin.
Syn.: Octomeria ventii H.Dietr., Repert. Spec. Nov. Regni Veg. 96: 39, 1985, nom. inval. without type; Fl. Rep. Cuba, Ser. A. Pl, Vasc. 12(2): 17-18, 2007.
Ety.: Named for Prof. Walter Vent, professor of systematic botany, Naturkundemuseum, Berlin.
Plant small to medium in size, epiphytic, caespitose to shortly repent, the rhizome stout, $3-4 \mathrm{~mm}$ thick, 1-5 mm long between ramicauls, roots slender to fleshy. Ramicauls slender to stout, erect, 3-18 cm long, with 4-5 distant, tubular, early shredded sheaths. Leaf erect, coriaceous, narrowly elliptical, subacute to acute, $3-20 \mathrm{~cm}$ long, $1-2 \mathrm{~cm}$ wide, cuneate below into the shortly petiolate base. Inflorescence a single flower or a few flowers produced simultaneously in a fascicle, borne by peduncles 1-2 mm long, from the apex of the ramicaul; floral bracts cucullate, ribbed, $2-4 \mathrm{~mm}$ long; pedicels $2-4 \mathrm{~mm}$ long; ovary $2-5 \mathrm{~mm}$ long; sepals yellow, free, similar, glabrous, elliptical-ovate, subacute to narrowly obtuse, $5-7 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide, 3 -veined; petals yellow, elliptical-ovate, acute to obtuse, $6-7 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide, 3 -veined; lip yellow, oblong-trilobed, glabrous, $3.5-4.5 \mathrm{~mm}$ long, 2 mm wide expanded, the lateral lobes low, rounded, below the middle, the apical lobe ovate, with margins minutely erose, undulate, obtuse to subtruncate at the tip, the disc shallowly concave between a pair of calli from the lateral lobes to about the middle, the base truncate, hinged to the free tip of the column-foot; column semiterete, denticulate at the apex, $1.5-2 \mathrm{~mm}$ long, the anther subapical and stigma ventral.

COSTA RICA: Alantic coastal region, Finca of Brothers Hundrisser, Aug.-Sept. 1909, A. \& C. Brade 1217 (Holotype of $O$. costaricensis destroyed at B; Lectotype here designated, A. \& C. Brade 1217: HB; illustr. at AMES 31270).
Heredia: La Selva, 30 Sept. 1985, J.T. Atwood 85-56 (SEL).
Without locality, ca. 1878, A. Endres 1163 (W).
NICARAGUA: Zelaya: new road to Mina Nueva America, 27 Apr. 1978, W.D. Stevens 8368 (MO, SEL).
Jinotega: alt. 3,000 ft., A. Heller 7212 (SEL).
PANAMA: Colón: Santa Rita lumber road, 9 Aug. 1970, R.L. Dressler 3882 (MO); Santa Rita Ridge, southeast of Colón, alt. $500 \mathrm{~m}, 17$ Sept. 1987, G. McPherson 11738 (MO).

Panama: Cativa-Porto Bello Trail, sea level, no date, C.W. Powell 413 (AMES), C. Luer illustr. 21414; Llano-Carti road, alt. 650 m, 3 Mar. 1976, C. Luer, J. Luer, P. Taylor \& R.L. Dressler 1005 (SEL).
Darien: Río Morti, drill site 7, alt. 250 m, 18 Sept. 1967, J.A. Duke 14191 (MO).
CUBA: Oriente, Loma del Gato, Sept. 1859-Jan. 1860 C. Wright 654 (K, W).
Guantánamo: "Monteverde, montes y cafetales," alt. $700 \mathrm{~m}, 30$ Dec. 1969, L. Figueiras 2559 (holotype of $O$. ventii: HAJB; isotype: HAC).
Holguín: Sierra de Nipe, flowered in cultivation, Botanical Garden, Jena, collected 1984 by H. Dietrich (JE); Sierra de Nipe, collected Nov. 1997, C. Luer et al., flowered in cultivation, Jan. 2002, by P. Jesup in Bristol, CT, C. Luer 18633 (MO); Sierra de Nipe, near Woodfred, alt. 450-550 m, 5 Dec. 1908, J.A. Schafer 3039 (AMES, NY); Sierra de Nipe, Río Piloto, alt. 350 m, 17 Feb. 1917, E.L. Ekman 9033 (US); Moa, La Melba, valle del arroyo grande sur de la Sierra de Moa, 28 Dec. 1968, J. Bisse \& H. Lippert 11565 (JE); Moa, road from Moa to La Melba, 30 Jan 1969, H. Lippold 12501 (JE).

Widely distributed in the southern part of Central America, and with a disjunct population on the island of Cuba, this species was first collected in Cuba by Wright, probably in 1859. In Costa Rica, it was collected by Endres about 1878, and next, by the brothers Brade in 1909, but it was not formally described as Octomeria costaricensis until 1923 by Schlechter from this last collection. The Cuban collection had been identified as Octomeria tridentata Lindl., a Loddiges collection from South America, not only because Wright's collection (Wright 654) had been mounted on the same sheet as the holotype of $O$. tridentata, but also because of Cogniaux's treatments in Martius, Flora Brasiliensis and his Orchidaceae Antillanae, where he identified the Cuban plant as $O$. tridentata. As the only one species of Octomeria known on the island, it escaped recognition until described by Helga Dietrich as Octomeria ventii.

Octomeria costaricensis, vegetatively and florally variable, is characterized by a caespitose to shortly repent, or ascending habit. The leaves are usually narrowly elliptical and variable in length. The sepals and petals are three-veined, ellipticalovate, and between five and seven millineters long. The lip is type A with low, rounded lateral lobes, and a minutely erose, obtuse anterior lobe. Variations of the lobes of the lip are frequent.

Octomeria dalstroemii Luer, Selbyana 22(2): 117, 2001.
Ety.: Named for Stig Dalström, freelance artist and botanist, who collected this species.
Plant medium to large in size, epiphytic, densely caespitose, roots slender. Ramicauls slender, erect, terete, $10-17 \mathrm{~cm}$ long, 2 mm wide, enclosed by $6-8$ tubular, deciduous sheaths. Leaf erect, thickly coriaceous, narrowly linear, channeled, not semiterete, acute, $8-12 \mathrm{~cm}$ long, $3-4 \mathrm{~mm}$ wide, 1.5 mm thick, continuous below into the sessile base, more or less twisted. Inflorescence a single flower produced successively by abbreviated peduncles 1-2 mm long, at the apex of the ramicaul; floral bracts 2-3 mm long; pedicels $2-3 \mathrm{~mm}$ long; ovary $2-3 \mathrm{~mm}$ long; sepals light yellow or light brown, glabrous, membranous, elliptical, subacute to narrowly rounded, 3-veined, the dorsal sepal free, $8-10 \mathrm{~mm}$ long, 3 mm wide, the lateral sepals diverging, connate below the basal quarter, $7.5-10 \mathrm{~mm}$ long, 3 mm wide; petals light yellow or light brown, elliptical, acute, $7-8 \mathrm{~mm}$ long, 2.5 mm wide, 3 -veined; lip glabrous, red or red-brown, broadly oblong or ovate-subquadrate, trilobed, sometimes undulate, 3.5 mm long, 2.5 mm wide, broadly rounded or truncate at the apex, with a minute apiculum, the lateral lobes on the lower third, erect, low, round, the disc with a pair of parallel calli from the lateral lobes, the midvein thickened, the base broadly truncate, hinged to the tip of the column-foot; column white, semiterete, 2.5 mm long, the anther subapical, the stigma ventral.

ECUADOR: Morona-Santiago: near Chigüinda, alt. ca. 1000 m , cultivated at Ecuagenera, Gualaceo, 7 Mar, 2001, C. Luer 19837 (Holotype of O. dalstroemii: MO); above Gualaquiza, alt. $1700 \mathrm{~m}, 26$ Dec. 1982, S. Dalström 396 (SEL), C. Luer illustr. 8710; Cordillera del Condor, east of Chuchumbletza, alt. 1750 m, 21 May 1988, C. Luer, A. Hirtz, A. Andreetta \& W. Teague 13558 (MO).

This uncommon species of comparatively lowland eastern Ecuador is characterized by long ramicauls and long, very narrow leaves, together more than 20 centimeters tall. The flowers of Octomeria semiconnata C.Schweinf. are similar, but the lateral sepals of the latter are parallel and semiconnate. The blade of the type A lip of both species is broadly oblong with rounded lateral lobes, and with the anterior lobe with thin sides more or less undulating.

Octomeria deceptrix Luer, sp. nov.
Ety.: From the Latin deceptrix, "a deceiver," referring to the erroneous identification.
Planta mediocris breviter repens, folio elliptico-ovato petiolato, sepalis petalisque similibus acutis, et labelli lobis lateralibus humilibus obtusis distinguitur.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, $4-5 \mathrm{~mm}$ thick, up to 8 mm long between ramicauls, roots slender. Ramicauls stout, erect, terete below, more or less compressed above, $5-9 \mathrm{~cm}$ long, enclosed by 4-5 imbricating, tubular sheaths. Leaf erect, thickly coriaceous, ellipticalovate, acute, $5-7 \mathrm{~cm}$ long, $1.5-3 \mathrm{~cm}$ wide, cuneate below into a more or less twisted petiole 5 mm long. Inflorescence a single flower produced successively by an abbreviated peduncle 1 mm long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels $2-3 \mathrm{~mm}$ long; ovary 3 mm long; sepals white to yellow, often suffused with rose, glabrous, free, the dorsal sepal elliptical-obovate, subacute, $6-9 \mathrm{~mm}$ long, $2-3 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals elliptical, acute, $6-9 \mathrm{~mm}$ long, $2-3 \mathrm{~mm}$ wide, 3 -veined; petals colored as the sepals, elliptical, acute, $6-9 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide, 3 -veined; lip yellow, suffused with red-purple, thick, glabrous, oblong-trilobed, with undulate margins, 4.7-5 mm long, 2.3 mm wide, the apex subtruncate or obtuse, the lobes low, obtuse, oblique, erect, on the lower third, the disc shallowly concave between a pair of calli on the middle third, the base broadly truncate, hinged to the free tip of the column-foot; column semiterete, 3 mm long, with the anther apical and stigma subapical.
ECUADOR: Morona Santiago: crest above Bomboiza, collected by C. Luer \& A. Andreetta, 4 Mar. 1982, flowered in cultivation 9 Apr. 1983, C. Luer 8709 (Holotype of O. deceptrix: SEL); south of Gualaquiza, alt. $600 \mathrm{~m}, 6$ Aug. 1975, flowered in cultivation 28 June 1976, C. Luer, G. Luer \& S. Wilhelm 1007 (SEL).
VENEZUELA: Amazonas: Atabapo, Cerro Marahuaca, branch of Caño Negro, alt. $1140 \mathrm{~m}, 21$ Feb. 1985, J.A. Steyermark \& B. Holst 130467, 130713, 130725 (MO, VEN), C. Luer illustr. 21398.
Bolívar: Río Carrao, Dec. 1956, G.C.K. Dunsterville 392.
This species, misidentified in Venezuelan Orchids Illustrated, vol. 4, as Octomeria spathulata Rchb.f., is distributed across northern South America. Reichenbach described $O$. spathulata from a plant of unknown origin that was being cultivated in Consul Schiller's garden in Hamburg, a collection knowm to have Brazilian collections plants. A drawing of a hydrated flower from the holotype of $O$. spathulata reveals that it is common the Brazilian O. alpina Barb.Rodr.

Octomeria deceptrix is characterized by an ascending, shortly repent habit; a stout ramicaul that is compressed above; an elliptical-ovate leaf that is distinctly petiolate; elliptical, acute sepals and petals that are similar to each other; and a proportionately large, type A lip: with a pair of low, lateral lobes below the middle that do not rise above the plane of the lip, and a pair of thick calli that extends forward onto the anterior lobe.

Octomeria dentifera C.Schweinf., Bot. Mus. Leafl. 19: 205, 1961.
Ety.: From the Latin dentifer, "tooth bearing," referring to the denticulate margin of the lip.
Plant small, lithophytic, densely caespitose, roots slender. Ramicauls slender, erect, terete, 5-8 cm long, enclosed by 3-4 closely fitting, tubular sheaths. Leaf erect, thickly coriaceous, narrowly ovate, acute, suffused with purple, $4.5-6 \mathrm{~cm}$ long, 4-6 mm wide, cuneate below into the subsessile base. Inflorescence 1 or 2 single flowers produced simultaneously by abbreviated peduncles less than 1 mm long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels $2-3 \mathrm{~mm}$ long; ovary ca. 2 mm long; sepals white, glabrous, free, narrowly ovate, acute, the dorsal sepal 10.5 mm long, 4.2 mm wide, 3veined, the lateral sepals 10 mm long, 3.5 mm wide, 3 -veined; petals white, narrrowly ovate, acute, 10 mm long, 3.7 mm wide, 3 -veined; lip white, broadly oblong-trilobed, obtuse, glabrous, 5 mm long, 2 mm wide unexpanded, the lateral lobes below the middle, erect, obtuse, antrorse, the margins of the middle lobe denticulate, the disc with a converging pair of lamellate calli on the middle third descending from the lateral lobes, the base truncate with a forked callus on each side, the lateral ramus descending toward the lamellate callus, the medial ramus of each coalescing into a midline, descending callus, the base hinged to the tip of the column-foot; column white, semiterete, slender, 2 mm long, the anther and stigma subapical.

VENEZUELA: Bolívar: Churi-tepui (Muru-tepui), rock ledges in upper cumbre, alt. 2250-2300 m, 26 Jan. 1953, J.J. Wurdack 34218 (Holotype of O. dentifera: AMES; Isotype: NY), C. Luer illustr. 21358; Chimantá Massif, Apácara-tepui, alt. 2450-2500 m, 21 June 1953, J.A. Steyermark 75867 (AMES, F, NY).

A native of the tepuis of eastern Venezuela, this small species, found growing on rocky ledges at high altitude, is rarely collected. Although the forked callus at the base of the lip is most remarkable, this species was named for the denticulate margin of the lip, a not unusual morphological feature in species of the genus Octomeria.

Vegetatively, this species is small with acute, narrowly ovate leaves less than six centimeters long, comparatively large flowers with sepals about ten millimeters long, and a denticulate lip with small, antrorse lobes just below the middle and the trifurcate callus mentioned above.

Octomeria diaphana Lindl., Edwards's Bot. Reg. 25 (Misc.): 91, 1839.
Ety.: From the Latin diaphanus, "transparent," referring to the flowers.
Syn.: Octomeria glazioveana Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 8: 277, 1883.
Ety.: Named for A.F.M. Glaziou, who collected this species.
Syn.: Octomeria recchiana Hoehne, Bot. Inst. Brasil. Sci. Ser. 3: 48, 1928.
Ety.: Named for Dr. Paulino Recch, from whose collection Hoehne made the specimen for description.
Syn.: Octomeria fialhoensis Dutra ex Pabst, Sellowia 10: 133, 1959.
Ety.: Named for Fazenda Fialho where the species was collected.
Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, $6-9 \mathrm{~cm}$ long, enclosed by 5-6 loose, oblique, deciduous sheaths. Leaf erect, coriaceous, ovate, acute, 5-8 cm long, $1-2 \mathrm{~cm}$ wide, cuneate below into a petiole $1-1.5 \mathrm{~cm}$ long. Inflorescence 1 or a few single flowers produced simultaneously or successively, borne by peduncles $1-1.5 \mathrm{~mm}$ long in a fascicle, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels 3 mm long; ovary 2 mm long; sepals white, light yellow, to orange, glabrous, the dorsal sepal elliptical-ovate, acute, $6-11 \mathrm{~mm}$ long, 2-3.5 mm wide, $5-$ veined, the lateral sepals ovate-triangular, acute, shortly connate at the base, $6-11 \mathrm{~mm}$ long, $2.5-3 \mathrm{~mm}$ wide, each 5 -veined; petals colored as the sepals, narrowly ovate to elliptical-oblong, acute, 6-8 mm long, $1.5-2.5 \mathrm{~mm}$ wide, 3 -veined; lip yellow or white, purple or brown below the middle, oblong-trilobed, glabrous, $4-5 \mathrm{~mm}$ long, 2.5 mm wide, the lateral lobes low, erect, more or less obtuse, below the middle, the anterior lobe oblong-ovate, minutetly erose, the apex obtuse, rounded to truncate, the disc with a pair of nearly parallel calli on the middle third, the base broadly truncate, hinged to the tip of the column-foot; column white, semiterete, 2.5 mm long, the anther subapical and the stigma ventral.
BRAZIL: without collection data, imported from Brazil by Messrs. Loddiges s.n. (Holotype of O. diaphina: K).
Rio de Janeiro: Serra dos Orgãos near Teresópolis, Feb. 1888, J.T. de Moura 103 (BR); Organ mountains, J. Miers s.n. (K); without collection data, A. Glaziou 5508 (W); 1888, A. Glaziou 17253 (K); 1891, A. Glaziou 18528 (K); near Petrópolis, cultivated by Orquidario Binot, 30 Nov. 1989. C. Luer 14496 (MO); without collection data, cultivated at the St. Petersburg Botanical Garden, ca. 1882, A.F.M. Glaziou s.n. (holotype of O. glazioveana: LE); Retiro, Petrópolis, 4 Dec, 1949, G. Pabst 798 (AMES, RJ), C. Luer illustr. 21432; Tijuca, road to Pico de Tijuca, alt. $800 \mathrm{~m}, 7$ Jan. 1951, G. Pabst 900 (AMES, RJ); Serra da Carioca, Estrada do Sumaré, alt. ca. 600 m, 22 Apr. 1957, G. Pabst 1122 (AMES, RJ).
Paraná: Desvio, Ypiranga, 24 Dec. 1909, P. Dusén 9833 (AMES); collected 1916, cultivated at Dahlem, 20 Sept. 1920, P. Dusén s.n. (M); G. Pabst 900 (AMES), C. Luer illustr. 21455.
São Paulo: Iguapé, Morro das Pedras, Dec. 1912, A.C. Brade 6240 (fide Schlechter); Amparo, 30 May 1927, P. Recch s.n. (holotype of O. recchiana: SP 20602).
Santa Catarina: Palhoça, Pilöes, alt. 50-500 m, 29 Nov. 1956, L.B. Smith \& R. Klein 7996 (AMES).
Rio Grande do Sul: Fazenda Fialho, Dutra 872 (holotype of O. fialhoensis: Inst. de História Nacional, Porto Alegre).
Espirito Santo: Santa Teresa, Estação Biologica de Caixe D'Agua, 21 Mar. 1983, H.Q. Boudet Fernandez 03-1988 (MBML, MO).
BOLIVIA: Santa Cruz: reportedly collected by Lucho Mendoza, ca. 2006, vicinity of Santa Cruz, flowered in cultivation in Houston, TX, Nov. 2009, by David Hunt s.n. (MO).

Octomeria diaphana Lindl. is one of the few Brazilian species that can be recognized while not in flower. However, when compared to $O$. robusta Rchb.f. \& Warm., differences are limited to only the habit of growth, O. diaphana being caespitose, and $O$. robusta being shortly repent with a stout rhizome. Superficially, plants of $O$. diaphana with a broad leaf, borne by a ramicaul clad in larger than usual, loose, tubular, oblique sheaths, resemble Restrepia Kunth. Lindley (1839)
thought that the pale flowers were transparent, hence the specific name. The sepals and petals are acute, the sepals being five-veined, the petals 3 -veined, and the lateral sepals are more or less connate toward the base. The lip is type A with low, obtuse, marginal lobes or angles below the middle, sometimes nearly retrorse, and minutely erose above the middle.

In the description and illustration of Octomeria recchiana Hoehne, the surface of the lip is portrayed as papillose, which is not the case. There are, however, multiple crystaline deposits, so commonly seen in pleurothallids, that were probably misinterpreted by the illustrator as being papillae, and hence the describer was deceived. The name is referrred to $O$. diaphana in synonymy here.

Octomeria exigua C.Schweinf., Bot. Mus. Leafl. 3: 86-87, 1935.
Ety.: From the Latin exiguus, "little, weak," referring to the habit.
Syn.: Octomeria exigua C.Schweinf. var. elata C.Schweinf., Bull. Torrey Bot. Club 75: 216, 1948.
Ety.: From the Latin elatus, "tall," referring to the comparative height of the plant.
Syn.: Octomeria deltoglossa Garay, Bot. Mus. Leafl. 18: 199, 1958.
Ety.: From the Greek deltoglossa, "triangular lip," referring to the labellum.
Syn.: Octomeria kestrochila Garay \& Dunst., Venez. Orch. Ill. 6: 288, 1976.
Ety.: From the Greek kestrochila, "strongly verrucose lip," referring to the labellum.
Plant small to very small, epiphytic, caespitose. Ramicauls slender, erect, terete, $1.5-11 \mathrm{~cm}$ long, enclosed by 4-6 close, tubular, sheaths. Leaf erect, coriaceous, narrowly ovate, acute, thick, 1.5-6 cm long, $0.4-0.6 \mathrm{~cm}$ wide, 0.2 mm thick, cuneate below into the subpetiolate base. Inflorescence a single flower or up to 6 simultaneous flowers, borne by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts 1-2 mm long; pedicels $1.5-2 \mathrm{~mm}$ long; ovary 1.5 mm long; sepals light yellow, membranous, glabrous, narrowly ovate, acute, free, the dorsal sepal 4-5.5 mm long, $1.2-1.8 \mathrm{~mm}$ wide, 3 veined; the lateral sepals $4-5 \mathrm{~mm}$ long, $1.1-1.8 \mathrm{~mm}$ wide; petals light yellow-orange, narrowly ovate, acute, $3.5-5 \mathrm{~mm}$ long, $1-1.4 \mathrm{~mm}$ wide, 3 -veined; lip type C, yellow, diffusely cellular-papillose, thick, ovate-trapezoid, ovoid, or somewhat diamond shaped, widest near the middle, subacute at the apex, shallowly concave below the middle, thickened above the middle, 1.75 mm long, 1.75 mm wide expanded, the base truncate, hinged to the tip of the column-foot; column white, stout, 1 mm long, the anther and stigma proportionally large, subapical, the foot 0.5 mm long.

GUYANA: Hoodsline, Feb. 1896, E.F. im Thurn 115 B (Holotype of O. exigua: K); Potaro River, Sept.Oct. 1881, G.S. Jenman 1278 (K); Bartica-Potaro road, 18 Aug. 1937, N.Y. Sandwith 1120 (AMES, K); Kaieteur Plateau, 5 May 1944, B. Maguire \& D.B. Fanshawe 23256 (holotype of O. exigua var. elata: AMES; isotype: NY); Upper Mararuni District, adjacent to eastern side of Eboropu Mountain, alt. 470 m, 12 Apr. 1979, P.J. Edwards 1257 (K); Ayanganna Plateau, Koatse River valley, alt. 550-650 m, 3 Mar. 1987, J.J. Pipoly 10986 (SEL)
SURINAME: Lely mountains, alt. $650 \mathrm{~m}, 30$ May 1976, M. \& P. Teunissen 1607 (SEL); Brownberg, alt. 500 m , collected by R. Determann, cultivated at SEL, 13 May 1983, C. Luer 9065 (SEL); Wilhelmina Mts. alt. 900 m, 14 July 1981, R. Determann 181, flowered in cultivation May 1983, C. Luer 9069 (SEL); Sipaliwini, Tafelberg, alt. 600-700 m, 27 June 1998, T. Hawkins 1828 (MO, SEL).
FRENCH GUYANA: without data, G. Cremers 13948 (MO), C. Luer illustr. 18675, Piste St. Elie, alt. 100 m, 13 May 1986, C. Luer, J. Luer \& D. Barthelemy 12337 (MO).
VENEZUELA: Amazonas: Upper Orinoco, summit of Cerro Yapacana, alt. 1000-1200 m, 5 May 1970, J.A. Steyermark \& Bunting 103130 (holotype of O. kestrochila: AMES); Río Carrao, July 1955, G.C.K. Dunsterville 289 (holotype of $O$. deltoglossa: AMES).
Amazonas: Cerro Sipapo, Paraque. alt. 1400 m , B. Maguire \& L. Politi 27727 (NY); Atures, plateau west of Río Coro-Coro, alt. 1000 m, 3 Mar. 1987, R. Liesner \& B. Holst 21563 (MO); Atabapo, Cerro Marahuaca, alt. 1200 m, 18 Oct. 1988, R. Liesner 25050 (MO); Cerro Huachamacarí, alt. 800-1300 m, 5 Nov. 1988, R. Liesner 25877 (MO); between Sipapo and Tobograncito, Sept. 2000, G. Romero et al. (AMES).
Bolívar: south of El Dorado, alt. 1100 m, 16 Mar. 1974, A. Gentry, G. \& B. Morillo 10487 (MO); Cerro Sarisariñama, Meseta del Jaua, alt. 1350 m, 20 Feb. 1974, J.A. Steyermark et al. 109260 (AMES); Piar, Amaruay-tepui, alt. 700-900 m, 28 Apr. 1986, R. Liesner \& B. Holst 20441 (MO); Macizo Guaiquinima, Cerro Camerón, alt. 800 m , Oct. 1988, A. Fernandez \& G. Aymard 4769 (MO, VEN).

Vegetatively, this little species from northeastern South America is remarkable, the mature ramicaul varying in length from one to eleven centimeters. The smallest specimens of this species occur at low altitudes in the coastal Guyanas, while the tallest plants occur at over 1000 meters in Venezuela. There is no significant dfference otherwise in the flowers. The leaf is thick, narrowly ovate and acute, and shorter than the ramicaul in tall plants. The sepals and petals are narrowly ovate and acute. The most remarkable lip is thick, ovate-trapezoid, subacute, shallowly concave, and diffusely covered by papillose cells.

The taxonomic limits defining some species of Octomeria are liberal. The originally described Octomeria exigua C.Schweinf., as treated herein, includes both the tiny variations at lower altitudes and the large, tall variations from higher altitudes.

Octomeria filifolia C.Schweinf., Bot. Mus. Leaf1., 19: 206, 1961.
Ety.: From the Latin filifolius, "with thread-like leaves."
Plant small to medium in size, extremely slender, epiphytic, caespitose. Ramicauls slender, erect, terete, $3.5-10 \mathrm{~cm}$ long, enclosed by $4-5$ close, shredding, tubular, sheaths. Leaf erect, coriaceous, narrowly linear, semiterete, acute, $9-12 \mathrm{~cm}$ long, $0.1-0.2 \mathrm{~cm}$ wide and equally thick, linear below into the base. Inflorescence 1-2 single flowers produced successively by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts $1-2 \mathrm{~mm}$ long; pedicels $1-2 \mathrm{~mm}$ long; ovary 1 mm long; sepals light yellow, membranous, glabrous, narrowly ovate-triangular, acute, free, the dorsal sepal $5-6 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide, 3 -veined; the lateral sepals oblique, $5-5.5 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide; petals light yellow. narrowly ovate, acute, 4 mm long, 1.5 mm wide, 1 -veined; lip yellow with rose lateral lobes, ovate-trilobed, subtruncate at the apex, shallowly convex and red centrally, the lateral lobes broad, below the middle, erect, antrorse, the lip 1.5 mm long, 1.75 mm wide across lateral lobes expanded, the base truncate, hinged to the tip of the column-foot; column semiterete, 1 mm long, the anther subapical, the stigma ventral.

VENEZUELA: Bolívar: northwestern part of Abácapa-tepui, alt. 1300 m, 20 Apr. 1953, J.A. Steyermark 75181 (Holotype of $O$. filifolia: AMES), C. Luer illustr. 21365; Auyan-tepui, Río Churún, 15 Sept. 1958, Pannier \& Schwabe 1887A (AMES, VEN); Auyan-tepui, alt. 1800 m, 7 May 1964, J.A. Steyermark 93524 (K, NY); Meseta del Jaua, Cerro Sarisariñama, alt. 1410 m, 10 Feb. 1974, J.A. Steyermark 108907 (AMES); south of El Dorado, alt. ca. 2,500 ft., Nov. 1958, G.C.K. Dunsterville 476; south of El Dorado, alt. $1100 \mathrm{~m}, 16$ Mar. 1974, A. Gentry, G. Morillo \& B. de Morillo 10474 (MO); Piar, between Camarcai-barai-tepui and Tereké-Yurén-tepui, alt. 1800-1900 m, 23 May 1986, R. Liesner, J. Steyermark \& B. Holst 21020 (MO, VEN); Gran Sabana, Route 10 to Santa Elena de Uairén, alt. 1080 m, 6 May 1996, R. Rivero et al. 2802 (SEL).
Amazonas: Atabapo, Cerro Marahuaca, alt. 1560 m, 13 Oct. 1983, J.A. Steyermark 129615 (MO, VEN); Cerro Marahuaca, below Salto Los Monos, alt. 1500-1600 m, 20 Oct. 1988, R. Liesner 25115 (MO, VEN).
GUYANA: Kwatung Mountains, east of Newbasu trail, alt. 1,500 ft., 1 Sept. 1925, AC/Los 387 (K); Kaeteur Falls National Park, Tukeit trail, alt. 300 m, 11 June 1994, E.A. Christenson et al. 1933 (MO, US).
COLOMBIA: Chocó: below first rapids of Río Truando, alt. 40-200 m, 15 June 1967, J.A. Duke 12254(6) (AMES).

No more than two millimeters wide, the leaves of this aptly named species from northern South America are among the narrowest in the genus. The ramicauls are equally slender. The sepals and petals are narrowly acute. The tiny type A lip is only one and a half millimeters long. The proportionately large, antrorse lobes occupy the lower half of the lip.

Octomeria gemmula Carnevali \& I.Ramírez, Ernstia 39: 13, 1986.
Ety.: From the Latin gemmula, "a little gem," alluding to qualities of the species.
Plant small, epiphytic, shortly repent, accumulating into dense, overlapping masses, the rhizome comparatively stout, $1-2 \mathrm{~mm}$ long between ramicauls, roots slender. Ramicauls comparatively stout, erect, $3-15 \mathrm{~mm}$ long, with 2-3 imbricating, tubular sheaths. Leaf erect, thickly coriaceous, elliptical, obtuse, lenticular, $8-12 \mathrm{~mm}$ long, $5-8.5 \mathrm{~mm}$ wide, cuneate below into the sessile base. Inflorescence a single flower produced successively, from a spathe 5 mm long at the base of the leaf; peduncle $1-2 \mathrm{~mm}$ long, deep within the spathe; pedicel $3-7 \mathrm{~mm}$ long; floral bract $1.5-3 \mathrm{~mm}$ long; ovary $4-5 \mathrm{~mm}$ long; sepals white, free, glabrous, the dorsal sepal narrowly elliptical, acute, 4-6 mm long, $1.5-1.8 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals similar, slightly oblique, $4-6 \mathrm{~mm}$ long, $1.5-1.8 \mathrm{~mm}$ wide, 3 -veined; petals white, ovate, acute, 4-5.75 mm long, 1.5-1.8 mm wide, 3 -veined; lip white, spotted with red, ovate, trilobed, $2.5-3 \mathrm{~mm}$ long, 1 mm wide unexpanded, 2 mm wide across the lobes expanded, the middle lobe ovate, rounded at the tip, the lateral lobes below the middle, erect, antrorse, broadly uncinate, acute, the disc with a pair of low, oblique calli near the middle, minutely papillose above the base, the base subtruncate, hinged to the tip of the column-foot; column semiterete, 2 mm long, with the anther apical and the stigma ventral.

VENEZUELA: Amazonas: Atures, Río Sipapo, near San Felipe, 20 Feb. 1985, G. Carnevali, F.
Guanchez \& E. Melgueiro 1715 (Holotype of O. gemmula: VEN); same collection data, G. Carnevali et al. 3879 (Paratype: TFAV); same area, Oct. 1988, G.A. Romero \& F. Guanchez 1625 (AMES, MO, TFAV, VEN), C. Luer illustr. 19213.
COLOMBIA: Amazonas: Vaupés, Río Piraparaná, 18 Sept. 1952, R.E. Schultes \& I. Cabrera 17516 (AMES).

This small, creeping, Amazonian species forms dense mats of entwined plants. The thick leaves are elliptical and lens-shaped. From a comparatively large spathe, the flowers are borne near the tips of the leaves or beyond by proportionately long ovaries and pedicels. The similar sepals and petals are white, narrowly ellipticalovate and acute. The white lip is spotted with red and deeply trilobed with large, uncinate lobes above the base

Octomeria georgei Luer, sp. nov.
Ety.: Named for George M. Luer, co-collector of this species.
Planta mediocris repens, rhizomati ramicaulibusque crassis, foliis ellipticis subacutis, sepalis petalisque ellipticis subacutis, labello ovato ad apicem argute truncato distinguitur.

Plant medium in size, epiphytic, repent, the rhizome stout, 3 mm thick, $5-6 \mathrm{~mm}$ long between ramicauls, roots slender. Ramicauls stout, erect, $4.5-5.5 \mathrm{~cm}$ long, enclosed by 4 largely intact, tubular sheaths. Leaf erect, coriaceous, elliptical, subacute, $4.5-5 \mathrm{~cm}$ long, 1.5 cm wide dry, cuneate below into a broadly petiolate base. Inflorescence 3-4 single flowers produced simultaneously in a fascicle, borne by peduncles ca. 1 mm long, at the base of the leaf; floral bracts 2 mm long; pedicels $2-3 \mathrm{~mm}$ long; ovary 3 mm long; sepals rose, free, similar, glabrous, elliptical, subacute to acute, 7 mm long, 3 mm wide, 3 veined; petals elliptical, acute, 6 mm long, 2.4 mm wide, 3 -veined; lip yellow, subovate-trilobed, glabrous, 5.5 mm long, 2.5 mm wide, the lateral lobes low, rounded, below the middle, the apical lobe ovate, sharply truncate, slightly retuse, with margins microscopically irregular, with the disc shallowly concave between a pair of calli from the lateral lobes to the middle of the lip, the base subtruncate, hinged to the tip of the column-foot; column semiterete, 2.5 mm long, the anther and stigma subapical.

ECUADOR: Morona-Santiago: in felled trees ca. 30 km south of Gualaquiza, alt. 500 m , July 1975, flowered in cultivation at SEL, 27 Oct. 1975, C. Luer, G. Luer \& S. Wilhelm 600 (Holotype of $O$. georgei: SEL).

This species is known from southern Ecuador where the forest was being cleared at that time in 1975. It is distinguished by a thick, creeping rhizome, stout ramicauls, elliptical leaves, and relatively large, rose-colored sepals and a yellow lip. The lateral lobes of the ovate, trilobed lip are low and rounded, and associated with a pair of calli. The ovate anterior lobe is contracted below the apex into a sharply truncate tip.

Octomeria graminifolia (L.) R.Br., Hort. Kew. (W,T. Aiton), ed. 2, 5: 211, 1813.
Bas.: Epidendrum graminifolium L., Sp. Pl., ed. 2: 1353, 1763. Lectotype designated by Garay \& H.R. Sweet in Howard, Fl. Lesser Antilles, Orchidaceae: 116, 1974, tab. 176, fig. 1, "Convallaria? Caule articulato" in Plumier in Burman, Pl. Amer.: 171, tab. 176, fig. 1, 1758.
Ety.: From the Latin graminifolius, "with grass-like leaves," referring to the habit.
Syn.: Dendrobium graminifolium (L.) Willd., Sp. Pl. 4 [Willdenow]: 135, 1805.
Syn.: Octomeria baueri Lindl., Gen. Sp. Orchid. Pl. 10, 1830.
Ety.: Named for Franz Bauer, renowned Austrian, nineteenth century illustrator of orchids.
Syn.: Octomeria graminifolia Lodd., Bot. Cab. 19(190): tab. 1891, [Feb.] 1836, nom. illeg.
Syn.: Octomeria loddigesii Lindl., Companion Bot. Mag. 2: 354, 1836, replaced name for O. graminiifolia Lodd., 1833, not O. graminifolia (L.) R.Br., 1813.
Ety.: Named for Conrad Loddiges who imported, cultivated and published this species.
Syn.: Pleurothallis apiculata Lindl., Folia Orch. (Pleurothallis) 17, 1859.
Ety.: From the Latin apiculatus, "apiculate," referring to the petals.
Syn.: Octomeria graminifolia (L.) R.Br. var. ophioglossoides Griseb., Fl. Brit. W. I. 611, 1864.
Ety.: From the Greek ophioglossoides, "like the tongue of a snake," for some obscure attribute.
Syn.: Humboldtia apiculata (Lindl.) Kuntze, Revis. Gen. Pl. 2: 667, 1891.
Syn.: Octomeria longerepens Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 58, 1924.
Ety.: From the Latin longerepens, "long-repent," referring to the long-creeping habit.
Syn.: Octomeria serpens Schltr., Beih. Bot. Centralbl. 42(2): 92, 1925.
Ety.: From the Latin serpens, "creeping," referring to the habit.
Syn.: Octomeria apiculata (Lindl.) Garay \& H.R.Sweet, J. Arnold Arbor. 53: 391, 1972.
Plant small, medium to rarely large in size, epiphytic, long-repent, the rhizome stout, $2-4 \mathrm{~mm}$ thick, $0.5-3 \mathrm{~cm}$ long between ramicauls, roots slender. Ramicauls slender, erect to ascending, 2-7 (rarely to 15) cm long, enclosed with 3-4 tubular sheaths. Leaf erect, coriaceous, narrowly elliptical-ovate, acute, 2-9 (rarely to 15 ) cm long, $0.5-1 \mathrm{~cm}$ wide, narrowly cuneate below into the subpetiolate base. Inflorescence a single flower produced successively or a few simultaneously in a fascicle, borne by abbreviated peduncles $1-2 \mathrm{~mm}$ long, at the base of the leaf; floral bracts $2-4 \mathrm{~mm}$ long; pedicels 2-3 mm long; ovary 2-3 mm long; flowers light yellow, sepals free, similar, glabrous, elliptical-ovate, subacute to acute, 4-8 mm long, 2-2.5 mm wide, 3 -veined; petals elliptical-ovate, subacute to acute, $4-7 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide, 3 -veined; lip yellow, usually marked with brown along the calli, ovate-trilobed, glabrous, $3-5 \mathrm{~mm}$ long, $1.5-3 \mathrm{~mm}$ wide, the lateral lobes variously rounded, below the middle, the apical lobe ovate subtruncate, with margins more or less undulate, with the disc shallowly concave between a pair of calli from near the lateral lobes, the base subtruncate, hinged to the tip of the column-foot; column white, semiterete, 1.5 mm long, the anther and stigma subapical.
Selected collections from many:
MARTINIQUE: without locality, Plumier s.n. (Holotype of Epidendrum graminifolium: P). Without locality, 1882, P. Duss 394 (BR, US); trail above Absalon hot spring, 13-18 Mar. 1979, R.A. \& E.S. Howard 18866 (AMES).
WEST INDIES: without collection data, flowered in cultivation at the Royal Botanic Gardens, Kew, March 1817, (holotype of $O$. baueri is an undated illustration by Franz Bauer, probably now at BM; reprod. in Bauer \& Lindl., Ill. Orchid. Pl. tab. 4, fig. B, 1832.).
DOMINICA: without data, Henslow s.n. (K); without locality, Dr. Imray 218 (K); Riviere donce, 28 Feb. 1881, Eggers 34 (C); col. Adolph Toepfler 1880, Dec. 1881, Eggers 957 (BR, M); Feb. 1882, Eggers 955 (K); near Laudat, alt. 700 m , Oct. 1881, A. Toepffer 955 (W); near Laudat, Dec. 1881, A. Toepffer 957 (BR, W).
GRENADA: Oct. 1890-May 1891, R.V. Sherring s.n. (K); St. George's, Bon Accord, 1 June 1906, W.E. Broadway s.n. (AMES); Grand Etang, 30 Mar. 1897, W.E. Broadway 1580 (AMES).
GUADELOUPE: without locality, 1895, P. Duss 3699 (AMES, MO); Dugommier, 24 Jan. 1937, H. Stehlé 1669 (AMES, NY); St. Claude, 6 Jan. 1942, A. Questel 5029 (US).
ST. LUCIA: Vicinity of Quilesse, trail to Piton St. Esprit, 22 Apr.-18 May 1950, R.A. Howard 11630 (AMES); Savanne Edmund District, southeast of Piton Troumassée, alt. 1,800-2,000 ft., 11 May 1958, G.R. Proctor 17951 (AMES).

ST. VINCENT: alt. 500-2,000 ft., H.H. Smith \& G.W. Smith 454 (K); valley of south fork of Cumberland River, alt. 300-750 m, C.V. Morton 5763 (US).
TRINIDAD: Mirabeau mountains, 26 May 1906, W.E. Broadway s.n. (K); Blanchisseuse Road, 30 Jan. 1925, W.E. Broadway 5542 (K).
TOBAGO: Roxborough-Parlatuvier road, alt. 450-500 m, 4 Apr. 1959, R.S. Cowan 1431 (AMES); 16 June 1913, W.E. Broadway s.n. (AMES).

BARBADOS: without collection data, imported by C. Loddiges, flowered in the Royal Botanic Garden, Kew, illustrated in 1836 as Octomeria graminifolia by C. Loddiges s.n. (holotype of O. loddigesii: K); without collection data, cultivated at Kew, 26 Sept. 1886, N.E. Brown s.n. (K); also cultivated at Kew, Sept. 1886, Briggs 239 (K).
VENEZUELA: without locality, 1854-56, A. Fendler 2155 (holotype of P. apiculata: K, described from one damaged flower).
Aragua: Parque Nacional Henry Pittier, alt. 1000 m 30 Apr. 1972, J.A. Steyermark 105832 (AMES). Bolívar: Cerro Venamo, alt. $1000 \mathrm{~m}, 29$ Dec. 1963, J.A. Steyermark, G.C.K. \& E. Dunsterville 92335 (AMES, VEN).
Sucre: Peninsula de Paria, alt. 760-1000 m, 24 Feb. 1980, J.A. Steyermark 121717 (MO, VEN).
Yaracuy: north of Salom, alt. 1200 m, 27 Dec. 1972, J.A. Steyermark 106698 (AMES, VEN).
COLOMBIA: Caquetá: near Mulado above Mocoa, alt. 530 m , June 1921, W. Hopp 80 (holotype of $O$. longerepens: destroyed at B, neotype here designated: A. Hirtz 4128: MO); forest between Sucre and La Portada, alt. 1200-1350 m, 5 Apr. 1940, J. Cuatrecasas 9108 (US).
Antioquia: Guatapé, Repressa El Peñol, cultivated by O.J. Arango, R. Escobar 1139 (AMES); same area, cultivated by R. Londoño, 20 Mar. 1989, C. Luer 14305 (MO).
PANAMA: Bocas del Toro: road to Chiriquí Grande, alt. 500-700 m, 27 May 1988, G. McPherson 12555 (MO, SEL).
COSTA RICA: Heredia: Finca La Selva, Río Puerto Viejo, alt. ca. 100 m, 10 May 1980, M. Grayum 2807 (MO); La Selva, 2 Oct. 1985, J.T. Atwood $85-84$ (SEL).
Limon: La Colombiana Fruit Farm of United Fruit Co., alt. 70 m, 6 Mar. 1924, P.C. Standley 36920 (AMES).
NICARAGUA: Cabo Gracias a'Dios, 5 Jan. 1923, F.E. Schramm s.n. (AMES).
Chontales: Chamarro Peak, alt. 2,200 ft., A. Heller 7011 (SEL).
MEXICO: without collection data, A. Richard s.n. (W).
ECUADOR: Pastaza: 20 km east of Puyo, alt. 600 m, 28 June 1976, C. Luer, J. Luer \& P. Taylor 1008 (SEL); between Mera and Río Anzu, alt. $1400 \mathrm{~m}, 15$ Oct. 1984, C.H. Dodson, P.M. Dodson \& A. Hirtz 15358 (MO); north of Mera, alt. 1350 m, 12 Apr. 1985, C. Luer, J. Luer, A. Hirtz \& W. Flores 11289 (MO).
Napo: between Cotundo and Coca, alt. 1000 m, Feb. 1984, A. Hirtz 1527 (MO); Bermejo Oil Fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, C. Luer, J. Luer, A. Hirtz et al. 11723 (MO).
Morona-Santiago: between Mendez and Morona, alt. <1000 m, 19 Jan. 1989, A. Hirtz, A. Andreetta \& S. Ortega 4128 (MO).

PERU: Loreto: Río Ampiyacu, above Pucu Orquilla, 11 Feb. 1969, T. Plowman 2466 (K, NY).
BOLIVIA: Mapiri region, San Carlos, alt. 600 m , Mar. 1927, O. Buchtien 563 (AMES, US).
BRAZIL: Amazonas: Caicara-Iguapo, Hübner 145 (holotype of $O$. serpens: destroyed at B, neotype here designated: O. Buchtien 563 (AMES).

Remarkably variable in size both vegetatively and florally, Octomeria graminifolia is the most common and most widely distributed species of the genus. It occurs at relatively low altitudes in Central America, the easternmost Lesser Antilles, and much of South America north and west of the Amazon. It is characterized by a long-repent rhizome, often resulting in huge entanglements. The flowers are usually light yellow, variable in size with the free, three-veined, ovate sepals and petals nearly equal in size and shape. The lip is type A: three-lobed below the middle, and often with the pair of carinae darkly colored. The basic floral morphology of the floral parts remains unchanged even when the dimensions are more than doubled.

In his Genera and Species of Orchidaceous Plants of 1830, Lindley listed for Octomeria the Octomeria graminifolia (L.) R.Br., figured by Hooker in the Botanical Magazine tab. 2764, and simultaneously proposed Octomeria baueri for a very similar collection, both vegetatively and florally, except for the interpretation of the pollinia. He distinguished the latter by the eight pollinia shown expanded, or spread apart in a plane called "collateral" (Lindley 1830, pp. 9-10), that is, not lying in pairs upon each other in one of two views as illustrated by Franz Bauer in Bauer \& Lindl., Ill. Orchid. Pl. tab. 4, fig. B, 1832. In the other view, the eight pollinia are shown in two pairs of four, exactly as shown correctly by Hooker in the Botanical Magazine.

In 1836, Loddiges published an illustration of a plant cultivated at Kew in his Floral Cabinet labelled simply "Octomeria graminifolia," which did not look like Octomeria graminifolia (L.) R.Br., the illustration not showing the repent rhizome. Lindley immediately published the illustration as Octomeria loddigesii. Because no rhizome was included in the illustration, the rhizome was not mentioned by Lindley in the Latin diagnosis. The specimen figured in the Botanical Cabinet is preserved at K , and it is indeed repent. Because of the artist's incomplete rendition, Lindley was misled.

Octomeria grandiflora Lindl., Edwards's Bot. Reg. 28 (Misc.): 64, 1842.
Ety.: From the Latin grandiflorus, "large-flowered," referring to the size of the flowers.
Syn.: Octomeria truncata Rchb.f. ex Hoffmannsegg, Verz. Orchid. 26, 1842. nomen nudum. Ety.: From the Latin truncatus, "truncate," probably referring to the apex of the lip.
Syn.: Octomeria lobulosa Rchb.f., Hamb. Gartenzeitung 14: 215, 1858.
Ety.: From the Latin lobulosus, "with lobules," referring to the lateral lobes of the lip.
Syn.: Octomeria arcuata Rolfe, Bull. Misc. Inform. Kew, 61, 1909.
Ety.: From the Latin arcuatus, "arched, curved," possibly referring to the sepals and petals.
Plant medium to large in size, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, terete, $5-20 \mathrm{~cm}$ long, enclosed by $5-8$ early-shredded, tubular sheaths. Leaf erect, coriaceous, ovate to narrowly ovate, acute, $8-20 \mathrm{~cm}$ long, $1-2 \mathrm{~cm}$ wide, narrowly cuneate below into a subpetiolate base. Inflorescence a single flower produced successively, or several simultaneously, by peduncles $1-2 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts $2-5 \mathrm{~mm}$ long; pedicels $3-5 \mathrm{~mm}$ long; ovary $3-4 \mathrm{~mm}$ long; sepals pale green or yellow, often suffused with rose, glabrous, free, the dorsal sepal elliptical-ovate, acute, 816 mm long, $3-5 \mathrm{~mm}$ wide, 5 - to 7 -veined, the lateral sepals elliptical-ovate, slightly oblique, acute, 8-16 mm long, $3-4 \mathrm{~mm}$ wide, 5 - to 6 -veined; petals white to rose-white, ovate, acute, $7-13 \mathrm{~mm}$ long, $3-4 \mathrm{~mm}$ wide, 5 -veined; lip yellow, marked with purple, glabrous, oblong-trilobed, with erose margins toward the apex, $6-9 \mathrm{~mm}$ long, $4-6 \mathrm{~mm}$ wide expanded, the lateral lobes erect, oblique, broadly uncinate, subacute to rounded at the tip, antrorse, below the middle, the apical lobe subquadrate, broadly truncate to retuse, sometimes minutely apiculate, the margins minutely irregular, the disc shallowly concave between a pair of calli on the middle third, the base broadly truncate, hinged to the free tip of the columnfoot; column white to red-purple, semiterete, $4-5 \mathrm{~mm}$ long, with the anther subapical and stigma ventral.
BRAZIL: Without collection data, imported by C. Loddiges s.n. (Lectotype of O. grandiflora here designated: K; no specimen labelled C. Loddiges 60 is present in Lindley's herbarium); without collection data, flowered in Hamburg in the garden of Consul Schiller, cultivated by Herr Stange s.n. (holotype of O. lobulosa: W), C. Luer illustr. 21243; without collection data, imported by Messrs Sander \& Sons, flowered at Kew, 26 Nov. 1908, (holotype of $O$. arcuata: K), C. Luer illustr. 2140; without collection data, (holotype of $O$. truncata: W).
Rio de Janeiro: without collection data, A. Glaziou 4213 (W); without data, 1888, A. Glaziou 17252 (K); Theresópolis, Rio Paquequer, 21 June 1887, J.T. de Moura 15 (BR); Theresópolis, Serra das Orgãos, 29 June 1887, J.T. de Moura 45 (AMES, BR); Itatiaya, 1914, P. Campos Porto 8146 (AMES, RJ); São Fidelis, Póco Parado, alt. 900 m, 7 Nov. 1967, Piracicaba 15271 (M, SP); Munic. Nova Friburgo, Macaé de Cima, alt. 1400 m , cultivated by D. Miller, 22 Sept. 1996, C. Luer 18016 (MO).
Paraná: Tacarchy, 24 June 1914, P. Dusén 15217 (AMES, K, MO, S); Guaratuba, alt. 5 m, 3 Jan. 1954, Reitz \& Klein 1511 (AMES); Bocaiuva do Sul, Sesmaria, Rio Capivari, 11 Nov. 1968, G. Hatschbach 20251 (MO).
São Paulo: Alto da Serra, alt. 900 m , May 1901, Wettstein \& Schiffner s.n. (W); Alto da Serra, 20 Oct. 1920, F.C. Hoehne 748 (AMES); Est. Biol, Alto da Serra, alt. 800-900 m, 11 Feb. 1929, L.B. Smith 1839 (AMES); Juquiá, Serra do Mar, 20 July 1965, Grupo de Piracicaba 11069 (M, SP); Apisí, Fazenda Serrinha pr. Guapiara, 21 Apr. 1965, Grupo de Piracicaba 11651 (M, SP).
Espirito Santo: Vargem Alta, Mulford \& Racine Foster 966 (AMES); Santa Teresa, Cabeceira de 25 Julio, 8 June 1987, H.Q. Boudet Fernandez 2133 (MBML, MO); Serra do Castelo, alt. ca. 1000 m, collected and cultivated by Michel Frey, Fazenda Capijuma, Nov. 2002, C. Luer 20303 (MO).
BOLIVIA: Cochabamba: Chapare, collected by R. Vásquez near Villa Tunari, alt. 400 m , and cultivated by him in Villa Tunari, 29 Nov. 1978, R. Vásquez s.n. (Holotype of $O$. vasquezii: SEL), C. Luer illustr. 3516.

ECUADOR: Carchi: above Chical, alt. 1399 m, 1999, A. Hirtz 7122 (MO).
Morona-Santiago: near Río Calagrás, alt. $1600 \mathrm{~m}, 19$ Sept. 1980, flowered in cultivation 20 Oct. 1981, C. Luer 6534 (SEL); near El Pangui, alt. 1200 m, cultivated at Ecuagenera, Dec. 2001, A. Hirtz 7790 (MO), C. Luer illustr. 21304.

Zamora-Chinchipe: Río Jamboe, south of Zamora, alt. $1550 \mathrm{~m}, 22$ Jan. 1992, C. Luer, J. Luer, A. Hirtz, A. \& P. Jesup 16097 (MO); Cordiller del Condor, Patchicutza, alt. 1200-1500 m, June 1991, A. Hirtz 5523 (MO).
VENEZUELA: Zulia: Sierra de Perijá, alt. $1550 \mathrm{~m}, 25$ Mar. 1972, J.A. Steyermark, G.C.K. \& E. Dunsterville (AMES); same locality, Apr. 1972, G.C.K. Dunsterville 1213; Carrao River G.C.K. Dunsterville 288.

In 1842, Lindley described Octomeria grandiflora from a cultivated plant that had been imported from Brazil by Loddiges, numbered (60), according to the protologue, but no specimen with that number is present in Lindley's herbarium. Similarly, Reichenbach described O. lobulosa in 1858 from a plant cultivated in the collection of Consul Schiller, now assumed also to have been from Brazil. The type specimens of both $O$. grandiflora and $O$. lobulosa, and $O$. tridentata Lindl. as well, are incomplete, having been broken off above the base, no doubt to preserve the cultivated plant, but a caespitose habit has beyond doubt been confirmed for all three taxa.

In 1839, Lindley had described Octomeria tridentata, also from an incomplete specimen from an importation by Loddiges. The lateral lobes of the lip had been interpreted as being rounded and inflexed, instead of broadly uncinate as they actually are, similar to those of $O$. grandiflora. The lip is the same as H. Focke illustrated for $O$. surinamensis in 1849. Although the flowers of the Brazilian $O$. grandiflora and Guyanan $O$. tridentata are similar, those of $O$. grandiflora are larger. Both species are widely distributed with their ranges overlapping, where sometimes it is difficult to decide which is which. Floral details vary similarly in both species.

Octomeria grandiflora is usually a large, densely caespitose plant, often 20 centimeters or more tall, with strong ramicauls and acute, narrowly ovate leaves. The flowers are large with sepals five- to seven-veined, sometimes as long as a centimeter and a half.

Octomeria tridentata Lindl. (widely known as $O$. surinamensis H.Focke) is usually a medium-sized, loosely caespitose plant, commonly more or less 15 mm tall, with narrow, more or less oblong leaves, and flowers also with five-veined sepals, but less than a centimeter long.

Octomeria seegeriana Kraenzl., the old O. robusta of Barbosa Rodrigues, is another large species with large, uncinate, lateral lobes of the lip. Except for the thick, repent rhizome, it is similar to $O$. grandiflora Lindl. A vegetatively much larger taxon, often more than 40 centimeters tall, also with a thick, repent rhizome; broader, narrowly ovate leaves; and again with similar flowers, is treated herein as O. peruviana D.E.Benn. \& Christenson. The distinction of these taxa from $O$. grandiflora becomes blurred as the size of one grades into the other.

Octomeria guentheriana Kraenzl., Repert. Spec. Nov. Regni Veg. 25: 19, 1928. Ety.: Named for Ernesto Günther who collected this species.
Syn.: Octomeria buchteinii Schltr., Repert. Spec. Nov. Regni Veg. 27: 57, 1929.
Ety.: Named for Otto Buchtien who collected this species twice, the first time in 1820, eight years before Günther.
Plant medium to large in size, epiphytic, repent, the rhizome stout, ca. 3 mm thick, $0.5-2 \mathrm{~cm}$ long between ramicauls, roots slender. Ramicauls slender, erect, terete, 10-20 cm long, enclosed by 5-6 tubular, early shredding sheaths. Leaf erect, coriaceous, narrowly elliptical-linear, acute, $12-20 \mathrm{~cm}$ long, $\mathrm{ca}$.1 cm wide in the dry state, narrowly cuneate below into the subpetiolate base. Inflorescence a single, or perhaps 2-3 flowers produced simultaneously by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; sepals white, glabrous, ovate, acute, the dorsal sepal $4-5 \mathrm{~mm}$ long, 1.5 mm wide, 3 -veined, the lateral sepals oblique, $4-5 \mathrm{~mm}$ long, 1.5 mm
wide, 3 -veined; petals ovate, acute, 4 mm long, 1.5 mm wide, 3 -veined; lip glabrous, oblong-trilobed, 2.5 mm long, 1.5 mm wide, the lateral lobes erect, rounded, elongated, antrorse, below the middle, the apical lobe erose, ovate, obtuse, the disc broadly channeled between a pair of oblique calli descending from the lateral lobes, the base unguiculate, truncate, hinged to the tip of the column-foot; column semiterete, 1.5 mm long, the foot 1 mm long, the anther subapical, the stigma ventral.

BOLIVIA: La Paz: Nor Yungas, Mapiri, San Carlos, alt. 850 m, 11 Mar. 1927, O. Buchtien 562 (Holotype of $O$. guentheriana destroyed at B; lectotype here designated: Buchtien 562; isotype AMES, isolectotypes: HBG, US), C. Luer illustr. 19221; Mapiri, alt. 5,000 ft., May 1886, H.H. Rusby 2764 (MO); Larecaja, Hda. Simaco, on way to Tipuani, alt. 1400 m, Apr. 1920, O. Buchtien 5033 (holotype of $O$. buchtienii destroyed at B; lectotype here designated, Buchtien 562: US); Mapiri, La Cascada, alt. 1020 m, 21 Sept. 2002, B. Aguilar et al. BR 906 (BOLV, MO).

Vegetatively, this species is inseparable from the widely distributed Octomeria longifolia Schltr., found frequently in the margins of the Amazonian basin. It was first collected by Dr. Rusby a half century before it was collected twice by Buchtien. Slender ramicauls are produced along a stout rhizome, and bear equally long, slender leaves to about 20 centimeters in length. The sepals and petals are also similar to those of $O$. longifolia except for being a little more than half the size. The lateral lobes of the lip are elongated and bend forward, but not as severely as the lateral lobes of $O$. grandiflora Lindl. or $O$. tridentata Lindl.

Octomeria harantiana I.Bock, Die Orchidee (Hamburg) 35(2): 49, 1984.
Ety.: Named in honor of Erich Harant SVD, missionary at Río Atrato, for help in collecting orchids.
Plant medium in size, epiphytic, caespitose, ascending, to very shortly repent, the rhizome up to 5 mm long between ramicauls, roots slender. Ramicauls stout, erect, terete, $4-13 \mathrm{~cm}$ long, enclosed by 3-4 early shredded, tubular sheaths. Leaf erect, thickly coriaceous, rigid, more or less suffused with red, narrowly elliptical, acute, 4-11 cm long, 1-1.5 cm wide, cuneate below into a subpetiolate base. Inflorescence a single flower produced successively within a fascicle of peduncles 1 mm long, at the base of the leaf; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 2 mm long; sepals yellow, glabrous, free, the dorsal sepal elliptical, acute, $7-8 \mathrm{~mm}$ long, 2.5 mm wide, 3 -veined (occasionally incompletely 5veined), the lateral sepals elliptical, slightly oblique, acute, $7-8 \mathrm{~mm}$ long, 2.5 mm wide, 3 -veined (occasionally incompletely 4 -veined); petals yellow, elliptical, acute, $6-7 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide, 3 -veined; lip yellow, elliptical-subtrilobed, with minutely suberose apical margins, 5 mm long, 3 mm wide, the apex obtuse, the lateral lobes low, oblique, subacute, above the base, the disc shallowly concave between a pair of calli on the lower half, the base broadly truncate, hinged to the free tip of the column-foot; column semiterete, slender, 1.5 mm long, with the anther apical and stigma subapical.
COLOMBIA: Chocó: Vigia del Fuerte, alt. 50 m , Aug. 1979, I. Bock, K.-H. Bock \& E. Harant 10/t. 10 (Holotype of O. harantiana: Herb. Irene Bock; Isotypes: K, MO), C. Luer illustr. 21395; Río Truando, alt. 40-200 m, 15 June 1967, J.A. Duke 12252 (AMES, MO); Munic. Quibdó, between Tutunendo and San Francisco de Ichó, alt. 150 m, 5 July 1986, R. Bernal et al. 1078 (COL, MO, NY), C. Luer illustr. 21376; Munic. Riosucio, Zona de Urabá, Cerro del Cuchillo, alt. 20-50 m, 18 Nov. 1987. D. Cárdenas 891 (JUAM, MO); same locality, alt. 50-500 m, 25 June 1988, D. Cárdenas 2149, 2236 (JUAM, MO).
Cauca: Río Mayo near Pastico, alt. 20-100 m, 23 Feb. 1983, A. Gentry \& A. Juncosa 40638 (MO).
This species occurs in the humid, lowland forests of western Colombia. It is characterized by thick, narrowly elliptical leaves borne by equally long ramicauls. The unremarkable sepals and petals are elliptical and acute. The type A lip is distinguished by low, obtuse, marginal lobes above the base, and the disc is shallowly channeled between a pair of low calli betweem the lobes. The margins of the lip are somewhat dilated above the middle.

Octomeria heleneana Carnevali \& Delascio, Ernstia 45: 12, 1987.
Ety.: Named for Helene, wife of co-collector Delascio.
Plant small, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, $4-6 \mathrm{~cm}$ long, enclosed by 2-3 close, tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical, acute, 5.5-6 cm long, $6-8 \mathrm{~mm}$ wide, cuneate below into a subpetiolate base. Inflorescence a single flower produced successively by a peduncle ca. 0.5 mm long, at the base of the leaf; floral bracts ca. 2 mm long; pedicels ca. 2 mm long; ovary ca. 2 mm long; sepals suffused with purple, glabrous, free, the dorsal sepal broadly
ovate, subacute to obtuse, 3 mm long, 2 mm wide, 3 -veined, the lateral sepals similar, 3 mm long, 2 mm wide, 3 -veined; petals similar to the sepals, elliptical, obtuse to subacute, 3 mm long, 2 mm wide, 3veined; lip glabrous, cordate, with obtuse, basal angles, obtuse at the apex, the blade shallowly concave, 3 -veined, 2 mm long, 2 mm wide, with a claw 0.5 mm long, deflexed $90^{\circ}$ from the blade, hinged to an obtuse column-foot at the base of the column; column semiterete, thick, 1.5 mm long, with the anther subapical and the stigma ventral.
VENEZUELA: Amazonas: Atabapo, Cerro Huachamacarí, alt. 175-805 m, 12-14 Oct. 1984, F. Delacio 12354 (Holotype of O. heleneana: VEN).

This rare species from Amazonian Venezuela is characterized by a small habit with narrowly elliptical leaves and small flowers with broadly ovate sepals and petals. The lip appears to be thickly cordate with obtuse, basal angles and a short claw that is deflexed $90^{\circ}$ to the base of the column.

No material is available for study. The description and illustration have been made from the original publication.

Octomeria hirtzii Luer, Selbyana 23(1): 29, 2002.

## Ety.: Named for Alexander C. Hirtz who collected this species.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, terete, $30-42 \mathrm{~cm}$ long, enclosed by 8-11 shredded, tubular sheaths. Leaf erect, coriaceous, narrowly linear-oblong, acute, 19-32 cm long, $1-1.5 \mathrm{~cm}$ wide, narrowly cuneate below into a subpetiolate base. Inflorescence a single flower produced successively by abbreviated peduncles 2-3 mm long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels $2-3 \mathrm{~mm}$ long; ovary $4-5 \mathrm{~mm}$ long; sepals yellow, glabrous, free, the dorsal sepal elliptical, acute, 13 mm long, 4.5 mm wide, 5 -veined (incompletely 7 -veined), the lateral sepals elliptical, slightly oblique, acute, 13 mm long, 4.5 mm wide, 5 -veined (incompletely 7 -veined); petals yellow, elliptical, acute, 12 mm long, 4 mm wide, 5 -veined; lip yellow, suffused with brown centrally, glabrous, obovate-trilobed, with erose apical margins, 6 mm long, 4 mm wide, the apex broadly rounded to trun-cate-apiculate, the lateral lobes low, oblique, erect, subacute, antrorse, below the middle, the disc shallowly concave between a pair of calli on the middle third, the base broadly truncate, hinged to the free tip of the column-foot; column yellow, semiterete, slender, 4 mm long, with the anther apical and stigma subapical.

ECUADOR: Zamora-Chinchipe: south of Yangana above Valladolid, alt. $1900 \mathrm{~m}, 23$ Mar. 1985, C. Luer, J. Luer, A. Hirtz \& W. Flores 10838 (Holotype of O. hirtzii: MO); area of Estación Científica San Francisco between Loja and Zamora, alt. $2100 \mathrm{~m}, 2$ Oct. 2004, F.A. Werner 1169 (GOET, MO, QCNE).

This species is one of the tallest in the genus, rivalled only by Octomeria peruviana D.E.Benn. \& Christenson. With the long leaves together with the long ramicauls, some plants stand nearly a meter tall. The leaves of $O$. hirtzii are narrowly linear, those of the competitor being wider and narrowly ovate.

The flowers are similar to those of both Octomeria grandiflora Lindl. and $O$. peruviana with sepals usually over one centimeter long and five- to seven-veined. The petals are similar, nearly as large as the sepals. The type A lip is also similar, but the lateral lobes are smaller, subacute, and antrorse. The apex is broadly rounded and erose with a minute apiculum at the tip.

Octomeria integrilabia C.Schweinf., Bot. Mus. Leafl. 3: 87, 1935.
Ety.: From the Latin integrilabia, "with an entire lip," referring to the shape of the labellum.
Syn.: Octomeria ffrenchiana Ph.Feldmann \& Barré, Lindleyana 11(3): 199, 1996.
Ety.: Named in honor of M. Claude Ffrench, former president of the Guadeloupean Orchid Society.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, terete, 2.5-3.5 cm long, enclosed by 3-4 tubular, imbricating sheaths. Leaf erect, thickly coriaceous, narrowly elliptical-ovate, acute, $2.5-3.5 \mathrm{~cm}$ long, 4 mm wide, 2.5 mm thick, narrowly cuneate below into the subpetiolate base, more or less twisted. Inflorescence a single flower produced successively by abbreviated peduncles ca. 1 mm long, at the conduplicate base of the leaf; floral bracts 2 mm long; pedicels 2 mm long; ovary 1.5 mm long; sepals pale yellow, membranous, glabrous, elliptical-oblong, subacute, the dorsal sepal 6 mm long, 2 mm wide, incompletely 3 -veined, the lateral sepals shortly connate at the base, oblique, 6 mm long, 1.75 mm wide, incompletely 3 -veined; petals yellow, elliptical, acute, 6 mm long, 1.8 mm wide, 1 -
veined; lip type C, yellow, glabrous, subcircular, 3 mm long, 2.5 mm wide, the apex shallowly retuse, the base rounded, with a central depression to accommodate the tip of the column-foot to which it is delicately attached, the disc broadly and shallowly concave between a pair of low calli; column white, semiterete, 1.8 mm long, the anther subapical, the stigma ventral.
As published: BRITISH GUIANA: Arakaka, Jan. 1896, E.F. im Thurn 115?, 115A? (K); Hoodsline?, Feb. 1896, E.F. im Thurn 115A (K); E.F. im Thurn 167 (Holotype of O. integrilabia: K).
GUAYANA: Kaiteur Falls, E.A. Christenson 1989 (MO), C. Luer illustr. 17808.
VENEZUELA: Bolívar: Cerro Venamo, near Guyana, alt. 1000 m, 27 Dec. 1963, J.A. Steyermark, G.C.K. \& E. Dunsterville 92211 (AMES, K, VEN); Meseta del Jaua, alt. 1800 m, 22-28 Feb. 1974, J.A. Steyermark et al. 109314 (K, VEN); Río Cuyuní, south of El Dorado, alt. 1300 m, 19-26 Dec. 1976, J.A. Steyermark, G.C.K. \& E. Dunsterville 104076 (AMES, K, VEN), C. Luer illustr, 19132; Meseta del Jaua, Cerro Sarisariñama, alt. $1410 \mathrm{~m}, 10$ Feb. 1974, J.A. Steyermark et al. 108905 (AMES, K, VEN); between El Dorado and Sta. Elena, E. Foldats 2833 (AMES); Gran Sabana, Route 10 to Santa Elena de Uairén, alt. 480-700 m, 6 May 1996, R. Rivero et al. 2829 (SEL).
GUADELOUPE: Crête Corossol, epiphytic, alt. 800 m , flowered in cultivation 9 Feb. 1991, P. Feldmann 6 (holotype of $O$. ffrenchiana: GUAD).

This little species is apparently variable in its distribution in northernmost South America and one island of the Lesser Antilles. It is characterized by narrowly ellip-tical-ovate leaves about as long as the ramicaul, straw colored sepals and petals about six millimeters long, and a more or less round lip with minimal thickening of the disc of the lip on both halves.

## Octomeria jauaënsis Luer, sp. nov.

Ety.: Named for Meseta de Jáua, in the state of Bolívar, Venezuela, where this species was collected.
Species haec Octomeriae heleneanae Carnevali \& Delascio similis, sed sepalis minoribus sepalo dorsali brevi-acuminato, petalis oblique acutis et labello cordato cum ungue grande differt.

Plant very small, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, 2-3 cm long, enclosed by 2-3 close, tubular sheaths. Leaf erect, thickly coriaceous, olive green, narrowly elliptical, acute, 3-3.5 cm long, 2-3 mm wide, narrowly cuneate below into a subpetiolate base. Inflorescence a single flower produced successively by a peduncle less than 1 mm long, at the base of the leaf; floral bracts ca. 2 mm long; pedicels ca. 2 mm long; ovary ca. 2 mm long; sepals yellow, glabrous, free, the dorsal sepal broadly ovate, obtuse, shortly acuminate, 2.6 mm long, 2 mm wide, 3 -veined, the lateral sepals broadly elliptical, obtuse, 2.6 mm long, 1.6 mm wide, 3 -veined; petals ovate, obliquely acute above the middle, 2.3 mm long, 1.2 mm wide, 3 -veined; lip type C , glabrous, thickly cordate, with rounded basal angles, obtuse at the apex, the blade shallowly concave, 1 mm long, 1.5 mm wide, with a claw 1 mm long, 1 mm wide, deflexed $90^{\circ}$ from the blade, hinged to an obtuse column-foot at the base of the column; column semiterete, thick, 1 mm long, with the anther subapical and the stigma ventral.
VENEZUELA: Bolívar: Meseta de Jáua, Cerro Jáua, 60 km northeast of the mission de Campamento Sanidad del Río Kanarakuni, alt. 1922-2160 m, 22 Mar. 1967, J.A. Steyermark 98023 (Holotype of O. jauaënsis: AMES, Isotype: VEN), C. Luer illustr. 21422.

This little species from Amazonian Venezuela is similar to Octomeria heleneana Carnevali \& Delascio, but differs with a smaller habit; yellow instead of purple flowers; a broadly obtuse, shortly acuminate dorsal sepal; obliquely acute petals; and a thick, cordate lip with a claw nearly as large as the blade that is similarly deflexed $90^{\circ}$ to its attachment to the base of the lip.

Octomeria lancipetala C.Schweinf., Bot. Mus. Leafl. 19: 210, 1961.
Ety.: From the Latin lancipetalus, "with lance-shaped petals," a misnomer.
Plant tall, epiphytic or terrestrial, caespitose; roots slender. Ramicauls slender, erect, $7-18 \mathrm{~cm}$ long, with 5-7 fugacious sheaths. Leaf erect, thickly coriaceous, suffused with purple, narrowly elliptical, acute, $5-9 \mathrm{~cm}$ long, $0.4-0.7 \mathrm{~cm}$ wide in dry state, narrowly cuneate below into a petiole ca .1 cm long. Inflorescence a congested fascicle of several, simultaneous, single flowers, from near the apex of the ramicaul, the peduncles less than 1 mm long; floral bracts $2-3 \mathrm{~mm}$ long; pedicels 2 mm long; ovary 2 mm long; sepals free, dark red, glabrous, elliptical-ovate, subacute to obtuse, 3 -veined, the dorsal sepal 4.5 mm long, 2.5 mm wide, the lateral sepals oblique, 4.5 mm long, 2.5 mm wide; petals dark red, ovate, acute, 4 mm long, 1.5 mm wide, 1-veined; lip type B, dark red, the blade subcircular, sharply cordate at
the base, minutely subdenticulate, 1.5 mm long, 1.5 mm wide, the blade acutely deflexed against the claw, with the acute basal angles embracing the column above the middle, the disc convex, the deflected base ovate, concave, hinged to the tip of an equally long column-foot; column semiterete, stout, 1.5 mm long, the foot subnil, the anther and stigma subapical.

VENEZUELA: Amazonas: Cerro Huachamacari, Río Cunucunuma, alt. $1800 \mathrm{~m}, 4$ Dec. 1950, B. Maguire, R.S. Cowan \& J.J. Wurdack 30170A (Holotype of O. lancipetala: AMES, only old flowers on fruit; Isotype: NY); Cerro Duida, at summit, alt. 7,050 ft., Aug. 1928-Apr. 1929, G.H.H. Tate 670 (AMES); Cerro Huachamacarí, Río Canucunuma, alt. 1700 m, 4 Dec. 1950, B. Maguire, B.S. Cowan \& J.J. Wurdack 29823 (AMES); Cerro de la Neblina, Río Yatua, alt. 1800 m, 10 Jan. 1954, B. Maguire, J.J. Wurdack \& G.S. Bunting 37161 (AMES, NY); headwaters of Cañon Grande, alt. $1900 \mathrm{~m}, 16$ Oct. 1970, J.A. Steyermark 103994 (AMES); Atabapo, Cerro Marahuaca, terrestrial, alt. 2500 m, 1-2 Feb. 1982, J.A. Steyermark et al. 125980, 126064 (K, NY, VEN).
Bolivar: Auyan-tepui, alt. 1800 m, 10 May 1964, J.A. Steyermark et al. 93640 (AMES); Sierra Pakaraima, Aguapira. alt. 1400 m, 4 May 1973, J.A. Steyermark et al. 107316 (AMES).
BRAZIL: Amazonas: Serra da Neblina, alt. 8,000-8,500 ft., 3 Dec. 1965, B. Maguire, J. Murça Pires \& C. Maguire 60535 (AMES, K, NY), C. Luer illustr. 21630.

Vegetatively similar to many species of the genus characterized by a narrowly elliptical leaf and a longer, slender ramicaul, this species from the Venezuelan highlands and adjacent Brazil is distinguished by a small, round lip that is sharply cordate at the base and acutely deflexed upon itself.

Octomeria longifolia Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 58, 1924.
Ety.: From the Latin longifolius, "long-leaved," referring to the long, narrow leaves.
Syn.: Octomeria erosilabia C.Schweinf., Bot. Mus. Leafl. 3: 85, 1935.
Ety.: From the Latin erosilabius, "with erose lip," obviously referring to the labellum.
Syn.: Octomeria rhizomatosa C.Schweinf., Fieldiana Bot. 28(1): 188-190, 1951.
Ety.: From the Latin rhizomatosus, "with rhizomes," referring to the habit of the plant.
Syn.: Octomeria schultesii Pabst, Arquiv. Bol. Estado São Paulo n.s. 3: 268, 1962.
Ety.: Named for Richard Evan Schultes, co-collector of this species.
Plant medium to large in size, epiphytic, repent, uncommonly caespitose, the rhizome stout, ca. 5 mm thick, $0.1-2 \mathrm{~cm}$ long between ramicauls, roots slender. Ramicauls stout, erect, terete, $5-20 \mathrm{~cm}$ long, enclosed by 5-6 tubular, early shredding sheaths. Leaf erect, coriaceous, narrowly elliptical-linear, acute, $6-20 \mathrm{~cm}$ long, $1-1.7 \mathrm{~cm}$ wide, narrowly cuneate below into the conduplicate, subpetiolate base, more or less twisted. Inflorescence a flower produced singly or up to 8 flowers simultaneously by abbreviated peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts suborbicular, apiculate, imbricating, 3 mm long, 3 mm wide, enclosing the pedicel, ovary, and bases of the sepals; pedicels 1-1.5 mm long; ovary 1.5 mm long; sepals light yellow, membranous, glabrous, ovate, acute, the dorsal sepal $7-8 \mathrm{~mm}$ long, 2.5 mm wide, 3 -veined, the lateral sepals shortly connate at the base, oblique, 7 mm long, 3 mm wide, 3 -veined; petals light yellow, ovate, acute, 7 mm long, $1.75-2 \mathrm{~mm}$ wide, 3 -veined; lip type A, yellow, glabrous, oblong-trilobed, 3 mm long, 1.5 mm wide, the lateral lobes erect, rounded, sometimes leaning forward, below the middle, the apical lobe minutely erose, oblong, truncate, apiculate, more or less tridentate, the midvein thickened toward the apex, the disc broadly channeled between a pair of parallel calli descending from the lateral lobes, the base truncate, hinged to the tip of the column-foot; column white, semiterete, $1.75-3 \mathrm{~mm}$ long, the foot thick with the tip free, the anther subapical, the stigma ventral.

COLOMBIA: Putumayo: old territory of Caqueta, near Mocoa, alt. 530 m, May 1921, W. Hopp 78, 86 (holotype of $O$. longifolia destroyed at B, Neotype here designated: R.E. Schultes 19785, AMES).
Amazonas: Vaupés, Río Apaporis, Jinogojé and vicinity, alt. ca. 700 ft ., July 1952, R.E. Schultes \& I. Cabrera 19785 (Neotype of O. longifolia: AMES; Isotype: COL); Río Apaporis, Soratama, alt. ca. 250 m, 21 June 1951, R.E. Schultes \& I. Cabrera 12722 (AMES); Río Apaporis, Yayacopi, alt. ca. 800 ft., 16 Apr. 1952, R.E. Schultes \& I. Cabrera 16222 (AMES); near Tarauacá, Rio Vaupés, J.S. Rodrigues s.n. (IAN); summit of Serra Curicuriari, 5 Nov. 1971, G.T. Prance et al. 16088 (K, MO, NY); Bagua, Yamayakat, alt. 320 m, 3 Feb. 1996, N. Jaramillo, M. Jaramillo \& D. Chamit 1058 (MO, SEL).
Vaupés: Río Guainéa, San Antonio, Cerro Monachí, alt. ca. 600 m, June 1948, R.E. Schultes \& F. López 10148 (holotype of $O$. schultesii: IAN; isotype: AMES), C. Luer illustr. 21363; Río Kuduyari, sabana con arenisca de Yapoboda, alt. 350-400 m, 25 June 1958, H. Garcia B., R.E. Schultes \& H. Blohm 17894 (AMES, COL); Cuenca Río Caquetó, 22 Nov. 1991, J. Duivendoorden, J. Moreno \& D. Restrepo 1379 (MO).

VENEZUELA: Amazonas: Atabapo, Cerro Marahuaca, alt. 1220-1350 m, 23 Feb. 1985, J.A. Steyermark \& B. Holst 130625 (MO, VEN).
Barinas: Dist. Pedraza, northeast of Alto de La Aguada, alt. 1400-1700 m, 18 Apr. 1988, L.J. Dorr et al. 4837 (AMES, MO, NY); Río Atabapo, alt. 125-140 m, 9 June 1959, J.J. Wurdack \& L.S. Adderley 42898 (AMES, K, NY); Río Orinoco, alt. 125-140 m, 29 July 1959, J.J. Wurdack \& L.S. Adderley 43654, 43670 (K, NY); Atures, Puerto Ayacucho, alt. 100 m, 13 Aug. 1986, A, Castillo 2200 (MO, MYF); below Salto Remo, alt. 120 m, May 1989, E. Foldats \& J. Velasco 9469 (MO, PORT); Río Negro, Cerro Aracamuni, alt. $600 \mathrm{~m}, 21$ Oct. 1987, R. Liesner \& G. Carnevali 22282 (MO, VEN).
Bolívar: Quebrada Sororopán, between Santa Teresita de Kavanayén and Río Tek-Yunsén, alt. 1375 m , 3 Dec. 1944, J.A. Steyermark 60830 (lectotype of $O$. rhizomatosa here designated 648421: AMES, isotype 1207003, F), C. Luer illustr. 21359, Steyermark had mentioned that 59703 was a cotype, but 60830 is clearly indicated as the holotype; Ptari-tepui, alt. 1700-1800 m, 1 Nov. 1944, J.A. Steyermark 59703 (AMES); Chimantá Massif, Chimantá-tepui, alt. 1000-1700 m, 16 May 1953, J.A. Steyermark 75445 (AMES, F, NY); Sierra Pakaraima, headwaters of Río Paragua, alt. 1400 m, 4 May 1973, J.A. Steyermark 107331 (AMES, MO, VEN); Meseta del Jaua, Cerro Sarisariñama, alt. 700 m, 12 Feb. 1974, J.A. Steyermark et al. 109098 (AMES, K, VEN); Cerro Roraima, alt. 2750-2800 m, 26 Aug.-2 Sept. 1976, J.A. Steyermark et al. 112432 (K, VEN); near El Puaji, Río Cabass, alt. 800-900 m, 3 Nov. 1985, R. Liesner 19398 (MO); Raul Leoni, Cerro Guiquinina, alt. 830 m, 1 Sept. 1988, A. Fernandez 4715 (MO, PORT).
Táchira: Cerro de Cuite, Quebrada La Colorado, south of Santo Domingo, alt. 450 m, 8 Nov. 1979, J.A. Steyermark, R. Liesner \& A. González 119655 (MO, VEN).
GUYANA: Pomeroon River, Mar. 1884, G.S. Jenman 1989 (holotype of O. erosilabia: K; isotype: NY); Northwest District, Anabisi River, 15 Feb. 1922, J.S. de la Cruz 1349 (AMES, NY), C. Luer illustr. 21354; Bartica-Potaro road, 17 Aug. 1937, N.Y. Sandwith 1107 (AMES, K); Kaieteur Plateau, alt. 1,400 ft., 12 Mar. 1962, R.S. Cowan \& T.R. Soderstrom 2126 (AMES, K, US).
ECUADOR: Pastaza: northeast of Montalvo, alt. 400 m, May 1960, E. Gudiño 373 (MO).
PERU: Loreto: between Nauta and Iquitos, alt. $140 \mathrm{~m}, 28$ June 1979, C. Diaz \& N. Jaramillo 1240 (MO, SEL); Requena, Jenaro Herrera, alt. 170 m, 2 July 1981, R. Vásquez, K. Young \& N. Jaramillo 2096 (MO, USM); Maynas, Iquitos, alt. $150 \mathrm{~m}, 28$ May 1997, M. Rimachi 11860 (IBE, MO).
San Martín; Mariscal Caceres, Toache Nuevo, alt. 700-800 m, 24 Dec. 1972, J. Schunke 5791 (MO, NY, SEL); Lamas, Santa Rosa de Davidcillo, between Tarapoto and Yurimaquas, alt. $200 \mathrm{~m}, 22$ Apr. 1986, S. Knapp \& J. Mallet 7164 (MO), C. Luer illustr. 15509.
BRAZIL: Para: Akarai Mts., alt. 500-700 m, 18 Jan. 1938, A.C. Smith 2938 (MO, NY).
This species is relatively frequent in the margins of Amazonian lowlands and inadjacent areas of Guyana, Venezuela, Colombia, Ecuador, Peru, Bolivia and Brazil. It was first described by Schlechter from a collection by Hopp from Amazonian Colombia, and subsequently it was described from Bolivia, Guyana, and Venezuela.

Although vegetatively variable, Octomeria longifolia is characterized by a thick, usually repent rhizome, long ramicauls, and equally long, acute, narrowly ellipticallinear leaves. The habit is influenced by the habitat: stout, short-stemmed, shortly repent specimens are found as lithophytes on exposed strata, while long-repent, slender and much taller specimens occur in humid forests. Several flowers with acute sepals and petals that vary in size are usually borne simultaneously. The lip is small, type A, with erect, rounded, marginal lobes below the middle, and a pair of lamellae. The apical lobe is variably minutely erose and the tip varies from obtuse to truncate.

The pedicel and ovary are short so that the flower emerges from imbricating ribbed bracts, a feature that has been used to distinguish Octomeria erosilabia C.Schweinf. from $O$. rhizomatos $a$ C.Schweinf. with more protruding flowers. In an estimated quarter of the populations of $O$. longifolia, the flower protrudes, often with an elongated ovary, sometimes as long as eight millimeters.

## Octomeria marsupialis Luer, sp. nov.

Ety.: From the Latin marsupialis, "with a pouch," referring to the pouch-like tip of the lip.
Planta mediocris folio anguste elliptico-ovato quam ramicaule breviore, sepalis petalisque acuminatis, labello ovato ad apicem plicato distinguitur.

Plant small, epiphytic, caespitose, roots slender. Ramicauls slender, terete, erect, 5-7 cm long, enclosed by $4-5$ ribbed, tubular sheaths. Leaf erect, thickly coriaceous, suffused with purple, narrowly elliptical-ovate, acute, $4-5 \mathrm{~cm}$ long, $0.5-1 \mathrm{~cm}$ wide, cuneate below into a petiole 0.5 long. Inflorescence a single flower borne successively in a fascicle of buds and imbricating sheaths, the peduncle ca. 1 mm long, at the apex of the ramicaul; floral bracts ca. 3 mm long; pedicels ca. 3 mm long; ovary 2 mm long; sepals free, dark purple, glabrous, the dorsal sepal ovate, narrowed above the lower third, acute, acuminate, 4.5 mm long, 1.5 mm wide, 3 -veined, the lateral sepals narrowly ovate, acute, acuminate, 4.5 mm long, 1.25 mm wide; petals dark purple, narrowly ovate, acute, 4.5 mm long, 1.25 mm wide, 3veined; lip type C, dark purple, glabrous, entire, ovate, obtuse, 1.5 mm long, 1 mm wide, with a dorsal, infolded, sacklike, membranous margin beginning near the middle, becoming broadest at the tip to form a shallow pouch; column thick, terete, 1 mm long, the anther apical, pollinia 6 , and the stigma ventral.

VENEZUELA: Bolívar: Chimantá Massif, Apácara-tepui, alt. $2000 \mathrm{~m}, 19$ June 1953, J.A. Steyermark 75761 (Holotype of O. marsupialis: AMES), C. Luer illustr. 21423.

This species is distinguished by acuminate sepals and petals, and a small, flat, ovate lip with an plicate margin that creates a superficial, sacklike cavity on the dorsum at the tip. More distinctive is the number of pollinia: six. The six pollinia of Octomeria splendida Garay \& Dunst. are joined together by a single viscidium, but the tips of the two pairs of three pollinia of $O$. marsupialis are apparently free, at least in the floral bud that was dissected.

Octomeria medinae Luer \& J.Portilla, Selbyana 23(1): 33, 2002.
Ety.: Named for Hugo Medina of Gualaceo, Ecuador, who collected this species.
Plant small to medium in size, epiphytic, caespitose to shortly repent, the rhizome stout, to 5 mm long between ramicauls; roots slender. Ramicauls stout, erect, terete, 4-9 cm long, enclosed by 4-5 tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical, acute to subacute, $3-7.5 \mathrm{~cm}$ long, 1 1.5 cm wide, cuneate below into a petiole ca. 0.5 cm long. Inflorescence a single flower produced successively in a fascicle, borne by abbreviated peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary 2.5 mm long; sepals light rose or yellow-orange suffused with red, free, glabrous, elliptical, acute, the dorsal sepal $7-8.5 \mathrm{~mm}$ long, 3 mm wide, 3 -veined, occasionally with incomplete accessory veins, the lateral sepals 8 mm long, 2.2 mm wide, 3 -veined; petals colored as the sepals, elliptical, acute, $7-8 \mathrm{~mm}$ long, $2-2.4 \mathrm{~mm}$ wide, 3 -veined; lip type C , red, subobovate-trilobed, glabrous, 3-4.5 mm long, 2.5 mm wide, the lateral lobes erect, low, rounded, above the unguiculate base, the anterior lobe ovate, subtruncate with minutely erose margins, narrowed below the middle to the lobes, the disc shallowly sulcate between a pair of calli on the middle third, the base broadly truncate, hinged to a short column-foot; column white, semiterete, 2.5 mm long, with the anther apical and stigma ventral.
ECUADOR: Morona-Santiago: Cordillera del Cutucú, between Mendez and Morona, alt. $950 \mathrm{~m}, 18$ Jan. 1989, C. Luer, J. Luer, A. Hirtz, S. Ortega, A. \& P. Jesup 13989 (Holotype of O. medinae: MO); Santiago, alt. 300 m , collected by H. Medina, cultivated in Gualaceo by Ecuagenera, Mar. 2001, A. Hirtz 7335 (MO), C. Luer illustr. 19695; Pangui, alt. 1000 m, cultivated at Ecuagenera, 2 Feb. 2002, A. Hirtz 8180 (MO).
Esmeraldas: west of Lita toward San Lorenzo, alt. 300 m, 12 Jan. 1992, C. Luer, J. Luer, A. Hirtz, A. \& P. Jesup 15584 (MO).

This species has been found on both sides of the Andes of Ecuador at relatively low altitudes. It is characterized by a stout, a more or less shortly creeping rhizome, stout ramicauls only slightly longer than the elliptical leaves, and a successive, medium-sized, rose to yellow-orange flower; the sepals and petals are acute; and the type A lip is widest above the middle, with low, rounded, lateral lobes above a broadly unguiculate base. It is similar to the frequent, sympatric Octomeria colombiana Schltr., but the latter has narrower leaves, more slender ramicauls, and entire margins of the lip.

Octomeria minor C.Schweinf., Bot. Mus. Leafl. 3: 89-90, 1935.
Ety.: From the Latin minor, "smaller" or "less," referring to a smaller size.
Plant very small, epiphytic, caespitose to shortly repent, the rhizome 1-2 mm long between ramicauls; roots slender. Ramicauls slender, erect, terete, $8-10 \mathrm{~mm}$ long, enclosed by 2 close, tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical, acute to subacute, $16-20 \mathrm{~cm}$ long, $5-6 \mathrm{~mm}$ wide, cuneate below into a petiole ca. 1 mm long. Inflorescence a single flower produced successively by a peduncles less than 1 mm long, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary 1 mm long; sepals white, free, glabrous, ovate, subacute, the dorsal sepal 4 mm long, 2.2 mm wide, 3 -veined, the lateral sepals 4.2 mm long, 2 mm wide, 3 -veined; petals white, ovate, subacute, 4 mm long, 1.9 mm wide, 3 -veined; lip thick, subobovate-trilobed, glabrous, 3 mm long, 2 mm wide, the apex subtruncate, indistinctly tridentate, with erect, rounded, marginal lobes below the middle, the disc with a pair of parallel calli on the middle third, and a single, similar callus on the apical third, the base truncate, hinged to the column-foot; column white, semiterete, 1.75 mm long, with the anther apical and stigma ventral.

GUYANA: Essequibo River, Moraballi Creek near Bartica, nearly sea level, 24 Aug. 1929, N.Y. Sandwith 112 (Holotype of $O$. minor: K).
FRENCH GUIANA: alt. $87 \mathrm{~m}, 30$ Aug. 1983, E.A. Christenson 1863 (MO), C. Luer illustr. 17014.
The habit of this little species from the coastal Guianas varies from caespitose to shortly repent. The ramicauls are about half as long as the thickly coriaceous leaves they bear. The sepals of the solitary, successive flower are broad and more or less concave. The Type A has a third callus anterior to the usual, central pair. The marginal, lateral lobes are erect and rounded.

Octomeria mocoana Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 59, 1924.
Ety.: Named for the community of Mocoa, near where this species was collected.
Plant medium in size, epiphytic, shortly repent, the rhizome stout, 4-5 mm thick, $5-15 \mathrm{~mm}$ long between ramicauls; roots slender. Ramicauls stout, erect, terete, $7-11 \mathrm{~cm}$ long, with $4-5$ early shredding sheaths. Leaf erect, coriaceous, narrowly elliptical, acute, $8-15 \mathrm{~cm}$ long, $1-2.4 \mathrm{~cm}$ wide, cuneate below into a subpetiolate base. Inflorescence a single to a fascicle of many, simultaneous, single flowers, borne by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels 1-2 mm long; ovary minutely subverrucose, $1.5-2 \mathrm{~mm}$ long; sepals translucent yellow to light yellow-green, sometimes with the veins red, free, glabrous, narrowly ovate to attenuate, the lateral sepals narrowly triangular, slightly oblique, acute, $8-13 \mathrm{~mm}$ long, 2-3 mm wide, 3 -veined; petals translucent yellow, narrowly ovate, acute, $8-11 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide, 3 -veined; lip yellow, ovate-trilobed, glabrous, 3.5 mm long, $1.75-2 \mathrm{~mm}$ wide, the lateral lobes erect, rounded, convex, retrorse, on the basal quarter, the anterior lobe ovate, narrowly obtuse, the disc broadly and shallowly channeled between a pair of calli that extend from the lateral lobes to about the middle, the base broadly truncate, concave, hinged to the free tip of the column-foot; column white, semiterete, 2 mm long, with the anther subapical and the stigma ventral.

COLOMBIA: Caqueta: near Mocoa, alt. 530 m , June 1921, W. Hopp 76 (Holotype of O. mocoana destroyed at B, Neotype here designated: W. Palacios 1956, MO).
ECUADOR: Sucumbíos: Estación Científica Cuyabano, alt. 220 m, 21 July 1992, J. Jaramillo 14921 (MO, QCA).
Napo: Puerto Misahuali, Reserva Biológica Jatun Sacha, alt. 450 m, Sept. 1987, W. Palacios 1956 (MO); between Puerto Napo and Misahauali, alt. ca. 600 m , cultivated in Chamblee, GA, flowered 14 Oct. 1990, F L Stevenson 90-1014-5 (MO), C. Luer illustr. 19161.
Pastaza: tall forest east of Puyo, alt. ca. 1000 m , Aug. 1975, collected by C. Luer, G. Luer \& S. Wilhelm, cultivated at SEL, flowered 30 Nov. 1977, C. Luer 2244 (SEL).
Zamora-Chinchipe: between Loja and Zamora, alt. $1500 \mathrm{~m}, 5$ Aug. 1975, C. Luer, G. Luer \& S. Wilhelm 644 (SEL).
BOLIVIA: La Paz: Sud Yungas, Alto Beni, Colonia Tupiza, alt. 850 m, 8 Apr. 1999, T. Krömer, A. Acebey \& A. Rodriguez 239 (LPB, SEL), C. Luer illustr. 21477.

This species from relatively lowland in southeastern Colombia and eastern Ecuador to Bolivia is characterized by a shortly repent habit with a thick rhizome, stout ramicauls, and an elliptical leaf. The sepals and petals are narrowly ovate, and the lip is type A with the anterior lobe narrowly obtuse, but most distinctive are the lateral lobes that are erect, convex and retrorse.

Octomeria monticola C.Schweinf., Bot. Mus. Leafl. 9: 43, 1941.
Ety.: from the Latin monticola, "mountain dwelling," referring to the habitat.
Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls stout, erect, terete, $3-8 \mathrm{~cm}$ long, enclosed by $4-5$ close, tubular sheaths. Leaf erect, thickly coriaceous, rigid, narrowly ovate, acute, $3-6 \mathrm{~cm}$ long, $0.9-1.3 \mathrm{~cm}$ wide, cuneate below into a conduplicate, twisted, subpetiolate base. Inflorescence 2-3 single flowers produced simultaneously in a fascicle, borne by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts infundibular, 5 mm long, 4 mm wide, enclosing the pedicel, ovary, and bases of the sepals; pedicels 1.5 mm long; ovary 1.5 mm long; flowers "pinkish" fide collector; sepals free, glabrous, the dorsal sepal obovate, acute, $5-6 \mathrm{~mm}$ long, 2 mm wide, 3 -veined, the lateral sepals elliptical, oblique, acute, $5-6 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide, 3 -veined; petals ovate, acute, 5.5 mm long, $1.5-2 \mathrm{~mm}$ wide, 3 -veined; lip marked with purple, glabrous, subovate-trilobed, 2.5 mm long, 1.5 mm wide, the apex narrowly truncate with denticulate-erose margins, expanded to the middle, narrowed below the middle with the lobes 1 mm long, broadly uncinate, antrorse, obtuse, the disc shallowly sulcate between a pair of small calli above the middle, the base broadly truncate, hinged to a curved column-foot; column semiterete, 2 mm long, with the anther subapical and stigma ventral.
GUYANA: Summit of Mt. Roraima, 28 Nov. 1927, G.H.H. Tate 425 (Holotype of O. monticola: NY; Isotype: AMES), C. Luer illustr. 21361.
VENEZUELA: Bolívar: Roraima, collected by McDiarmid in 1977, and submitted to the Orchid Identification Center at the Marie Selby Botanical Garden, O.I.C. 1301 (SEL), C. Luer illustr. 2255; Dist. Roscio, Munic. Dalla Costa, Matahuitepui, alt. 2700-3000 m, 22 Aug. 1982, A. Castillo 1819 (MO). BRAZIL: fide C.Schweinf.

A native of Mt. Roraima, this species occurs near the borders of the three nations that share the same region (Guyana, Venezuela and Brazil). Densely caespitose, strict ramicauls produce rigid, narrowly ovate leaves. The pedicels, ovaries and bases of two or three simultaneous flowers are often covered by infundibular floral bracts. The lip is a modification of type A, which differs from the illustation by Gordon Dillon. The uncinate basal lobes are proportionately large, broad, obtuse, and antrorse; and the pair of calli are small, just forward from where the basal lobes would reach. The margins of the lip above the lobes are minutely lacerate.

## Octomeria moscosoae Luer, sp. nov.

Ety.: Named for D. Moscosoa Z., collector of this species.
Planta parva caespitosa ramicaule crasso folio angustissime elliptico plus minusve aequilongo, floribus parvis sepalo dorsali libro ovato acutissimo, sepalis lateralibus ellipticis acutis ad basim connatis, labello trilobo lobis lateralibus erectis cucullatis, lobo antico late ovato truncato, distinguitur.

Plant small, epiphytic, caespitose, roots slender. Ramicauls relatively stout, terete, erect, 4-6 cm long, enclosed by 4-5 deciduous, tubular sheaths. Leaf erect, thickly coriaceous, narrowly linearelliptical, acute, $4-5 \mathrm{~cm}$ long, $0.2-0.3 \mathrm{~cm}$ wide, intensely wrinkled longitudinally in dry state, narrowed below to the base. Inflorescence a single flower borne successively from a fascicle of dry, abbreviated peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts ca. 2 mm long; pedicels ca. 2 mm long; ovary 1.5 mm long; sepals white, membranous, glabrous, the dorsal sepal free, ovate, narrowly acute, 3.5 mm long, 2 mm wide, 3 -veined, the lateral sepals elliptical, acute, 3.5 mm long, 2 mm wide, 3 veined, connate at the base and overlapping to about the middle; petals elliptical, acute, 3 mm long, 1.5 mm wide, 3 -veined; lip glabrous, broadly elliptical-trilobed, 2.25 mm long, 1.75 mm wide, the lateral lobes erect, oblique, cucullate, above a short, unguiculate base, the anterior lobe broadly ovate, truncate, with minutely erose margins, with a pair of carina extending from each lateral lobe onto the middle lobe, the base truncate, hinged to the tip of the column-foot; column slender, terete, 1.5 mm long, with the anther apical and the stigma ventral.

PERU: Cuzco: Paucartambo, between Puente Unión and San Pedro, alt. 1500-1600 m, 1944, D. Moscosoa Z. 1052 (Holotype of O. moscosoae: CUZ; Isotype: MO), C. Luer illustr. 21381.

This small species, apparently endemic in the mountains of Cuzco, is characterized by a small, caespitose habit with thick, very narrow leaves about as long as the ramicaul. The sepals of the single, small flower are acute and three-veined. The distinctive lip is broadly elliptical with cucullate lateral lobes above a shortly unguiculate base.

Octomeria nana C.Schweinf., Bot. Mus. Leafl. 19: 211, 1961.
Ety.: From the Latin nanus, "dwarf," referring to the small habit.
Syn.: Octomeria lamellaris Luer, Selbyana 23(1): 30-33, 2002.
Ety.: From the Latin lamellaris, "with lamellae," referring to the lip.
Plant small, epiphytic, caespitose; roots proportionately stout. Ramicauls slender, erect, 8-25 mm long, enclosed by 2 loose, tubular sheaths and another at the base. Leaf erect, thickly coriaceous, narrowly ovate, acute, the blade $12-40 \mathrm{~mm}$ long, $5-6 \mathrm{~mm}$ wide, cuneate below into a petiole 2 mm long. Inflorescence 1-2 single flowers produced successively at the apex of the ramicaul, with a spathe 2.5 mm long; peduncles ca. 1 mm long; floral bracts 2 mm long; pedicels 2 mm long; ovary 1.25 mm long; sepals translucent yellow-brown, free, glabrous, ovate to narrowly ovate, subacute to obtuse, the dorsal sepal $4-6.5 \mathrm{~mm}$ long, 2 mm wide, 3 -veined, the lateral sepals $4-6.5 \mathrm{~mm}$ long, $1.75-2 \mathrm{~mm}$ wide, 3 -veined; petals colored as the sepals, ovate to narrowly ovate, subacute to acute, 4-6 mm long, $1.5-1.75 \mathrm{~mm}$ wide, 3 -veined; lip oblong or subquadrate, glabrous, 2.5 mm long, 2 mm wide, the apex broadly shallowly retuse, with minutely irregular margins, barely narrowed near the middle, the disc with a tall pair of oblique lamellate calli from the margins near the middle, extending obliquely to above the middle, the base truncate, hinged to the tip of the column-foot; column semiterete, 1.5 mm long, with the anther subapical and stigma ventral.

VENEZUELA: Bolívar: Chimabtá Massif, Torono-tepui, N-facing slopes on summit above Caño Mojado, on rock in savana, alt. 2030-2150 m, 21 Feb. 1955, J.A. Steyermark \& J.J. Wurdack 1027 (Holotype of O. nana: AMES; Isotype: NY); Cerro Venamo, near border of Guyana, alt. $1400 \mathrm{~m}, 31$ Dec. 1963, J.A. Steyermark, G.C.K. \& E. Dunsterville 92459 (holotype of O. lamellaris: AMES), C. Luer illustr. 19222; Cerro Sarisariñama, Meseta del Jaua, alt. 1750 m, 22 Feb. 1974, J.A. Steyermark et al. 109314 (AMES); Dist. Heres, Cerro Marutani, alt. 1200 m, 11 Jan. 1981, J.A. Steyermark et al. 123936 (MO, VEN); La Escalera, alt. 800 m, 2 Apr. 1985, B. Holst, J.A. Steyermark \& B. Manara 2086 (MO); Dist. Piar, Tereké-Yurén. alt. 2135, 26 May 1986, R. Liesner, J. Steyermark \& B. Holst 21059 (MO); Piar, Murisipan-tepui, alt. 2400 m, 25 Mar. 1987. F. Delascio 13089 (MO, VEN); Río Negro, Cerro Aracamuni, alt. 1400 m, 28 Oct. 1987, R. Liesner \& G. Carnevali 22597 (MO);
Amazonas: Río Negro, Cerro Neblina, alt. 1750-1850 m, 18 Feb. 1984, R. Liesner 16062 (MO).
Octomeria nana, a tiny species apparently restricted to easternmost Venezuela, varies in the lengths of the leaves as well as the floral parts. The translucent sepals and petals are similar. Most characteristic is the small, oblong lip with a pair of distinct, oblique lamellate calli across the middle.

Octomeria napoleon Luer, sp. nov.
Ety.: Napoleon meaning lion of the woodland, the powerful, little general.
Planta parva caespitosa ramicaulibus crassissimis, foliis crassis purpureo suffusis ellipticis plus minusve aequilongis, sepalis oblongis trinervis, labello trilobo, lobo antico ovato truncato apiculato, lobis lateralibus erectis falcatis distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls stout, terete, erect, $0.5-5 \mathrm{~cm}$ long, enclosed by 2-3 tubular sheaths. Leaf erect, thickly coriaceous, suffused with purple beneath, elliptical, subacute to obtuse, $1.5-6 \mathrm{~cm}$ long, up to 1 cm wide in the dry state, narrowed below into a subpetiolate base. Inflorescence a single flower borne successively from dry, abbreviated peduncles ca. 1 mm long, in a fascicle of bracts at the apex of the ramicaul; floral bracts ca. 2 mm long; pedicels ca. 2 mm long; ovary 2 mm long; sepals free, yellow, membranous, glabrous, elliptical-oblong, subacute, 7 mm long, 2 mm wide, 3 -veined; petals elliptical, acute, 6.5 mm long, 1.5 mm wide, 3 -veined; lip glabrous, oblongtrilobed, 3.5 mm long, 1.8 mm wide, the lateral lobes erect, uncinate, antrorse, below the middle, the anterior lobe ovate, undulate, minutely erose, with a pair of lamellate carinae extending from each lateral lobe onto the middle lobe, the apex truncate with an apiculum, the base truncate, hinged to the tip of the column-foot; column slender, terete, 2 mm long, with the anther subapical and the stigma ventral.

COLOMBIA: Amazonas: Vaupés, Cerro Isibukuri, Río Kananari, altitude not stated, 29 Oct. 1951, R.E. Schultes \& I. Cabrera 14519B (Holotype of O. napoleon: AMES, COL), C. Luer illustr. 21416; same collection data, R.E. Schultes \& I. Cabrera 14521 (AMES, COL); Río Caquetá, La Pedrera, without altitude, 12 Oct. 1952, R.E. Schultes \& I. Cabrera 17810A (AMES, COL).
BRAZIL: Amazonas: upper Rio Negro Basin, Cerro Dimití, without altitude, 12-19 May 1948, R.E. Schultes \& F. López 9958A (AMES).

This species, apparently endemic in Amazonian Colombia and adjacent Brazil, is characterized by a small but robust habit with stout ramicauls and about equally
long, thick, elliptical leaves suffused with purple, and with flowers nearly as large as those of Octomeria tridentata Lindl. Both the sepals and petals, similar to those of $O$. tridentata, but narrower, are three-veined, instead of five- or more-veined. The type A lip with broadly uncinate lateral lobes is reminiscent of its big cousins Octomeria grandiflora Lindl. and O. tridentata.

Octomeria odontoglossoides Luer, sp. nov.
Ety.: Named for the resemblance of the labellar callus to a callus of the genus Odontoglossum Kunth.
Species haec Octomeriae oncidioidis Luer affinis, sed labelli lobis basalibus oblongis obtusis decurvis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, terete, $2.5-4.5 \mathrm{~cm}$ long, enclosed by 4-5 fragmenting, tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical-oblong, acute, terete in the dry state, $5-7.5 \mathrm{~cm}$ long, $0.3-0.4 \mathrm{~cm}$ wide dry, narrowed below into a subpetiolate base. Inflorescence a single flower borne successivrly by a peduncle ca. 1 mm long, in a fascicle at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels 2.5 mm long; ovary 1.25 mm long; sepals translucent light tan, glabrous, the dorsal sepal free, elliptical, obtuse, 5 mm long, 2.8 mm wide, 3 veined, the lateral sepals oblong, oblique, obtuse, 4.5 mm long, 2.25 mm wide, 3 -veined, 4.5 mm wide together, 6 -veined, connate 1 mm at the base, with the middle thirds overlapping; petals translucent light tan, elliptical, obtuse, 5 mm long, 2.2 mm wide, 3 -veined; lip type C , yellow with the callus purplebrown, trilobed, 3.5 mm long, 1 mm wide, 2.5 mm wide across the lobes, the lobes basal, oblong, obtuse, decurved, the anterior lobe oblong, obtuse, with a prominent, bifid, tubercular callus, the base truncate, firmly fixed to the base of the column; column thick, semiterete, 1 mm long, with the anther and stigma apical.

COLOMBIA: Without collection data, purchased from a local collector, flowered in cultivation at Colomborquídeas, El Retiro, 20 Nov. 1981, C. Luer 6729 (Holotype of O. odontoglossoides: SEL).

This species is known only from a collection obtained from a collector and cultivated by Colomborquídeas. It is closely related to Octomeria oncidioides Luer from Bolivia. These two species are distinguished from all others in the genus by the proportionately large, tuberculate callus on the middle lobe of the lip (type D). Vegetatively, both species are characterized by a thick, narrow leaf. The sepals and petals are medium in size for the genus, and the lateral sepals are connate basally, and overlapping on the middle third. The basal lobes of the lip of $O$. oncidioides are triangular and subacute, while the basal lobes of the lip of $O$. odontoglossoides are oblong, rounded at the tip and decurved. The lip is especially similar to that of Odontoglossum atropurpureum Rchb.f. as illustrated by Dunsterville in Venezuelan Orchids Illustrated, 5: 212, 1972.

Octomeria oncidioides Luer, Revista Soc. Boliv. Bot. 4(1): 11, 14, 2003.
Ety.: Named for the resemblance of the callus to a callus of the genus Oncidium Sw.
Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls relatively stout, erect, terete, $7-11 \mathrm{~cm}$ long, enclosed by $4-5$ tubular sheaths. Leaf erect, thickly coriaceous, narrowly ellipticaloblong, acute, $7-11 \mathrm{~cm}$ long, $0.6-1 \mathrm{~cm}$ wide, narrowed below into a subpetiolate base. Inflorescence a single flower borne successively by an abbreviated peduncle ca. 1 mm long, at the apex of the ramicaul; floral bracts $1.5-2 \mathrm{~mm}$ long; pedicels 1.5 mm long; ovary 1 mm long; sepals translucent red-brown, glabrous, the dorsal sepal free, elliptical, obtuse, 5 mm long, 2 mm wide, 3 -veined, the lateral sepals connate 1.5 mm into an oblong, bifid lamina, 5 mm long, 3.5 mm wide together, 6 -veined, the free portions partially overlapping, with the apices obtuse; petals colored as the sepals, elliptical-oblong, obtuse, 5 mm long, 1.75 mm wide, 3 -veined; lip type C , brown with the callus red, triangular-trilobed, 4 mm long, 1.5 mm wide, 3.25 mm wide across the lobes, the lobes basal, triangular, subacute, expanded, the anterior lobe triangular, acute, with a prominent, forked, tubercular callus, the base concave, firmly fixed to an obsolescent column-foot; column thick, semiterete, 1.5 mm long, with the anther and stigma apical.
BOLIVIA: Larecaja: Alto Llipi, above Santa Barbara above Tipuani, alt. 1200 m, collected by A. Hirtz, Juan del Hierro \& W. Teague, 30 Aug. 1991, C. Luer 15383 (Holotype of O. oncidioides: MO).

This species, known only from the original collection in central Bolivia, is closely related to Octomeria odontoglossoides Luer from Colombia. These two are distinguished from all others in the genus by the proportionately large, tuberculate callus on the middle lobe of the lip (type D). Vegetatively, both species are characterized by a thick, narrow leaf. The sepals and petals are medium in size for the genus, and the lateral sepals are connate to near the middle. The basal lobes of the lip of $O$. oncidioides are triangular and subacute, while the basal lobes of the lip of O. odontoglossoides are decurved, oblong and rounded at the tip.

Octomeria parvifolia Rolfe, Trans. Linn. Soc. London Bot. ser. 2(6): 60, 1901.
Ety.: From the Latin parvifolius, "small-leaved," referring to the short, narrow leaf.
Plant small, epiphytic, lithophytic, to terrestrial, caespitose, roots slender. Ramicauls slender, erect, terete, 3-15 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thickly coriaceous to semiterete, narrowly elliptical to fusiform, acute, $2.5-5 \mathrm{~cm}$ long, 0.5 cm wide, 0.2 mm thick, narrowed below into the base. Inflorescence a single flower produced successively by an abbreviated peduncle ca. 2 mm long, with numerous, shredded sheaths, at the apex of the ramicaul; floral bracts 1 mm long; pedicels 1 mm long; ovary 1 mm long; sepals brown, free, glabrous, elliptical, obtuse, the dorsal sepal 2-2.5 mm long, 1 mm wide, 1 -veined, the lateral sepals $1.8-2.2 \mathrm{~mm}$ long, 1 mm wide, 1 -veined; petals brown, elliptical, concave, obtuse, $1.5-2 \mathrm{~mm}$ long, 1 mm wide, 1 -veined; lip type C, yellow, thick, trilobed, glabrous, 0.6 mm long, 0.75 mm wide, the apical lobe thin, obtuse, suborbicular, concave, with a pair of thick, basal calli below the middle extending laterally as suberect, triangular, obtuse, basal lobes, the base broadly truncate, hinged to a short column-foot; column yellow, short, broad, semiterete, 0.3 mm long, with the anther apical and stigma ventral.

GUYANA: "Roraima, summit, 8600 ft.," 1898, F.V. McConnell \& J.J. Quelch 696 (Holotype of O. parvifolia: K; Isotype: BR).
VENEZUELA: Bolívar: Mount Roraima, alt. 1560-2620 m, 27 Sept. 1944, J.A. Steyermark 58780 (AMES); Cerro Roraima, alt. 2750-2800 m, 26 Aug.-2 Sept. 1976, J.A. Steyermark et al. 112552, 112579 (K, VEN); Cerro Guaiquinima, Río Paragua, alt. 1650 m, 31 Dec. 1951, B. Maguire 32859 (AMES, NY); Ilu-tepui, Gran Sabana, alt. 2500-2600 m, 15 Mar. 1952, B. Maguire 33432 (AMES, NY); Chimantá Massif, Apácara-tepui, alt. 2450-2500 m, 21 June 1953, J.A. Steyermark 75938 (AMES); Abácapa-tepui, alt. $1300 \mathrm{~m}, 20$ Apr. 1953, J.A. Steyermark 75196 (AMES); Auyan-tepui, alt. $1950 \mathrm{~m}, 28$ Feb. 1978, J.A. Steyermark et al. 116176 (MO, VEN); Piar, Aparaman-tepui, alt. 2150 m, 22 Mar. 1987, B. Holst 3489 (MO); Camarcaibarai-tepui, alt. 1800 m, 23 May 1986, J.A. Steyermark, R. Liesner \& B. Holst 132051 (MO, SEL, US); summit of Murisipan-tepui, alt. 2350 m, 26 May 1986, B. Holst \& J.A. Steyermark 2958 (MO); summit of Tereké-Yurén-tepui, alt. 2135 m, 26 May 1986, R. Liesner, J.A. Steyermark \& B. Holst 21063 (MO, VEN).
Amazonas: Atabapo, summit of Cerro Marahuaca, alt. 2750 m, Sept. 1976, G.C.K. Dunsterville 1341 (SEL, MO), C. Luer illustr. 19181; Río Negro, Cerro de Neblina, alt. 140 m, 13 Mar. 1984, R. Liesner 16566B (MO); summit and south of summit, alt. 2520-2650 m, 26 Feb. 1985, J.A. Steyermark \& B. Holst 130825 (MO, VEN).

This locally common, little species from the highlands of Guyana and eastern Venezuela is characterized by a small, caespitose habit with slender elliptical leaves that are usually shorter than the ramicauls. The habit is similar to the other small, sympatric species, such as Octomeria exigua C.Schweinf., O. integrilabia C.Schweinf., O. minor C.Schweinf., O. nana C.Schweinf., and variations of $O$. parvula C.Schweinf. However, the sepals and petals of $O$. parvifolia are obtuse and single-veined, and the anterior lobe of the distinct, three-lobed lip is rounded and concave, while the lateral lobes below the middle are erect and obtusely triangular. A transverse, bitumid callus extends across the disc between the bases of the lateral lobes.

Octomeria parvula C.Schweinf., Bot. Mus. Leafl. 3: 90, 1935.
Ety.: From the Latin parvulus, "very small," referring to the species.
Plant small to very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, terete, 16.5 cm long, enclosed by 2-4 close, deciduous, tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical, acute, $4-6 \mathrm{~cm}$ long, $0.2-0.5 \mathrm{~cm}$ wide in the dry state, narrowed below into an ill-defined petiole less than ca. 0.5 cm long. Inflorescence a single, yellow flower produced successively by a pedicel less than 1 mm long, at the apex of the ramicaul; floral bracts numerous, shredded, ca. 1.5 mm long; pedicels ca. 1.5 mm long; ovary 1 mm long; sepals free, membranous, glabrous, the dorsal sepal elliptical, acute to subacute, $2.5-4 \mathrm{~mm}$ long, $0.75-1.5 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals oblong, oblique, subacute, $2.75-4 \mathrm{~mm}$ long, $0.75-1 \mathrm{~mm}$ wide, 3 -veined; petals elliptical, similar to the sepals, subacute, 2-3 mm long, $0.75-1 \mathrm{~mm}$ wide, 1 -veined, or with incomplete, faint veins to either side; lip ovate-trilobed, glabrous, $1.75-2 \mathrm{~mm}$ long, $0.75-1 \mathrm{~mm}$ wide expanded, the lateral lobes erect, rounded, below the middle, the apical lobe ovate, obtuse to subtruncate, the disc with a pair of thin, lamellate calli on middle third, the base unguiculate, truncate, hinged to the column-foot; column short, semiterete, 11.3 mm long, with the anther apical and stigma ventral.

GUYANA: Essequibo River, Moraballi Creek near Bartica, nearly sea level, 11 Sept. 1929, N.Y. Sandwith $234 a$ (Holotype of O. parvula: K); Arakaka, Feb. 1896, E.F. im Thurn s.n. (K).
VENEZUELA: Bolívar: Chimantá Massif, Chimantá-tepui, alt. $1000 \mathrm{~m}, 24$ May 1953, J.A. Steyermark 75571 (AMES, F, NY).
Amazonas: primary forest, alt. $120 \mathrm{~m}, 3$ Dec. 1977, R. Liesner 4143 (MO), C. Luer illustr. 21380.
COLOMBIA: Antioquia: Munic. San Luis, autopista, alt. $800 \mathrm{~m}, 20 \mathrm{Feb} .1984$, S. Hoyos \& J. Hernandez 941 (JAUM, MO).
Amazonas: Río Apaporis, alt. ca. 900 ft., Jan. 1952, R.E. Schultes \& I. Cabrera 16980 (AMES); Vaupés, Río Kananarí, Cerro Isibukurí, 29 Oct. 1951, R.E. Schultes \& I. Cabrera 14519A (AMES), C. Luer illustr. 21419; Río Caquetá, La Pedrera, without altitude, 12 Oct. 1952, R.E. Schultes \& I. Cabrera 17810B (AMES, COL); Guainia, Maimachi, Serranía, Cerro Minas, at airport, alt. $900 \mathrm{~m}, 7$ Apr. 1993, S. Madriñán \& C. Barbosa 946 (AMES).
BRAZIL: Amazonas: Cerro Dimití, Río Dimití, 12 May 1946, R.E. Schultes \& F. López 9958B (AMES).

Occasional small specimens answering the description of Octomeria parvula occur in a wide distribution at low altitudes across northern South America. They are characterized by a small habit with narrowly elliptical leaves, and a small flower with elliptical sepals and petals from two to four millimeters long. The lip, about two millimeters long, is type A with the marginal lobes erect below the middle and the usual pair of calli on the middle third.

The variations of Octomeria parvula and $O$. colombiana Schltr. converge through the range of the two concepts, making their clear distinction impossible. However, the name $O$. parvula is retained for the small varations with sepals less than four millimeters long, although they could be considered to be only a variations of $O$. colombiana.

Octomeria peruviana D.E.Benn. \& Christenson, Icon. Orchid. Peruviarum. 3: tab. 521, 1998, replaced name for O. boliviensis Rolfe var. grandifolia C. Schweinf. Bot. Mus. Leafl. Harvard Univ. 10: 194, 1942.
Ety.: Named for the type country.
Plant large, robust, epiphytic, rhizome thick, ascending to caespitose, roots thick. Ramicauls stout, cm long, enclosed by 7-8 deciduous, tubular sheaths. Leaf erect, coriaceous, narrowly ovate, sharply acute, $20-30 \mathrm{~cm}$ long, $2.5-4 \mathrm{~cm}$ wide, cuneate below into a subpetiolate base. Inflorescence a single, successive flower produced by a peduncle $2-3 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels 2-3 mm long; ovary 3-4 mm long; sepals light yellow, glabrous, free, the dorsal sepal elliptical, acute, $10-15 \mathrm{~mm}$ long, $4-5 \mathrm{~mm}$ wide, 5 -veined, the lateral sepals elliptical, slightly oblique, acute, $10-15 \mathrm{~mm}$ long, $4-5 \mathrm{~mm}$ wide, 5 -veined; petals similar to the sepals. yellow, elliptical, acute, 9-12 mm long, 3-4 mm wide, 3 - to 5 -veined; lip yellow, suffused with purple or red, glabrous, oblong-trilobed, with erose margins toward the apex, $6-7 \mathrm{~mm}$ long, 4 mm wide, the apex obtuse to truncate, the lobes erect, uncinate, more or less antrorse, rounded at the tip, below the middle, the disc shallowly concave between a pair of calli on the middle third, the base broadly truncate, hinged to the free tip of the column-foot; column semiterete, 4 mm long, with the anther subapical and stigma ventral.

PERU: Loreto: Pumayacu, between Balsapuerto and Moyabamba, 600-1200 m, Aug.-Sept. 1933, G. Klug 0.15 (Holotype of $O$. peruviana: AMES; Isotypes: K, US), C. Luer illustr. 21357.
Cajamarca: Huarango, Caserio el Porvenir, alt. $1200 \mathrm{~m}, 29$ May 2006, J. Perea \& V. Flores 2375 (MO). Huánuco: Leoncio Prado, Tingo Maria to Carpish, alt. 950 m, 2 Dec. 1988, E. Jara P. ex Bennett 4252 (MO).
Amazonas: Bagua, Imaza, Aguaruna Putuim, alt. 700-820 m, 23 Sept. 1994, C. Diaz, A. Peña \& P. Atamain 7203 (MO, SEL); Tayu Mujaji, Wawas, alt. 800 m, R. Rojas et al. 415 (MO, SEL).
Cajamarca: San Ignacio, Huarango, alt. 1640 m, 29 Apr. 2006, E. Ortiz \& J. Perea 1457 (MO). San Martin: Zepelacio, near Moyabamba, alt. 1100 m, May 1934, G. Klug 3637 (K).
ECUADOR: Morona-Santiago: below Chigüinda, alt. 1600 m , flowered in cultivation at Ecuagenera, Dec. 2001, A. Hirtz 7815 (MO).
Zamora-Chinchipe: Río Nangaritza valley, alt. 850-930 m, 31 July 1993, A. Gentry 80957 (MO); above Zamora, road to Podocarpus National Park, alt. 1000 m, 24 Jan. 1992, C. Luer, J. Luer, A. Hirtz, A. \& P. Jesup 16141 (MO).

Closely allied to Octomeria grandiflora Lindl., this species is the giant of the genus, but it may be little more than an exceptionally large vegetative variation. The rhizome is thick and ascending or caespitose, while O. grandiflora is densely caespitose without a thickened rhizome. The ramicaul sometimes reaches 40 centimeters in height, and the narrowly ovate, acute leaf, can add another 30 centimeters. The large flowers are closely resemble those of the variable O. grandiflora with sepals over 1 centimeter long, and a large lip with uncinate lateral lobes. Large specimens of $O$. grandiflora may grade into $O$. peruviana, which leaves the identification of intermediate collections to personal judgement.

Octomeria portillae Luer \& Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 235, 2004.
Ety.: Named for José Portilla, proprietor of Ecuagenera, Gualaceo, Ecuador, in whose collection this species was discovered.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, terete, subacute, $4-5 \mathrm{~cm}$ long, enclosed by 5 tubular sheaths that are soon shredded. Leaf erect, coriaceous, narrowly elliptical, acute, $4-5 \mathrm{~cm}$ long, 0.6 cm wide, narrowed below into an ill-defined petiole. Inflorescence a single, yellow flower produced successively by a pedicel less than 1 mm long, at the apex of the ramicaul; floral bracts imbricating, 2 mm long; pedicels 2 mm long; ovary 1.5 mm long; sepals free, membranous, glabrous, the dorsal sepal elliptical-ovate, subacute, 3.5 mm long, 1.5 mm wide, 3 -veined, the lateral sepals oblong, oblique, subacute, $3-4 \mathrm{~mm}$ long, 1.5 mm wide, 3 -veined, borne more or less parallel; petals elliptical, subacute, 3.25 mm long, 1.5 mm wide, 3 -veined; lip ovate-trilobed, glabrous, 2.5 mm long, 2 mm wide expanded, the lateral lobes erect, low, broadly rounded, below the middle, the apical lobe ovate, obtuse to subtruncate, the disc with a pair of lamellate calli on the middle third, the base broad, shortly unguiculate, hinged to the column-foot; column terete, 1.5 mm long, the anther apical, the stigma ventral.

ECUADOR: Zamora-Chinchipe: Cordillera del Condor, near Paquisha, alt. 1500 m , cultivated at Ecuagenera, Gualaceo, 10 Nov. 2001, A. Hirtz 7894 (Holotype of O. portillae: MO), C. Luer illustr. 20226.

This species from the Cordillera del Condor in eastern Ecuador is similar in size florally and vegetatively to Octomeria parvula Schweinf. of the Guyanas and Amazonian Venezuela and Colombia. Although it could be a geographical variation of $O$. parvula, it differs with a broader lip with low, rounded, lateral lobes and a short, broad claw. In the few, poorly preserved flowers of $O$. parvula available, the lip is narrower with erect, lateral lobes, and a narrower, longer claw,

Octomeria pygmaea C.Schweinf., Bot. Mus. Leafl. 14: 53, 1949.
Ety.: From the Latin pygmaeus, "pygmy-like," referring to the minute habit.
Plant minute, epiphytic, shortly repent, the rhizome stout, $0.5-1 \mathrm{~mm}$ long between ramicauls; roots fleshy. Ramicauls proportionately stout, erect, terete, 1-2 mm long, enclosed by 2 thin, ribbed, tubular sheaths. Leaf erect, thickly coriaceous, elliptical, acute to subacute, 5-6 mm long, 2-2.5 cm wide, cuneate below into a petiole ca. 0.5 mm long. Inflorescence a single flower produced successively in a fascicle, borne by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts 1.5 mm long;
pedicels 1.5 mm long; ovary 0.5 mm long; sepals light yellow, free, glabrous, elliptical, acute, the dorsal sepal 2.5 mm long, 1 mm wide, faintly 3 -veined, the lateral sepals oblique, 2.5 mm long, 1.75 mm wide, faintly 3-veined; petals light yellow, ovate, acute, acuminate, 2 mm long, 1.5 mm wide, faintly 1 -veined; lip yellow, subobovate-trilobed, glabrous, 2.5 mm long, 2 mm wide across lobes expanded, the apex truncate, narrowed at the middle to the lateral lobes, the lateral lobes erect, broadly uncinate, antrorse, occupying the lower half of the lip, the disc shallowly sulcate between a pair of calli on the lower half, the base truncate, hinged to a long column-foot; column stout, semiterete, 0.5 mm long, the foot 0.75 mm long, with the anther sub apical and stigma ventral.

VENEZUELA: Amazonas: Upper Río Negro drainage-area, Río Dimití, 12-19 May 1948, R.E. Schultes \& F. López 10003 (Holotype of O. pygmaea: AMES 65206), C. Luer illustr. 21362.

This tiny species and Octomeria romerorum Carnevali \& I.Ramírez are the two smallest species of the genus, their leaves being of similar size and shape. Both species occur in Amazonian Venezuela. The sepals and petals of $O$. pygmaea are acute, and the lip is three-lobed, somewhat differently shaped from the figure by Elmer Smith in the original publication. The middle lobe is obcuneate and truncate, while the lateral lobes are broadly uncinate.

Octomeria robusta Rchb.f. \& Warm., Otia bot. Hamburg. 2: 93, 8 Aug. 1881.
Ety.: From the Latin robustus, "robust," referring to the habit.
Syn.: Octomeria boliviensis Rolfe, Bull. N.Y. Bot. Gard. 4: 452, 1907.
Ety.: Named for the country of origin.
Plant medium to large, epiphytic, ascending to shortly repent or caespitose, the rhizome stout, 5-10 mm between ramicauls; roots slender. Ramicauls stout, erect, terete, $6-22 \mathrm{~cm}$ long, enclosed by 4-6 early-shredded, deciduous, tubular sheaths. Leaf erect, coriaceous, elliptical, acute, $7-16 \mathrm{~cm}$ long, $1-2.5$ cm wide, cuneate below into a petiolate $1-1.5 \mathrm{~cm}$ long. Inflorescence a single or a few flowers produced successively by peduncles $1-2 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts $3-4 \mathrm{~mm}$ long; pedicels 3-5 mm long; ovary 3-4 mm long; sepals white or pale rose, glabrous, free, the dorsal sepal ellipticalovate, acute, 11-12 mm long, 4-5 mm wide, 5-7-veined, the lateral sepals elliptical-ovate, slightly oblique, acute, $10-11 \mathrm{~mm}$ long, $3.5-5 \mathrm{~mm}$ wide, $4-5$-veined; petals white to rose, narrowly ovate, acute, 9 10 mm long, $3-4.5 \mathrm{~mm}$ wide, 3-5-veined; lip white or yellow, marked with purple, glabrous, oblongtrilobed, $7-8 \mathrm{~mm}$ long, $4-4.5 \mathrm{~mm}$ wide expanded, the lateral lobes erect, low, obtusely to subacutely angled on anterior margin, below the middle, the anterior lobe ovate, with minutely erose margins, the apex truncate, more or less slightly retuse, the disc shallowly concave between a pair of parallel calli on the middle third, the base broadly truncate, hinged to the free tip of the column-foot; column white to red-purple, semiterete, 4 mm long, with the anther subapical and stigma ventral.
BRAZIL: Minas Gerais: Lagoa Santa, July 1863 - Apr. 1866, E. Warming s.n. (Holotype of O. robusta: W).

BOLIVIA: La Paz: Yungas, Coripati, 1894, M. Bang 2185 (holotype of O. boliviensis: AMES; Isotypes: F, M, MO, W), C. Luer illustr. 21386; Hda. Simaco, on way to Tipuani, alt. 1400 m, Feb. 1920, O. Buchtien 5044 (AMES); Mapiri region, San Carlos, alt. 600 m, Mar. 1927, O. Buchtien 563 (AMES); Larecaja, between Guanay and Tipuani, alt. 1200 m, 23 Jan. 1983, C. Luer, J. Luer \& R. Vásquez 8691 (SEL); Nor Yungas, near Coroico, alt. 1800 m , collected Aug. 1991, cultuvated in Quito by A. Hirtz 5790 (MO), C. Luer illustr. 21372; Sud Yungas, Alto Beni, alt. 1150 m, 14 Sept. 1999, T. Krömer \& C. Acebey 799 (LPB, SEL); Parque Nacional Madidi, refugio Chalalán, campamento Estaban, alt. $450 \mathrm{~m}, 20$ Apr. 2000, T. Krömer \& C. Acebey 1018 (LPB, SEL).
PERU: San Martín: Zepelacio, near Moyabamba, alt. 1100 m, May 1934, G. Klug 3637 (AMES).
ECUADOR: Napo: cleared forest 14 km north of Archidona, alt. ca. $1000 \mathrm{~m}, 27$ July 1975, flowered at SEL, Dec. 1975, C. Luer, G. Luer \& S. Wilhelm 626 (MO).
Morona-Santiago: new road between Mendez and Morona, alt. 950 m, 19 Jan. 1989, A. Hirtz, A. Andreetta \& S. Ortega 4119 (MO), C. Luer illustr. 14416.
Zamora-Chinchipe: Cordillera del Condor, between Los Encuentros and Paquisha Military Camp, alt. 1000 m , collected by F L Stevenson, cultivated at Chamblee, GA, 14 Oct. 1990, F L Stevenson 90-10146 (MO), C. Luer illustr. 21373.

This large species, distributed in the mountains from Ecuador into Brazil, is characterized by a robust, shortly repent or caespitose habit; elliptical, petiolate leaves; and large flowers with the five- or seven-veined sepals about a centimeter long. The lateral lobes of the lip are low and subacutely to obtusely angled on the anterior margin, while the anterior lobe is ovate, truncate, and minutely erose. A pair of calli extends forward from the lateral lobes, all as seen in a type A lip.

Octomeria romerorum Carnevali \& I.Ramírez, Ann. Missouri Bot. Gard. 77(3): 551, fig. 2, 1990.
Ety.: Named in honor of Dr. and Mrs. Gustavo Romero.
Plant very small, epiphytic, repent, the rhizome stout, 2-3 mm between ramicauls, roots slender. Ramicauls proportionately stout, erect, ca. 1 mm long, enclosed by a membranous, tubular sheath. Leaf erect to suberect, thickly coriaceous, elliptical, subacute to obtuse, 4-6 mm long, $2-3 \mathrm{~mm}$ wide, cuneate below to the base. Inflorescence a single, successive flower; peduncles less than 1 mm long, pedicels 3 mm long; floral bracts 2 mm long, borne from the apex of the ramicaul; ovary 6 mm long; sepals glabrous, membranous, the sepals narrowly ovate, narrowly obtuse, free, the dorsal sepal 3 mm long, 1.2 mm wide, faintly 3 -veined, the lateral sepals 3 mm long, 1 mm wide, faintly 3 -veined; petals narrowly ovate, acute, 2.5 mm long, 0.8 mm wide, faintly 3-veined; lip type C , ovoid, subtrilobed, thick, the apex acute, 1.6 mm long, 1 mm wide unexpanded, with erect, rounded, marginal lobes below the middle, the disc shallowly concave, microscopically pubescent, the base truncate, attached to the column-foot; column semiterete, 0.5 mm long, the foot equally short, the anther and stigma subapical.

VENEZUELA: Amazonas: Atures, Río Gavilan, alt. 700-1000 m, 14 July 1987, G.A. Romero, F.J. Guánchez \& E. Gutiérrez 1324 (Holotype of O. romerorum: VEN; Isotypes: AMES, K, MO, TFAV), C. Luer illustr. 19127.

This rare, minute, creeping species, known only from the original collection, is not related to any known species. The proportionately thick rhizome bears ramicauls less than one millimeter long with tiny, thick, elliptical leaves about five millimeters long, and a single flower from the base of a leaf. The sepals and petals are ovate and free. The ovoid lip is convave between broadly rounded marginal lobes.

Octomeria rotundata Luer \& Hirtz, Selbyana 22: 117-119, 2001.
Ety.: From the Latin rotundatus, "rounded," referring to the subcircular sepals and petals.
Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls stout, erect, terete, 4-8 cm long, enclosed by 4-8 tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, acute, 5-7.5 cm long, $1-1.2 \mathrm{~cm}$ wide, cuneate below into a subpetiolate base. Inflorescence a single flower produced successively by abbreviated peduncles 2 mm long, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary 2 mm long; sepals translucent pale rose, glabrous, free, the dorsal sepal broadly elliptical, obtuse, 5 mm long, 3 mm wide, 3 -veined, the lateral sepals broadly elliptical, obtuse, overlapping, 6 mm long, 3.3 mm wide, 3 -veined; petals colored as the sepals, broadly elliptical, obtuse, overlapping the sepals, 5 mm long, 3 mm wide, 3 -veined; lip type B, pale rose, glabrous, broadly cordate, 2 mm long, 2 mm wide, with oblong, basal lobes flanking the column, acutely deflexed upon itself above the base between the lobes, the apex broadly rounded, smooth, the disc convex without calli, the deflexed base hinged to the tip of the column-foot; column yellow, stout, semiterete, 1.5 mm long, with the anther and stigma subapical.

ECUADOR: Morona-Santiago: Cordillera del Cutucú, between Mendez and Morona, alt. $950 \mathrm{~m}, 18$ Jan. 1989, C. Luer, J. Luer, A. \& P. Jesup, A. Hirtz \& S. Ortega 13986 (Holotype of O. rotundata: MO).

Octomeria rotundata is known only from the original collection from eastern Ecuador at a relatively low altitude. The caespitose habit of medium size with elliptcal leaves is not distinctive. The sepals and petals are broadly elliptical and overlap toward their bases. The lip is type C with the claw acutely deflexed from below the middle of a larger, broadly ovate blade. Elongated, rounded basal angles flank the column.

Octomeria sarthouae Luer, Bull. Mus. Natl. Hist. Nat., B, Adansonia 1-2: 47, 1991.
Ety.: Named in honor of Corinne Sarthou of the University Pierre et Marie Curie, Paris, who first discovered this species.
Plant small, epiphytic, caespitose; roots slender. Secondary stems slender, erect, 1-3 cm long, enclosed by 3-4 ribbed, tubular, fugacious sheaths. Leaf erect, thickly coriaceous, narrowly elliptical, acute, $15-35 \mathrm{~mm}$ long, $2.5-4.5 \mathrm{~mm}$ wide, narrowed below into a petiole 2-3 mm long. Inflorescence a congested fascicle of successive, single flowers, near the apex of the secondary stem, the peduncles less
than 1 mm long; floral bracts $1-1.5 \mathrm{~mm}$ long; pedicels $1-1.5 \mathrm{~mm}$ long; ovary 1.5 mm long; sepals free, purple, glabrous, ovate, acute, 1 -veined, the dorsal sepal 3 mm long, 2.2 mm wide, the lateral sepals oblique, 3.75 mm long, 2 mm wide; petals purple, ovate, acute, 1 -veined, 3 mm long, 1.4 mm wide; lip type $B$, dark purple, subcircular, papillose, fringed, 2 mm long, 2 mm wide, the base cordate with the obtuse basal angles embracing the column above the middle, the disc papillose-verrucose, with a pair of low, smooth, oblong calli from the base, cleft between, the base oblong, acutely deflexed against the blade, continuous with the column-foot; column semiterete, 1.5 mm long, irregular at the apex, the foot short, continuous with the basal portion of the lip.

FRENCH GUYANA: epiphytic in Montagne des Nouragues, Bassin de l'Arataye, 15 Mar. 1989, C. Sarthou 495 (Holotype: P; Isotypes: CAY, MO), C. Luer illustr. 14782; Sommet Sud du Pic Matecho, alt. $580 \mathrm{~m}, 21$ Jan. 1980. J.J. de Granville 3324 (CAY, SEL).

This species, apparently endemic in French Guyana, is distinguished by the small habit with thick, narrowly elliptical leaves about as long as the secondary stems. The inflorescence is a congested succession of small, short-stemmed, purple flowers produced from below the base of the leaf. The sepals are free, ovate, acute, and one-veined. The petals are similar. The lip is round with a prominently fringed margin. The basal angles of the lip embrace the column, while the base is acutely deflexed against the back of blade.

This species is closely related to the larger Octomeria splendida Garay \& Dunst. of neighboring Venezuela, differing mainly in the deeply fringed, papillose lip. No pollinia were present with the type of Sarthou 495, but in O. splendida only six pollinia are present.

Octomeria scirpoidea (Poepp. \& Endl.) Rchb.f., Bot. Zeitung (Berlin) 10: 856, 1852.

Bas.: Aspegrenia scirpoidea Poepp. \& Endl., Nov. Gen. Sp. Pl.(Poeppig \& Endlicher), 2: 12, tab. 116, 1836.
Ety.: From the Latin scirpoideus, "rush-like," referring to the slender, terete leaves.
Syn.: Octomeria brevifolia Cogn., Fl. Bras. 3(4): 643, 1896.
Ety: From the Latin brevifolius, "short-leaved," referring to the foliage.
Syn.: Octomeria tenuis Schltr., Repert. Spec. Nov. Regni Veg. 10: 455, 1912.
Ety.: From the Latin tenuis, "thin," referring to the habit.
Syn.: Octomeria brachypetala Schltr., Beih. Bot. Centralbl. 42(2): 92, 1925.
Ety.: From the Greek brachypetalus, "short-petaled," referring to slightly shorter petals.
Plant small to medium in size, epiphytic, caespitose; roots thickly fleshy. Ramicauls slender, erect, terete, bare above basal sheaths, sometimes slightly compressed above, 5-18 cm long, 1-1.5 mm wide, enclosed by a close, tubular sheath $1-5 \mathrm{~cm}$ long, from near the base and another, short sheath at the base. Leaf erect, terete, narrowly linear, slightly channeled, acute, $4-8 \mathrm{~cm}$ long, 2 wide, 2 mm thick, continuous below into the sessile base. Inflorescence a single flower produced successively, borne by an abbreviated peduncle ca. 1.5 mm long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels $2-3 \mathrm{~mm}$ long; ovary 3 mm long; sepals light yellow to yellow-orange, glabrous, the dorsal sepal free, ovate, acute, $7-9 \mathrm{~mm}$ long, $2.5-3 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals elliptical, oblong, obtuse, more or less parallel, $6-10 \mathrm{~mm}$ long, $1.5-2.75 \mathrm{~mm}$ wide, 3 -veined, slightly adherent to connate ca. 3 mm at the base; petals light yellow, elliptical-ovate, acute, $5-7.5 \mathrm{~mm}$ long, $1.75-2 \mathrm{~mm}$ wide, 3 -veined; lip yellow, ovate-trilobed, glabrous, $3.5-4 \mathrm{~mm}$ long, $2.5-3 \mathrm{~mm}$ wide, with margins minutely undulate, broadly rounded at the apex, with the lateral lobes basal, large, 1.5 mm long, erect, acutely uncinate, antrorse, the disc shallowly concave between a pair of calli on the basal third, the base broadly truncate, firmly hinged to the tip of the column-foot; column white, semiterete, 2 mm long, the anther apical and the stigma ventral.

PERU: Huánuco: Cuchero, subandean forest, Dec. 1829, E. Poeppig 1581 (Holotype of O. scirpoidea: W); Cerros del Sira, alt. 860 m, 7 July 1969, F. Wolfe 12262 (NA).

San Martin: Mariscal Cáceres, Tocache Nuevo, alt. 700-800 m, 16 Dec. 1972, J. Schunke V, 5740 (NY, SEL); south of Nuevo San Martin, alt. 650 m, 16 July 1982, A. Gentry, D. Smith \& R. Tredwell 37582 (MO).
Pasco: trail to Pichi Palcaso, alt. 800 m , collected by Saul Ruiz, cultivated by Arias, 13 Dec. 2002, $S$. Dalström 2301 (SEL).

Amazonas: Bagua, alt. 600-700 m, 25 Aug. 1986, C. Diaz et al. 7932 (MO, SEL); Imaza, Tayu Mujaji, near Wawas, alt. $1200 \mathrm{~m}, 12$ Oct. 1997, R. Vásquez, J. Lirio \& G. Pitug 24634 (MO, SEL).
BOLIVIA: La Paz: Muñecas, near Consata, 3 Apr. 1981, C. Luer, J. Luer \& R. Vásquez 6003 (SEL); Larecaja, between Guanay and Tipuani, alt. $1200 \mathrm{~m}, 23$ June 1988, C. Luer, J. Luer, R. Vásquez et al. 12921 (MO); Mapiri, near San Antonio, alt. 850 m, Dec. 1907, O. Buchtien 1269 (holotype of O. tenuis lost at B, neotype here designated: C. Luer, J. Luer \& R. Vásquez 6003, SEL).
ECUADOR: Esmeraldas: west of Lita, 27 June 1991, C.H. Dodson, H. van der Werff \& B. Gray 18725 (MO).
Morona-Santiago: near Santiago, alt. 400 m , cultivated at Ecuagenera, Gualaceo, 5 Mar, 2001, C. Luer 19684 (MO).
COLOMBIA: Amazonas: Río Apaporis, Soratama, alt. 250 m, 15 Dec. 1951, H. Garcia-Barriga 14109 (AMES, US).
Chocó: west of Tutenendo, road to Quibdo, alt. 100 m, 12 Aug. 1976, A. Gentry \& M. Fallen 17590 (COL, MO).
Valle del Cauca: Bahia de Buenaventura, Quebrada de San Joaquín, alt. 10 m, Feb. 1946, J. Cuatrecasas 19949 (AMES, COL); Bajo Calima, north of Buenaventura, alt. $50 \mathrm{~m}, 19 \mathrm{Feb} .1983$, A. Gentry \& A. Juncosa 40536 (MO).
Vaupés: Río Vaupés, Pacú, 6 Mar. 1944, R.E. Schultes 5813 (AMES); Río Kuduyari, Yapobodá, 4-6 Oct. 1951, R.E. Schultes \& I. Cabrera 14325 (AMES); Río Apaporis, Raudal de Jirijirimo, alt. ca. 900 ft., 21 Jan. 1952, R.E. Schultes \& I. Cabrera 14925 (AMES).
PANAMA: Colón: Santa Rita Ridge Road, 26 Sept. 1974, S. Mori \& J. Kallunki 2158 (MO).
VENEZUELA: Río Carrao, between Laime's camp and Orchid island, Jan. 1959, G.C.K. Dunsterville 480.

Amazonas: Vaupés: Río Vaupés, alt. unk., 6 Mar. 1944, R.E. Schultes 5813 (AMES); Atures, Serrania Batata, northeast of Salto Colorado, alt. 550 m , Sept. 1989, A. Fernandez, E. Sanoja \& M. Yanez 6326 (MO, PORT); cut forest by IVIC Study Area, alt. 120 m, 3 Dec. 1977, R. Liesner 4145 (MO); northeast of San Carlos de Río Negro, alt. 120 m, 17 Apr. 1979, R. Liesner 6714 (MO).
Bolívar: Gran Sabana, southwest of Karaurin Tepui, alt. 900-1000 m, 27 Apr. 1988, R. Liesner 23919 (MO).
GUYANA: Hyma Hill, Barama River, 4 Apr. 1897, E.F. im Thurn 127 (K); Essequibo River, Moraballi Creek, near Bartica, alt. near sea level, 21 Oct. 1929, N.Y. Sandwith 498 (AMES, K).
FRENCH GUYANA: Montagne de Kaw, alt. 280-300 m, 12 May 1986, C. Luer \& J. Luer (K, MO).
BRAZIL: Amazonas: Río Atapany, B. Rodrigues s.n. [Lectotype of $O$. brevifolia, here designated is Rodrigues's plate, BR, reproduced in Sprunger et al., Iconogr. Orchid. Bresil (Barb.Rodr.) 3: tab. 199, 1996; Paraná de Limão, G. Hübner 64 (holotype of O. brachypetala destroyed at B, neotype here designated: Luer 18171a, MO); near Manaos, Feb. 1902, E. Ule $451 b$ (BR); Pando, Rio Abuna, above confluence of Rio Negro, 16 Nov. 1968, G.T. Prance et al. 8525 (K, NY); Vila Bittencourt, Rio Japurá, alt. $100 \mathrm{~m}, 16$ Nov. 1982, I.L. Amaral et al. 514 (K, Inst. Nac. de Pesquisas da Amaz); Rio Uaupés, Ipanoré, Jan.-Feb. 1948, R.E. Schultes \& F. López 9670 (AMES); on trees at base of Montes Cocui, R. Spruce 3025 (K).
Para: alt. 100 m, collected by J. Baptista, flowered in cultivation in São Paulo, Jan. 1997, by M. Campacci, C. Luer $18171 a$ (MO).

Octomeria scirpoidea was collected in northern Peru by Poeppig in 1829, and was the basis for Aspegrenia, a new genus published by Endlicher in 1836. Reichenbach immediately transferred it to Octomeria. Octomeria brevifolia Cogn., was collected in Amazonian Brazil, presumably by Barbosa Rodrigues, and described by Cogniaux in 1896. The two concepts are characterized by a slender, nearly naked ramicaul terminated by a nearly equally slender, terete leaf distinctly shorter than the ramicaul, and a succession of single flowers. The dorsal sepal and petals are free, ovate and acute, while the lateral sepals are oblong, obtuse, oblique, nearly parallel, and often lightly adherent or connate somewhere in the lower half. The basal lobes of the type A lip are erect and acutely uncinate.

Schlechter described Octomeria brachypetala in 1925 from an Amazonian collection in which the petals were about a millimeter shorter that those of $O$. brevifolia Cogn. All other details being the same, $O$. brachypetala is synonmimized here.In his description of Octomeria tenuis in 1912, Schlechter stated that it was similar to $O$. brevifolia, but declared that the lip was entirely different. His drawing shows the uncinate basal lobes as retrorse, but the lip has been bent backward to cause this distortion. If the lip had been straightened, the lobes would have been antrorse, as seen in $O$. scirpoidea.

Octomeria seegeriana Kraenzl. in Rchb.f., Xenia Orch. 3: 101, tab. 257, 25 Nov. 1892, replacement name for O. robusta Barb.Rodr., Gen. Sp. Orchid., 2: 97, late 1881, nom. illeg. [=tab. 560, reproduced as tab. 185, vol. 3, in Sprunger at al., 1996], not $O$. robusta Rchb.f. \& Warm., 8 Aug. 1881.
Ety.: Named for a Herr Seeger, who with Herr Tropp imported the species from Brazil; from the Latin robustus, "robust," referring to the habit.
Syn.: Octomeria grandiflora var. robusta Cogn., Fl. Bras. 3(4): 606, tab. 123, fig. 1, 1896.
Syn.: Octomeria grandiflora var. seegeriana (Kraenzl.) Cogn., Fl. Bras. 3(4): 606, 1896.
Syn.: Octomeria ruthiana Hoehne, Res. Hist. Secc. Bot. Agron. Inst. Biol. S. Paulo: 145, 1937 (nomen nudum); Arquiv. Bot. Estad. São Paulo 1: 16, 1938.
Ety.: Named for Ruth Sampaio Carvalho, who illustrated the species.
Plant large, epiphytic, repent; roots slender; rhizome stout, $4-5 \mathrm{~mm}$ thick, $1-2 \mathrm{~cm}$ long between ramicauls. Ramicauls relatively stout, ascending, erect, terete, $5-15 \mathrm{~cm}$ long, enclosed by $5-8$ earlyshredded, tubular sheaths. Leaf erect, coriaceous, elliptical, acute, $8-15 \mathrm{~cm}$ long, $1.5-2.5 \mathrm{~cm}$ wide, narrowly cuneate below into a petiole $0.5-1.5 \mathrm{~cm}$ long. Inflorescence usually a single flower produced successively, by a peduncle $2-3 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts $4-6 \mathrm{~mm}$ long; pedicels 3-6 mm long; ovary $3-4 \mathrm{~mm}$ long; sepals pale green or pale yellow, often suffused with rose, glabrous, free, the dorsal sepal elliptical-ovate, acute, $9-14 \mathrm{~mm}$ long, 5 mm wide, 5 -veined, the lateral sepals ovate, slightly oblique, acute, $9-14 \mathrm{~mm}$ long, 5 mm wide, 5 -veined; petals colored as the sepals, ovate, acute, $9-14 \mathrm{~mm}$ long, 3-4.5 mm wide, 5 -veined; lip yellow, marked with purple, glabrous, oblong-trilobed, $5-8 \mathrm{~mm}$ long, $3-4 \mathrm{~mm}$ wide expanded, the lateral lobes erect, oblique, broadly uncinate, subacute to rounded at the tip, antrorse, below the middle, the middle lobe ovate, with erose margins toward the apex, the apex broadly truncate to retuse, sometimes minutely apiculate, the disc shallowly concave between a pair of calli on the middle third, the base broadly truncate, hinged to the free tip of the col-umn-foot; column white to red-purple, semiterete, $4-5 \mathrm{~mm}$ long, with the anther subapical and stigma ventral.

BRAZIL: Without collection data, imported by Seeger \& Tropp, East Dulwich, near London, cultivated at Herrenhausen, Hanover, by $H$. Wendland s.n. (Holotype of $O$. seegeriana destroyed at B; Neotype: $O$. grandiflora Lindl., var. robusta Cogn.).
Rio de Janeiro: Serra do Mar, Barbosa Rodrigues s.n. [syntype lost, lectotype of $O$. robusta Barb.Rodr. here designated: tab. 185, vol. 3, Barb.Rodr., Icon. Orchid. Brésil, orig. illustr. at the Library, Rio de Janeiro Bot. Gard., cited as tab. 560 (unpub.), Barb.Rodr. 1881; Cogn. in Mart., Fl. Bras. 3(4), tab. 123, fig, I., 1896; reprod. in Sprunger et al., 1996, 1: 243, fig. B].
São Paulo; Rio Paraíba, flowered in cultivation in Jard. Bot. São Paulo, Feb. 1934, Serviço de Botânica e Agronomia 37,221 (holotype of O. ruthiana: SP); Comm Geogr. \& Geol. 2536, rec. Löfgren s.n. (BR).
COLOMBIA: Chocó: north of Río Condoto, alt. 120-180 m, 22 Apr. 1939, E.P. Killip 35168 (AMES); Bahía Solano, alt. $100 \mathrm{~m}, 25$ July 1973, R.H. Warner 42 (AMES, MO).
ECUADOR: Morona-Santiago: Cordillera de Cutucú, east of Macas, alt. 800 m , collected and cultivated by Santiago Arévalo, 1 Mar. 2001, C. Luer, J. Luer \& A. Hirtz 19599 (MO); San Juan Bosco, alt. 1200 m, cultivated by Ecuagenera, 2 Feb. 2002, A. Hirtz 8104 (MO).
BOLIVIA: La Paz: Nor Yungas, north of Caranavi toward Alto Beni, alt. 1550 m, 26 Jan. 1988, C. Luer, J. Luer et al. 12948 (MO).

This species, with ramicauls, leaves and flowers very similar to those of caespitose Octomeria grandiflora Lindl., is distinguished from the latter by a thick, repent rhizome. With five-veined dorsal sepals, the morphology of the flowers is unchanged, yet the size varies markedly. Plants from altitudes around 1500 meters above sea level in Ecuador to Bolivia bear large flowers with sepals up to fifteen millimters long, while plants from lower altitudes in western Colombia bear flowers with sepals only about half as long, but all sizes in between are seen.

Octomeria semiconnata C.Schweinf., Amer. Orchid Soc. Bull. 21: 398, 1952.
Ety.: From the Latin semiconnatus, "semiconnate," referring to the deep connation of the lateral sepals.
Plant medium to large in size, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, $5-22 \mathrm{~cm}$ long, enclosed by 4-6 tubular, fragmented sheaths. Leaf erect, thickly coriaceous, narrowly linear-elliptical, channeled, acute, $6-11 \mathrm{~cm}$ long, 3-8 mm wide, continuous below into the sessile base. Inflorescence a single flower produced successively by a peduncle $1-2 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels $2-4 \mathrm{~mm}$ long; ovary 2-3 mm long; sepals yellow-green, glabrous, membranous, the dorsal sepal free, elliptical, acute, $6-11 \mathrm{~mm}$ long, $3-3.5 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals parallel, connate up to half the length and overlapping beyond, creating an oblong-ovate lamina $6-11 \mathrm{~mm}$ long, $5-6.5 \mathrm{~mm}$ wide; petals elliptical, acute, $6-10 \mathrm{~mm}$ long, $1.75-3 \mathrm{~mm}$ wide, 3 -veined; lip yellow or red, glabrous, broadly oblong or ovate-subquadrate, trilobed, 3 mm long, 2 mm wide, with margins minutely irregular, broadly rounded or truncate at the apex, the lateral lobes on the lower third, suberect, low, round, obtuse to rounded, the disc with a pair of oblique calli descending from the lateral lobes, the midvein thickened toward the apex, the base broadly truncate, hinged to the tip of the columnfoot; column white, semiterete, 2 mm long, the anther subapical, the stigma ventral.

PERU: San Martin: Tingo Maria, alt. ca. 860 m , Allard 21398 (Holotype of O. semiconnata: US).
ECUADOR: Morona-Santiago: above Gualaquiza, alt. 1700 m, 26 Dec. 1982, S. Dalström 396 (SEL), C. Luer illustr. 8710; new road between Mendez and Morona, alt. 950 m, 18 Jan. 1989, C. Luer, J. Luer et al. 13985 (MO).
Napo: between Cotunda and Coca, alt. 1000 m, July 1984, A. Hirtz 1863 (MO).
The two collections of this species in Ecuador are larger than the solitary collection known from Peru. Vegetatively similar to Octomeria dalstroemii Luer with long, slender ramicauls and long, slender leaves, this species is characterized by the semiconnation of more or less parallel lateral sepals. The lip is broadly oblong, broadly rounded or truncate at the apex, with proportionately small lateral lobes, and a short pair of oblique calli.

## Octomeria splendida Garay \& Dunst. in Dunst. \& Garay, Venez. Orchid. Ill. 6: 292, 1976. <br> Ety.: From the Latin splendidus, "splendid," referring to properties of the plant.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls relatively stout, erect, 6-7 cm long, enclosed by 4 imbricating, tubular sheaths. Leaf erect, thickly coriaceous with recurved margins, narrowly elliptical, acute, 6-6.5 cm long, 7-9.5 mm wide, narrowly cuneate below into a twisted petiole ca. 0.5 cm long. Inflorescence a single flower produced successively by abbreviated peduncles 1 mm long, at the apex of the ramicaul; floral bracts ca. 2 mm long; pedicels ca. 2 mm long; ovary 1.5 mm long; flowers dark red-purple with yellow-brown edges; sepals glabrous, free, the dorsal sepal ellipticalovate, acute, $3.5-4.5 \mathrm{~mm}$ long, $1.8-2 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals elliptical, oblique, acute, 3.54.5 mm long, 1.75 mm wide, 3 -veined; petals ovate, acute, $2.5-3.4 \mathrm{~mm}$ long, $0.9-1.25 \mathrm{~mm}$ wide, 1 veined; lip type $B$, red-purple, thick, glabrous, subcircular, broadly rounded at the apex, 1.2 mm long, 1.5 mm wide, the margins minutely erose, the disc with a pair of low calli near the middle of the circular blade, acutely deflexed just above the middle into a broad claw nearly as long as the blade, hinged to the rounded tip of the column-foot; column purple, semiterete, 1.5 mm long, with the anther and stigma apical; pollinia 6.

VENEZUELA: Bolivár: Cerro Jaua, G.C.K. Dunsterville 1013 (Holotype of O. splendida: AMES), C. Luer illustr. 19215; Meseta de Sarisariñama, Macizo de Jaua-Sarisariñama, alt. 2000 m, J.A. Steyermark s.n. (AMES).

This species is vegetatively similar to many other species in Octomeria except for the very thick leaves with recurved margins. The dark red-purple flowers are borne by abbreviated pedicels and peduncles only to a millimeter long. The sepals are free, acute and three-veined; the petals are ovate, acute and single-veined. The lip is acutely deflexed near the middle into a circular, minutely erose blade and a broad claw. The column is terete with an apical anther and stigma. Six pollinia in two clusters of three, each pollinium with a minute viscidium, are present.

Octomeria steyermarkii Garay \& Dunst., Venez. Orch. Ill. 3: 204, 1965.
Ety.: Named in honor of Julian A. Steyermark, indefatigable botanist and collector.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-6 cm long, enclosed by 2-3 imbricating, tubular sheaths. Leaf erect, thickly coriaceous, narrowly elliptical-ovate, acute, 2-6 cm long, 0.6 mm wide, to 3 cm long, 1 cm wide, cuneate below into a petiole $1-2 \mathrm{~mm}$ long. Inflorescence a single flower produced successively from a spathe $2-3 \mathrm{~mm}$ long at the apex of the ramicaul, peduncles ca. 1 mm long; floral bracts $2.5-3 \mathrm{~mm}$ long; pedicels $1-2 \mathrm{~mm}$ long; ovary $2-4 \mathrm{~mm}$ long; flowers yellow to dark red-purple; sepals glabrous, the dorsal narrowly ovate, acute, long-attenuate, $2-4 \mathrm{~cm}$ long, 2.25 mm wide, 1 -veined, the lateral sepals narrowly ovate, oblique, acute, long-acuminate, $2-4 \mathrm{~cm}$ long, 1.75 mm wide, 1 -veined, connate basally $2-3 \mathrm{~mm}$; petals narrowly ovate, acute, long-attenuate, $2-3 \mathrm{~cm}$ long, 1.5 mm wide, 1 -veined; lip type C , thick, ovate, $2.5-3 \mathrm{~mm}$ long, $2.25-2.5 \mathrm{~mm}$ wide, the apex obtuse, shortly retuse, the disc broadly rounded and diffusely cellular above the base and below a low pair of calli that converge to near the middle, the base truncate, hinged to the rounded tip of the column-foot; column semiterete, 1.5 mm long, with the anther apical and stigma ventral.
VENEZUELA: Bolívar: Cerro Venamo, southwestern part, alt. $1000 \mathrm{~m}, 27$ Dec. 1963, J.A. Steyermark, G.C.K. \& E. Dunsterville 92207 (Lectotype here designated: AMES); same collection data, J.A. Steyermark, G.C.K. \& E. Dunsterville 92617 (Isotype: AMES); same area, Jan. 1964, G.C.K. Dunsterville 833 (AMES), C. Luer illustr. 19291; 121 Km south of El Dorado, alt. 1280 m , J.A. Steyermark 123683 (SEL, VEN).

This species is vegetatively similar to many other small species in Octomeria, but the flowers are unique. The sepals are long-attenuate, reaching four centimeters in length, and the attenuated petals are nearly as long. The lip is ovate with a retuse tip, and broadly rounded below the middle with the surface diffusely cellular.

Octomeria tapiricataractae G.A.Romero \& Luer, Harvard Pap. Bot. 7(1): 84, 2002.
Ety.: Named for the Tapir Cataracts where the species was collected.
Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $0.6-1.5 \mathrm{~cm}$ long, enclosed by 2-3 loose, tubular, fugacious sheaths. Leaf dark green, suffused with purple above and beneath, erect, thickly coriaceous, narrowly elliptical to narrowly ovate, acute, $10-18 \mathrm{~mm}$ long, $5-6 \mathrm{~mm}$ wide, $2-2.5 \mathrm{~mm}$ thick, cuneate below into a petiole ca. 3 mm long. Inflorescence a single flower produced successively from the apex of the ramicaul, with peduncles 2.5 mm long; floral bracts 2-2.5 mm long; pedicels 2.5 mm long; ovary 1.5 mm long; sepals free, glabrous, membranous, light orange, the dorsal broadly elliptical, obtuse, 2 mm long, 2 mm wide, 3 -veined, the lateral sepals broadly ovate, slightly oblique, obtuse, 1.6 mm long, 1.6 mm wide, 3 -veined, overlapping at the base; petals membranous, broadly ovate, obtuse, 1.6 mm long, 1.3 mm wide, 2-veined; lip type C, yellowish with a central, reddish, triangular spot, thick, transversely subquadrangular, 0.5 mm long, 0.9 mm wide, the apex broadly rounded, with obtuse, lateral angles, the disc with a pair of oblique, converging calli from the marginal angles, the base broadly truncate, firmly hinged to the tip of the column-foot; column conical, 0.5 mm long, with the anther apical and stigma ventral.

VENEZUELA: Amazonas: Munic. Autana, Tapir Cataracts, alt. 1546 m, 2000, G.A. Romero, C. Gomez \& L.M. Campbell 3279 (Holotype: VEN; Isotypes: AMES, TFAV), C. Luer illustr. 20052.

This tiny species of Octomeria is known only from the type collection from Amazonian Venezuela. The little, narrow, purplish leaf is thickly coriaceous. The broadly obtuse, floral parts are less than two millimeters long, The lip is type C, broader than long, with a broadly rounded apex between obtuse, lareral angles on either side, with a pair of oblique calli converging from the marginal angles to above the apical margin.

Octomeria taracuana Schltr., Beih. Bot. Centralbl. 47(2): 93, 1925.
Ety.: Named for Taracua, the Amazonian locality where the species was collected.
Plant small to medium in size, epiphytic, caespitose; roots thick. Ramicauls slender, $2-6 \mathrm{~cm}$ long, with 2-3 imbricating, tubular sheaths. Leaf erect, thick, semiterete, channeled, linear, acute, 2-10 cm long, $2-3 \mathrm{~mm}$ wide, narrowed below into the sessile base. Inflorescence a single flower produced successively, from a spathe $2-3 \mathrm{~mm}$ long near the apex of the ramicaul; peduncle $1-2 \mathrm{~mm}$ long; pedicel 3 mm long; floral bract $2.5-3 \mathrm{~mm}$ long; ovary 2.5 mm long; sepals yellowish white, with or without red
veins, free, glabrous, the dorsal sepal elliptical-ovate, narrowly obtuse, $5.5-9 \mathrm{~mm}$ long, $1.75-2.5 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals similar, slightly oblique, $5.5-8 \mathrm{~mm}$ long, $1.8-2.2 \mathrm{~mm}$ wide, 3 -veined; petals similar, narrowly ovate, acute, 5-7 mm long, 1.5-1.7 mm wide, 3-veined; lip yellow, more or less suffused with purple, deeply trilobed, $3.5-5 \mathrm{~mm}$ long, 2 mm wide unexpanded, the lateral lobes above the base, erect, antrorse, falcate, acute, the middle lobe oblong-obovate, broadly rounded at the apex with irregular egdes, the disc with a pair of low, oblique calli on the lower third, the base truncate, hinged to the tip of the column-foot; column semiterete, 2 mm long, with the anther apical and the stigma ventral.

BRAZIL: Amazonas: Alto Amazonas, Taracua, G. Hübner 177 (Holotype destroyed at B, Neotype here designated: G.A. Romero 3219A, TFAV).
VENEZUELA: Amazonas: Munic. Autónomo Maroa, Río Temi, Lago Budara, 26 Oct. 1998, G.A. Romero, C. Gómez, L.M. Campbell \& G. Gerlach 3219A (TFAV, AMES), C. Luer illustr. 19214.

This small species of Octomeria is characterized by slender ramicauls and long, slender semiterete leaves. The sepals and petals are narrowly elliptical, acute, and more or less striped in red. The lip is deeply trilobed with acute, falcate lobes above the base.

Octomeria tridentata Lindl., Edwards’s Bot. Reg. 25 (Misc.): 35, 1839.
Ety.: From the Latin tridentatus, "tridentate," referring to the apex of the lip.
Syn.: Octomeria surinamensis H.Focke, Tijdschr. Wis-Natuurk. Wetensch, Eerste Kl. Konti Ned. Inst. 2: 200, 1849.
Ety.: Named for Suriname, the country where the species was collected.
Syn.: Octomeria petulans Rchb.f., Hamburger Garten-Blumenzeitung 15: 59, 1859.
Ety.: From the Latin petulans, "pert," Reichenbach's opinion of the plant.
Syn.: Octomeria xanthina Barb.Rodr., Vellosia, ed. 2, 1: 121, 1891.
Ety.: From the Greek xanthos, "yellow," referring to the flower.
Plant medium in size, epiphytic, caespitose to shortly ascending; roots slender. Ramicauls stout, erect, terete, $5-15 \mathrm{~cm}$ long, enclosed by 5-6 early-shredded, tubular sheaths. Leaf erect, coriaceous, narrowly elliptical to narrowly elliptical-oblong, acute, $5-15 \mathrm{~cm}$ long, $1-2 \mathrm{~cm}$ wide, cuneate below into a petiole ca. 1 cm long. Inflorescence a single flower produced successively, or several flowers produced simultaneously by peduncles $1-2 \mathrm{~mm}$ long, at the apex of the ramicaul; floral bracts $2-3 \mathrm{~mm}$ long; pedicels 2-3 mm long; ovary 3 mm long; sepals white to yellow, glabrous, free, the dorsal sepal ellipticalovate, acute, $7-8 \mathrm{~mm}$ long, $3-4 \mathrm{~mm}$ wide, 5 -veined, the lateral sepals elliptical-ovate, slightly oblique, acute, $7-8 \mathrm{~mm}$ long, $3-4 \mathrm{~mm}$ wide, 5 -veined; petals colored as the sepals, elliptical, acute, 6-7 mm long, $2.5-3 \mathrm{~mm}$ wide, 3 - or 5 -veined; lip yellow, often marked with orange or red-purple, glabrous, oblongtrilobed, 5-6 mm long, 3-4 mm wide expanded, the lateral lobes erect, oblique, broadly uncinate, antrorse, subacute to rounded at the tip, below the middle, the apical lobe subquadrate, diagonally truncate to retuse, sometimes apiculate, more or less with erose margins, the disc shallowly concave between a pair of calli on the middle third, the base broadly truncate, hinged to the free tip of the column-foot; column white to red-purple, semiterete, 3 mm long, with the anther subapical and stigma ventral. Selected collections from many:
GUYANA: Demerara, Loddiges s.n. (Holotype of O. tridentata: K), C. Luer illustr. 21388; Bartica, Nov. 1886, G.S. Jenman 2526 (K); Arakaka, Barama River, 23 Apr. 1897, E.F. im Thurn 155 (K); 29 Nov. 1897, E.F. im Thurn 228 (K); Essequibo River, Moraballi Creek, near Bartica, near sea level, 11 Sept. 1929, N.Y. Sandwith 233, 234 (K); Essequibo River, Labbakabra Creek, 24 Aug. 1937, N.Y. Sandwith 1183 (AMES, K); Marowijine River, 18 July 1965, D. Hugh-Jones 66 (K); Upper Demirara region, Mabura Hill, alt. 100-200 m, 16 Sept. 1986, J.J. Pipoly \& R. Boyan 8506 (BRG, MO, NY, SEL, US).
SURINAME: without data, H.Focke 64 (holotype of O. surinamensis: W); Eripis Perica, Wullschlegel 1595 (BR, W); near Mariepusten, May 1846 Kegel 1427 (BR, W); Tafelberg, Lisa Kreek Savanah, alt. 600-700 m, 27 June 1998, T. Hawkins 1822 (MO, SEL).
FRENCH GUYANA: Piste St. Elie, alt. 100 m, 13 May 1986, C. Luer, J. Luer \& D. Barthelemy 12238 (MO).
TRINIDAD: without locality, 6 Jan. 1927, W.E. Broadway 6515 (AMES); Houtt. Gand. Apr. 1848, Kegel s.n. (W).
NICARAGUA: Chontales: Lake Nicaragua, Volcan Madera, Isla Ometepe, alt 3,900 ft., A. Heller 8272, (SEL).
VENEZUELA: Amazonas: Atures, Serranía Batata, Caño Colorado, alt. 550 m , Sept. 1989. E. SandjaAngel 3163 (MO, PORT); Río Negro, Cerro de Neblina, alt. 140 m, 13 Mar. 1984, R. Liesner 16566A (MO).
Bolívar: 93 km south of El Dorado, July 1955, G.C.K. Dunsterville s.n,; Sierra Ichún, near Salto María Espuma, alt. 500-625 m, 29 Dec. 1961, J.A. Steyermark 90426 (AMES).
Zulia: Sierra de Perijá, alt. 1550 m, Apr. 1972, G.C.K. Dunsterville 1813.

COLOMBIA: Antioquia: Cocorná, vereda La Piñuela, alt. 700-1000 m, 6 July 1991, D. Giraldo C. 360 (HUA, MO).
Amazonas: Meta, east of Villavicencia, flowered in cultivation by R. Escobar, 7 May 1989, C. Luer 14110 (MO); Vaupés, Río Apaporis, alt. 250 m, 27 Aug. 1951, R.E. Schultes \& I. Cabrera 13780 (AMES); Río Apaporis, Soratama, alt. ca. 900 ft., Jan. 1952, R.E. Schultes \& I. Cabrera 19839 (AMES), C. Luer illustr. 21355; Río Kuduyarí, Yapobodá, Apr. 1953, R.E. Schultes \& I. Cabrera 20067 (AMES). Valle del Cauca: La Cumbre, alt. 1800-2100 m, 14 May 1922, F.W. Pennell \& E.P. Killip 5736 (AMES, NY). ECUADOR: Napo: Parqué Nacional Yasuní, Río Daymi, alt. 230 m, 14 Jan. 1988, C.E. Cerón M. 3336 (MO).
Morona-Santiago: south of Gualaquiza, alt. 500 m , Aug. 1975, flowered in cultivation 14 Oct. 1975, C. Luer, G. Luer \& S. Wilhelm 587 (SEL); between Mendez and Morona, alt. 950 m, 19 Jan. 1989, A. Hirtz, A. Andreetta \& S. Ortega 4119 (MO).

Zamora-Chinchipe: Cordillera del Condor, Patchicutza, alt. 1200-1500 m, June 1991, A. Hirtz 5523 (MO); Río Jamboe, south of Zamora, alt. 1550 m, 22 Jan. 1992, C. Luer, J. Luer, A. Hirtz, A. \& P. Jesup 16097 (MO).
PERU: Amazonas: Bagua, Chiriaco to Puenta Venezuela, alt. 1,050-2,400 ft., 5 Nov. 1978, P. Barbour 4452 (F, MO); Condorcanqui, Mamayaque, alt. 600-800 m, 14 Feb. 1997, E. Rodriguez et al. 1516 (MO, SEL); Imaza, Aguaruna de Putuim, alt. 500 m, 25 Aug. 1984, C. Diaz et al. 7034 (MO).
Loreto: vicinity of Iquitos, alt. 100 m , July 1937, G. Klug 10105 (AMES); region of Iquitos, 15 Oct. 1964, C.H. Dodson 2754 (MO); Requena, Jenaro Herrera, Río Yavari, alt. 20 m, 25 Aug. 1976, J. Revilla 1200 (MO); Iquitos, Maynas, alt. 120 m, 25 Nov. 1985, M. Rimachi Y. 8120 (IBE, MO); Coronel Portillo, Padre Abad, alt. 295 m, 25 Oct. 1972, J. Schunke V. 5459 (SEL).
San Martin: Mariscal Cáceres, alt. 350 m, 2 Aug. 1973, J. Schunke V. 6640 (MO, SEL).
BRAZIL: Amazonas: near Panuré, at Rio Maupés, Oct. 1852-Jan. 1853, R. Spruce 2523 (neotype of $O$. petulans here designated: W; isotypes: BR, K); Rio Yauapery, Puerto Tauakuera, Barbosa Rodrigues s.n., [syntype lost; lectotype of $O$. xanthina here designated, fig. E, tab. 200, vol. 3, Barb.Rodr., Icon. Orchid. Brésil (as "xhantina"), orig. illustr. at the Library of the Rio de Janeiro Bot. Gard., syntype cited as tab. 862 (unpub.) in Velosia, ed. 2, 1: 121, 1891; Cogn. in Mart., Fl. Bras. 3(4), tab. 123, fig. II, 1896; reprod. in Sprunger et al., 1996, vol. 1: 258, fig. E (as "petulans")]; Rio Yauapery, Puerto Tauakuera, $B$. Rodrigues s.n., syntype lost; lectotype of $O$. xanthina, here designated, tab. 842, in Velosia, ed. 2, 1: 121, 1881, between Manaus and Caracaraí, Campina, 29 Aug. 1979, J.L. Zarucchi 2516 (MO, NY).

Octomeria tridentata, is a frequent, widely distributed and variable species in northern South America that is commonly known as Octomeria surinamensis H.Focke. It has often been regarded as a synonym of $O$. grandiflora Lindl., because of similar lips with large, uncinate lateral lobes, but it differs from $O$. grandiflora by a smaller habit with narrower, more or less elliptical-oblong leaves, and smaller flowers with sepals less than a centimeter long. Some collections with intermediate features make determinations uncertain. The morphology of the lip of either species is not identical in every flower, even within a population.

Lindley described Octomeria tridentata from a plant apparently cultivated by Loddiges that had been collected in Guyana. The specimen consists of two separate leaves with incomplete ramicauls. The drawing of an unexpanded lip is attached to the sheet, but it was not correctly interpreted. The leaf to the left, designated the holotype, is narrowly elliptical and the single flower remaining was hydrated and drawn, revealing somewhat different details, as illustrated in Fig. 55c. The lateral lobes of the lip are broadly uncinate and antrorse, like those of $O$. surinamensis and the larger-flowered Octomeria grandiflora, and not simply rounded as in the majority of type A lips. The sterile leaf to the right is wider and ovate, and the identity is unknown.

Mounted on the same sheet with the type of Octomeria tridentata, are four specimens of two to four ramicauls each of Wright 654 from Cuba, hence the Cuban plant became mistakenly known as $O$. tridentata. The only species of the genus on the island, it was finally described by Helga Dietrich as $O$. ventii, but it is indistinguishable from the variable $O$, costaricensis Schltr.

Reichenbach described Octomeria petulans from a cultivated plant from the garden of Pécol de Medicine in Paris, but the specimen is missing. A collection by Spruce from Amazonian Brazil is labelled O. petulans in Reichenbach's herbarium at W. Barbosa Rodrigues described Octomeria xanthina also from Amazonian Brazil, citing his own collection, and without mention of another collection. In Cogniaux's treatment of Octomeria xanthina in Mutis's Flora Brasiliensis, the citation of the Spruce collection follows the citation of $O$. xanthina. Cogniaux attributed to $O$. tridentata, a Brazilian collection described as $O$. multiflora by Barbosa Rodriguez (Gen. Sp. Orchid. 2: 98, 1882).

Octomeria valerioi Ames \& C.Schweinf., Schedul. Orchid. 10: 51, 1930.
Ety.: Named for Juvenal Valerio, co-collector of this species.
Plant medium to large in size, epiphytic, repent, the rhizome stout, 5 mm thick, 2 mm to 2 cm long between ramicauls; roots thick. Ramicauls stout, erect, $15-22 \mathrm{~cm}$ long, with 6-7 tubular, early shredded sheaths. Leaf erect, coriaceous, narrowly linear-ovate, acute, $15-25 \mathrm{~cm}$ long, $1.5-2 \mathrm{~cm}$ wide, cuneate below into the subsessile base. Inflorescence usually several, single flowers produced simultaneously in a fascicle, borne by peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts cucullate, 2 mm long; pedicels 2 mm long; ovary $5-6 \mathrm{~mm}$ long; sepals yellow, free, similar, glabrous, the dorsal sepal elliptical-ovate, acute, $6-8 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals oblong-triangular, $6-8$ mm long, 2-2.5 mm wide, 3-veined; petals yellow, elliptical-ovate, acute, $5.5-7 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide, 3 -veined; lip yellow, ovate-trilobed, glabrous, $3.5-4 \mathrm{~mm}$ long, $2.5-3 \mathrm{~mm}$ wide expanded, the lateral lobes erect, broadly rounded, below the middle, the apical lobe ovate with thin margins, erose, undulate, truncate at the apex, often with a decurved apiculum between marginal angles, the disc shallowly concave between a pair of lamellate calli from the lateral lobes, the base truncate, hinged to the free tip of the column-foot; column semiterete, denticulate at the apex, $1.5-2 \mathrm{~mm}$ long, the anther subapical, stigma ventral.

COSTA RICA: Guanacaste: El Silencio, near Tilarán, alt. ca. 750 m, 13 Jan. 1926, P.C. Standley \& J. Valerio 44769 (Holotype of O. valerioi: AMES 33478; Isotypes: K, US); same collection data, P.C. Standley \& J. Valerio 44788, 44817 (AMES).
Heredia: La Selva, 30 Sept. 1985, J.T. Atwood 85-56 (SEL).
Cartago: El Muñeco, south of Navarro, alt. 1400 m, 8 Feb. 1924, P.C. Standley 33885 (AMES); Cachi, alt. $900 \mathrm{~m}, 18$ Apr. 1938, M. Valerio 2597 (AMES); Sector Río Guayabo, El Ceibo, alt. $1100 \mathrm{~m}, 23$ May, 1992, G. Rivera \& Y. Hoonans 1734 (CR, K), C. Luer illustr. 17269.
San José: Parqué Nac. Braulio Carrillo, Sendero La Botella, alt. $750 \mathrm{~m}, 16$ Dec. 1990, S. Ingram \& K. Ferrell-Ingram 709 (AMES, CR, F, K, MO', SEL). Without locality, ca. 1878, A. Endres 1163 (W). NICARAGUA: Jinotega: base of Peña Blanca, alt. 3,000 ft. A.H. Heller 7212 (SEL).
Zelaya: new road to Mina Nueva America, 27 Apr. 1978, W.D. Stevens 8368 (MO, SEL).
Chontales: Lake Nicaragua, Volcan Madera, Isla Ometepe, alt 4,050 ft., A. Heller 8294 (SEL).
PANAMA: Chiriquí: La Fortuna hydroelectric project, alt. 1200-1400 m, 21 Mar. 1978, B. Hammel 2132 (MO).
Veraguas: Río Primero Brazo, northwest of Santa Fe, alt. 700-1200 m, 18 Mar. 1973, T.B. Croat 23161 (MO, SEL); vicinity of the continental divide, northwest of Santa Fe, alt. 650-750 m, 16 Nov. 1974, R.L. Dressler 4852 (MO); near Santa Fe, collected Sept. 1976, flowered in cultivation 4 Oct. 1976, C. Luer \& R.L. Dressler 1241 (SEL).

Darien: Río Morti, drill site 7, alt. 250 m, 18 Sept. 1967, J.A. Duke 14191 (MO).
This species is uncommon but widely distributed through Central America. The first collection known was made by Endres about 1878 from Costa Rica. In 1930, a collection by Standley and Valerio with immature buds was described by Schweinfurth (published by Ames and Schweinfurth) as Octomeria valerioi.

Octomeria valerioi is a usually large species characterized by a stout, repent rhizome with thick, fleshy roots; long ramicauls; long, narrow, acute leaves; and several simultaneous flowers produced in a fascicle, a habit sometimes approached in size by Octomeria costaricensis Schltr. The sepals and petals are also similar to those of sympatric $O$. costaricensis, but the lip of the former is more erose and often with a decurved apiculum at the apex. Intermediate variations make the identity of some collections uncertain.

Octomeria ximenae Luer \& Hirtz, Selbyana 23(1): 33, 2002.
Ety.: Named for Ximena Leon de Hirtz, wife of Alexander C. Hirtz.
Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 12 cm long, enclosed by 5 shredded sheaths. Leaf erect, coriaceous, narrowly linear-elliptical, acute, 18 cm long, 1 cm wide, narrowly cuneate below into a channeled petiole ca. 1 cm long. Inflorescence a successively flowering fascicle of single flowers with several flowers open simultaneously at the apex of the ramicaul; peduncles less than 1 mm long; floral bracts imbricating, ribbed, fragmenting, 2-3 mm long; pedicels 2 mm long; ovary 3 mm long; sepals similar, pale yellow, glabrous, free, overlapping, elliptical, subacute, 8 mm long, 2.5 mm wide, 5 -veined, the lateral sepals slightly oblique; petals light yellow, elliptical, subacute, 7 mm long, 2.75 mm wide, 3 -veined; lip yellow, suffused with red centrally, glabrous, subquadrate-trilobed, 5 mm long, 2.5 mm wide, 3.5 mm wide expanded, the lateral lobes proportionately large on the middle third, erect, antrorse, uncinate, obtuse, the disc shallowly channeled between a pair of calli on the middle third, the anterior lobe subquadrate, broadly truncate, lightly erose, the base also broadly truncate, hinged to the free tip of the column-foot; column slender, semiterete, 3 mm long, with the anther apical and stigma subapical.
ECUADOR: Morona-Santiago: below Chigüinda, alt. 1500 m , cultivated at Ecuagenera, Gualaceo, Dec. 2001, A. Hirtz 7864 (Holotype of O. ximenae: MO), C. Luer illustr. 20074.

This species is characterized by long, narrowly linear-elliptical leaves, distinctly longer than the ramicaul. Flowers are produced successively in a dense fascicle, with several flowers open simultaneously. The five-veined sepals are elliptical and subacute. The lip is subquadrate with large, erect, obtuse, uncinate lateral lobes on the middle third.

Octomeria ximenae differs from $O$. tridentata Lindl. by the proportionately long leaves and a lip with broad lateral lobes that occupy the middle third, reducing the anterior lobe to subquadrate, broader than long.

Octomeria yauaperyensis Barb.Rodr., Vellosia, ed. 2, 1: 122, tab. 837, 1891, as "Yauaperyensis."
Ety.: Named for Rio Yauapery where the species was collected.
Syn.: Octomeria hondurensis Ames, Bot. Mus. Leafl., 1(4): 1-3, fig. s.n. as p. 2, 1933.
Ety.: Named for Honduras, the country of origin.
Syn.: Octomeria complanata C.Schweinf., Bot. Mus. Leafl. 10: 195, 1942.
Ety.: From the Latin complanatus, "flattened," referring to the compressed ramicaul.
Plant small to medium in size for the genus, epiphytic, caespitose, roots slender. Ramicauls stout, rigid, straight, erect, terete below, slightly compressed above, $6-15 \mathrm{~cm}$ long, 3 mm deep, 2 mm wide, enclosed with 3-4 tubular sheaths as well as another above the base. Leaf erect, thickly coriaceous, terete, narrowly linear-ovate, acute, 2-8 cm long, 2.5 wide, 2.5 mm thick, very slighty narrowed below into the sessile base. Inflorescence a single flower produced successively or a few simultaneously in a fascicle, borne by abbreviated peduncles ca. 1 mm long, at the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary 3 mm long; sepals yellow, free, glabrous, the dorsal sepal ovate, acute, $5.5-7 \mathrm{~mm}$ long, $2-3 \mathrm{~mm}$ wide, 3 -veined, the lateral sepals oblong-oblique, subacute, $6-7 \mathrm{~mm}$ long, $1.5-$ 2.5 mm wide, 3 -veined; petals yellow, elliptical-ovate, acute, $4-4.5 \mathrm{~mm}$ long, $1.5-2 \mathrm{~mm}$ wide, 3 -veined; lip yellow, sometimes suffused with red, ovate-trilobed, glabrous, 2-3.5 mm long, $1.5-2.25 \mathrm{~mm}$ wide, with the lateral lobes basal, erect, acutely uncinate, ovate above the base with margins minutely undulate, broadly rounded at the apex, the disc shallowly concave between a pair of calli on the basal third, the base broadly truncate, hinged to the tip of the column-foot; column white, semiterete, 2 mm long, the anther and stigma subapical.
BRAZIL: Amazonas: Rio Chichiuahu and Yauapery, tributaries of Río Negro, B. Rodrigues. Syntype lost; lectotype of $O$. yauaperyensis, here designated, tab. 837, in Velosia, ed. 2, 1: 122, 1881 (reproduced in vol. 3, tab. 200, fig. A. Sprunger et al., 1996: 258; original illustration in the Library of the Rio de Janeiro Bot. Gard.); between Manaus and Caracaraí, Campina, 29 Aug. 1979, J.L. Zarucchi 2516 (MO, NY).
GUYANA: Upper Essequibo River, 2-3 km from Kuyuwini River mouth, alt. 100-200 m, 2 Oct. 1993, W.T. Henkel et al. 3312 (MO, US).

VENEZUELA: Amazonas: San Carlos de Río Negro, alt. 125 m, 17 Apr. 1970, J.A. Steyermark \& G. Bunting 102765 (AMES); above Río Gavilan, 29 May 1987, G. Romero 1311 (IUP, K).

ECUADOR: Napo: Río Jatunjacu, above Shandia, alt. 650 m, 12 Aug. 1991, A. Hirtz \& S. Ortega 5370 (MO).
Morona-Santiago: Cordillera del Cutucú, between Mendez and Morona, alt. 950 m, 17 Jan. 1989, C. Luer, J. Luer, A. Hirtz, A. \& P. Jesup \& S. Ortega 13967 (MO, SEL).
PERU: Loreto: Mishuyacu, near Iquitos, alt 100 m , Oct.-Nov. 1929, G. Klug 741 (holotype of O. complanata: AMES 69087; isotypes: F 650502, US 1455472); Amazon River near Iquitos, 31 Dec. 1964, C.H. Dodson 2764 (SEL); between Andoas and Capahuari Sur, alt. $210 \mathrm{~m}, 13$ Sept. 1979, C. Dias \& N. Jaramillo 1361 (F, MO, SMF).
San Martin: south of Nuevo San Martin, alt. $650 \mathrm{~m}, 16$ July 1982, A. Gentry, D. Smith \& R. Tredwell 37583 (MO).
HONDURAS: Cortez: El Jaral, Lake Yojoa, alt. 2,000 ft., 29 Oct. 1932, J.B. Edwards 304 (holotype of O. hondurensis: AMES 39043).

Octomeria yauaperyensis, comparatively uncommon in Central America and northern South America at low altitudes, is similar to O. scirpoidea Poepp. \& Endl., with which it is widely sympatric. The ramicaul and leaf of $O$. yauaperyensis are thicker and straighter than the thin, more or less bending ramicaul and leaf of $O$. scirpoidea. The proportions of the lengths of the leaves to the lengths of the ramicauls vary from about one-sixth to one-third. The ramicaul of $O$. yauaperyensis is slightly compressed. In both $O$. scirpoidea and $O$. yauaperyensis, the sepals and petals are similar with the petals nearly as large as the sepals. The lobes of the lip of $O$. yauaperyensis are distinctly smaller and broader than those of $O$. scirpoidea.

Octomeria zygoglossa Luer, sp. nov.
Ety.: From the Greek zygoglossa, "a yoke-like tongue," referring to the shape of the lip.
Species haec Octomeriae heleneanae Carnevali \& Delascio similis, sed sepalis majoribus et labello cordato lobis basalibus columnam amplectentibus et basi argute deflexo differt.

Plant small, epiphytic, caespitose, roots slender. Ramicauls slender, erect, terete, $5-8 \mathrm{~cm}$ long, enclosed by 3 close, tubular sheaths. Leaf erect, thickly coriaceous, purple, narrowly elliptical, acute, 35.5 cm long, $5-6 \mathrm{~mm}$ wide, cuneate below into a subpetiolate base. Inflorescence a single flower produced successively by a peduncle ca. 1 mm long, at the base of the leaf; floral bracts 2.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; sepals purple, glabrous, free, the dorsal sepal elliptical-oblong, obtuse, 4 mm long, 2 mm wide, 3 -veined, the lateral sepals similar, shortly overlapping at the base, 4 mm long, 2 mm wide, 3 -veined; petals similar to the sepals, elliptical, subacute, 4 mm long, 1.8 mm wide, 3 veined; lip type B, glabrous, cordate-trilobed, with entire margins, 1.6 mm long, 1.3 mm wide, the apex obtuse, the lobes basal, obtuse, incurved, partially surrounding the column, the disc with the midvein thickened, the base sharply deflexed $180^{\circ}$ against the back of the blade, hinged to the tip of an equally long column-foot; column semiterete, arching, 1 mm long, with the anther subapical and the stigma ventral.

COLOMBIA: Amazonas: Vaupés, Cerro Isibukuri, Río Kananari, altitude not stated, 29 Oct. 1951, R.E. Schultes \& I. Cabrera 14521 (Holotype of O. zygoglossa: AMES, Isotype: COL), C. Luer illustr. 21412.

This species is known only from a collection by Schultes in Amazonian Colombia. Superficially, it resembles Octomeria heleneana Carnevali \& Delascio from Amazonian Venezuela, but differs by having larger, purple flowers, and a cordate lip with elongated, incurved, basal angles that embrace the column. The clawlike base, half as long as the blade, is sharply deflexed against the back of the blade.

Species excluded from Octomeria
Octomeria monetalis Luer = Pleurothallopsis monetalis (Luer) Pridgeon \& M.W. Chase.
Octomeria prostrata H.Stenzel = Atopoglossum prostrata (H.Stenzel) Luer, not Pleurothallis prostrata Lindl.


Fig. 1. Octomeria acicularis


Fig. 3. Octomeria bomboizae


Fig. 2. Octomeria anomala


Fig. 4. Octomeria callosa


Fig. 5a. Octomeria colombiana


Fig. 6. Octomeria concolor


Fig. 5b. Octomeria colombiana


Fig. 7. Octomeria condorensis


Fig. 8. Octomeria connellii


Fig. 10a. Octomeria costaricensis


Fig. 9. Octomeria cordilabia


Fig. 10b. Octomeria costaricensis


Fig. 11. Octomeria dalstroemii


Fig. 13. Octomeria dentifera


Fig. 12. Octomeria deceptrix


Fig. 14. Octomeria diaphana


Fig. 15. Octomeria exigua


Fig. 17. Octomeria gemmula


Fig. 16. Octomeria filifolia


Fig. 18. Octomeria georgei


Fig. 19. Octomeria graminifolia


Fig. 20b. Octomeria grandiflora


Fig. 20a. Octomeria grandiflora


Fig. 21. Octomeria guentheriana


Fig. 22. Octomeria harantiana


Fig. 24. Octomeria hirtzii


Fig. 23. Octomeria heleneana


Fig. 25. Octomeria integrilabia


Fig. 26. Octomeria jauaënsis


Fig. 28. Octomeria longifolia


Fig. 27. Octomeria lancipetala


Fig. 29. Octomeria marsupialis


Fig. 30. Octomeria medinae


Fig. 31b. Octomeria minor


Fig. 31a. Octomeria minor


Fig. 32. Octomeria mocoana


Fig. 33. Octomeria monticola


Fig. 35. Octomeria nana


Fig. 34. Octomeria moscosoae


Fig. 36. Octomeria napoleon


Fig. 37. Octomeria odontoglossides


Fig. 39. Octomeria parvifolia


Fig. 38. Octomeria oncidioides


Fig. 40. Octomeria parvula


Fig. 41. Octomeria peruviana


Fig. 43. Octomeria pygmaea


Fig. 42. Octomeria portillae


Fig. 44. Octomeria robusta Rchb.f. \& Warm.


Fig. 45. Octomeria romerorum


Fig. 47. Octomeria sarthouae


Fig. 46. Octomeria rotundata


Fig. 48. Octomeria scirpoidea


Fig. 49. Octomeria seegeriana


Fig. 51. Octomeria splendida


Fig. 50. Octomeria semiconnata


Fig. 52. Octomeria steyermarkii


Fig. 53. Octomeria tapiricataractii


Fig. 55a. Octomeria tridentata


Fig. 54. Octomeria taracuana


Fig. 55b. Octomeria tridentata


Fig. 56. Octomeria valerioi


Fig. 58. Octomeria yauaperyensis


Fig. 57. Octomeria ximenae


Fig. 59. Octomeria zygoglossa

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# ADDENDA MISCELLANEOUS NEW SPECIES, NEW NAME, AND NEW COMBINATIONS <br> New species: 

Brachionidium carmeniae Luer<br>Brachionidium inkaterrense Luer \& C.Soto<br>Lepanthes clementinensis Luer \& Cornejo<br>Lepanthes cornejoi Luer<br>Lepanthes ephalmatrix Luer \& Hollowell<br>Lepanthes sorayae Luer \& Cornejo<br>Lepanthes stewartiorum Thoerle \& Luer<br>Masdevallia gentianoides Luer \& J.Leathers<br>Masdevallia gerhardii Luer \& Sijm<br>Masdevallia lophina Luer \& Sijm<br>Masdevallia oversteegeniana Luer \& Sijm<br>Masdevallia singeri Luer \& Sijm<br>Octomeria corrigiosa Luer \& Toscano<br>Octomeria fusiformis Luer \& Toscano<br>Octomeria tweediei Luer \& Toscano

Platystele cornejoi Luer
Platystele speckmaieri Luer \& Sijm
Pleurothallopsis rinkei Luer
Porroglossum gerritsenianum Luer \& R.Parsons

Porroglossum oversteegenianum Luer \& Sijm

New name:
Stelis ephalmatrix Luer \& Hollowell
New combinations:
Luzama chaucana (Luer \& Hirtz) Luer
Niphantha gelida (Lindl.) Luer
Niphantha pidax (Luer) Luer
Pleurothallopsis niesseniae (Luer) Luer

Brachionidium carmeniae Luer, sp. nov.
Ety:: Named for Carmen Soto, Coordinadora de Programas Ecológicos en Inkaterra, Machu Picchu.
Species haec Brachionidio tuberculato Lindl. affinis, sed foliis carinatis laceratis ad apicem cum apiculo decurvo differt.

Plant small to medium in size, terrestrial, suberect, up to 10 cm or more tall, the rhizome stout, 2-3 mm thick, $5-10 \mathrm{~mm}$ long between ramicauls, enclosed by 3 tubular, mucronate, scurfy sheaths; roots coarse, from near the base. Ramicauls slender, erect, 3-4 mm long, enclosed by 1-2 similar, tubular, scurfy sheaths. Leaf more or less spreading, coriaceous, elliptical, obtuse with a decurved apiculum, the blade $10-13 \mathrm{~mm}$ long, contracted below into a petiole ca. 1 mm long, $7-9 \mathrm{~mm}$ wide, $5-$ veined, the veins crested and lacerate. Inflorescence a solitary, non-resupinate flower borne by a slender, erect peduncle ca. 15 mm long, with a bract near the middle, from the apex of the ramicaul; floral bract inflated, acute, 4 mm long, enclosing the pedicel and ovary; pedicel 1 mm long, with a filament ca. 3 mm long; ovary 2 mm long; sepals translucent, glabrous, strongly marked with redpurple along the veins, the middle sepal ovate, acute, acuminate, 11 mm long, 4.5 mm wide, 3 -veined, the lateral sepals completely connate into an ovate, acute, acuminate synsepal, 13 mm long, 7 mm wide, 4 -veined; petals translucent, strongly marked with red-purple as the sepals, glabrous, ovate, oblique, acute, acuminate, 11 mm long, 3 mm wide, 3 -veined; lip purple, transversely triangular, obtuse, 1.5 mm long, 3 mm wide, the lateral angles acute, incurved, the margins thickened, the disc with a rounded, microscopically pubescent callus; column stout, 1 mm long; pollinia 8.
PERU: Cusco: Machu Picchu, Quebrada Alccamayo, terrestrial in loose sphagnum moss, alt. 3,000$3,200 \mathrm{~m}$, collected by E. Quispe, R. Ojeda, J. Gutierrez \& B. Arenas, flowered in cultivation by Inkaterra, Oct. 2009, Carmen Soto 5 (Holotype of B. carmeniae: USM), C. Luer illustr. 21496.

Brachionidium carmeniae is apparently endemic in the region around Machu Picchu, where it grows terrestrially in loose sphagnum moss at a high altitude. Brachionidium carmeniae is distinguished by scurfy, cauline sheaths; small, more or less spreading, elliptical leaves with the veins and margins markedly lacerate; translucent ovate, acute and acuminate sepals and petals boldly marked with redpurple along the veins and margins; and a transverse, obtuse lip with thick margins and a solitary, round callus.

Brachionidium inkaterrense Luer \& C.Soto, sp. nov.
Ety.: Named for the Inkaterrae Garden where this species is cultivated.
Species haec Brachionidio eleganti Luer \& Hirtz affinis, sed foliis minute sparsim asperatis, petalis dense ciliatis et labelli lobis oblique uncinatis differt.

Plant small to medium in size, terrestrial, suberect, up to 10 cm or more tall, the rhizome stout, 2-3 mm thick, $5-10 \mathrm{~mm}$ long between ramicauls, enclosed by 3 tubular, mucronate, scurfy sheaths; roots coarse, from near the base. Ramicauls slender, erect, ca. 10 mm long, enclosed by 2 similar, tubular, scurfy sheaths. Leaf more or less spreading, coriaceous, elliptical-oblong, the apex obtuse with a decurved apiculum, the blade $18-20 \mathrm{~mm}$ long, contracted below into a petiole ca. 1 mm long, $11-13 \mathrm{~mm}$ wide, 7 -veined, the veins minutely spiculate. Inflorescence a solitary, non-resupinate flower borne by a slender, erect peduncle $10-15 \mathrm{~mm}$ long, with a bract near the middle, from the apex of the ramicaul; floral bract inflated, acute, 3-5 mm long, enclosing the pedicel and ovary; pedicel 1 mm long, with a filament $3-4 \mathrm{~mm}$ long; ovary 2 mm long; sepals translucent, glabrous, strongly marked with red-purple along the veins, the middle sepal ovate, acute, acuminate, 12 mm long, 5.5 mm wide, 3 -veined, the lateral sepals completely connate into an ovate, acute, acuminate synsepal, 14 mm long, 8 mm wide, 4 -veined; petals translucent, strongly marked with red-purple as the sepals, densely short-ciliate, narrowly ovate, oblique, acute, acuminate, 12 mm long, 4 mm wide, 3 -veined; lip purple, transversely subtriangular, obtuse, 2 mm long, 2.5 mm wide, the lateral angles oblique, uncinate, acute, incurved, the margins smooth, the disc with an elevated, rounded, microscopically pubescent callus; column stout, 1 mm long; pollinia 8 .

PERU: Cusco: Machu Picchu, Quebrada Alccamayo, terrestrial in loose, sphagnum moss, alt. 3,000$3,200 \mathrm{~m}$, collected by E. Quispe, R. Ojeda \& J. Gutierrez, flowered in cultivation by Inkaterra, Oct. 2009, Carmen Soto 6 (Holotype of B. inkaterrense: USM), C. Luer illustr. 21497.

Brachionidium inkaterrense, apparently endemic in the region of Machu Picchu, grows terrestrially in loose, sphagnum moss at a high altitude. It is distinguished by scurfy, cauline sheaths; elliptical-oblong, obtuse, spreading leaves that are sparsely and minutely spiculate, especially along the veins; ovate, acuminate sepals and petals, with the petals densely short-ciliate; and with a central, elevated, round callus of the lip, with lateral angles that are oblique with acute, shortly acuminate tips.

Lepanthes clementinensis Luer \& Cornejo, sp. nov.
Ety.: Named for Hacienda Clementina in the western lowlands where the species was collected.
Planta parva, inflorescentia racemo congesto folio ovato breviore, sepalis ovatis breviter acuminatis, petalis transverse bilobis lobis ad apicem rotundis lobo superiore oblongo lobo inferiore minore triangulare, labelli laminis ellipticis connectivis cuneatis appendice crassa transverse bipartida et columna proportione grande clavellata distinguitur.

Plant small, epiphytic, roots and rhizome unknown. Ramicauls slender, erect, 6.5 cm long, enclosed by 10 ciliate, lepanthiform sheaths. Leaf erect, coriaceous, ovate, subacute, 3.5 cm long, 2 cm wide, the round base abruptly contracted into a petiole 2 mm long. Inflorescence 2-3 congested, successively flowered racemes up to 7 mm long, borne by a slender peduncle $10-15 \mathrm{~mm}$ long behind the leaf; floral bracts 1.5 mm long, long-ciliate along the midvein; pedicels $1.5-2 \mathrm{~mm}$ long; ovary 0.75 mm long; sepals color unknown, the sepals broadly ovate, obtuse, shortly acuminate, 2 mm long, 1.5 mm wide, 3 -veined, connate to the lateral sepals for 0.25 mm , the lateral sepals oblique, diverging, connate 0.5 mm ; petals transversely bilobed, minutely pubescent, 0.75 mm long, 2.25 mm wide, the upper lobe oblong with rounded apex, 1.25 mm long, 0.75 mm wide, the lower lobe smaller, triangular with rounded apex, 0.5 mm long; lip bilaminate, glabrous, the lobes elliptical, with narrowly obtuse ends, 1 mm long, the connectives cuneate, the body narrow, filled with a thick, transversely cleft, microscopically pubescent appendix, the body connate to the base of the column; column proportionately large, clavate, 1.5 mm long, the anther apical, the stigma ventral.

ECUADOR: Los Ríos: Hacienda Clementina, humid forest, alt. $600 \mathrm{~m}, 25$ May 2002, B. Stahl \& X. Cornejo 5917 (Holotype of L. clementinensis: MO; Isotype: GUAY), C. Luer illustr. 21515.

This species, from lowland northwestern Ecuador, is described with one, poorly preserved flower, so details of the lip may not be accurate. The plant is
characterized by a small habit; a congested raceme shorter than the ovate leaf; shortly acuminate broadly ovate sepals; large, transverse petals; and a minute lip with elliptical blades with cuneate connectives. The appendix is thick, transversely cleft, filling the obtuse sinus.

## Lepanthes cornejoi Luer, sp. nov.

Ety.: Named for Xavier Cornejo, botanist at GUAY, who collected this species.
Planta parva, inflorescentia racemo congesto folio anguste ovato breviore, sepalo dorsale profunde cucullato breviter caudato, sepalis lateralibus longicaudatis, petalis transverse bilobis ciliatis-pubescentibus, labelli lobis subquadratis laminis ellipticis infra apicem marginalibus, connectivis latissimis, appendice minuta ovoidea, et ovario longissimo distinguitur.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 3-5.5 cm long, enclosed by 7-8 lepanthiform sheaths with ciliated ostia. Leaf erect, coriaceous, narrowly ovate, acute, $3.5-4 \mathrm{~cm}$ long, $5-8 \mathrm{~mm}$ wide, the base cuneate into a petiole $1-2 \mathrm{~mm}$ long. Inflorescence a congested, successively flowered raceme up to 10 mm long, borne by a slender peduncle $20-30 \mathrm{~mm}$ long including the raceme, along the front of the leaf; floral bracts 1 mm long; pedicels 2.5 mm long; ovary 5 mm long; sepals color unknown, the dorsal sepal ovoid, deeply cucullate, broadly ovate expanded, 4 mm long, 4 mm wide, 3 -veined, connate to the lateral sepals for 1 mm , the obtuse apex contracted into a tail 1.5 mm long, the lateral sepals ovate, oblique, contracted into a slender tail near the middle, 6 mm long including the tail, 2 mm wide, the blade longitudinally concave, connate to each other 0.5 mm ; petals transversely bilobed, 0.8 mm long, 3.5 mm wide, ciliate-pubescent, the lobes opposite, the upper lobe ovate, obtuse, 1.5 mm long, 0.8 mm wide, the lower lobe narrowly oblong, 2 mm long, 0.5 mm wide; lip bilobed, the lobes subquadrate with incomplete laminae below the apex, with rounded ends, 2 mm long, the connectives broad, rectangular, the body broad with a small, ovoid appendix in the sinus, the body connate above the base of the column; column slender, clavate, 1 mm long, the anther and the stigma apical.

ECUADOR: Los Ríos: Hacienda Clementina, Cerro Samana, humid forest, alt. $600 \mathrm{~m}, 4$ April 1996, X. Cornejo, C. Cornejo \& C. Bomifaz 4929 (Holotype of L. cornejoi: MO; Isotypes: GUAY, QCNE), C. Luer illustr. 21507.

This species from lowland northwestern Ecuador is characterized by a small habit; a congested raceme shorter than the narrowly ovate leaf; a large, cucullate dorsal sepal that is short-tailed, and lateral sepals with slender tails in apposition about as long as the blade; petals bilobed and pubescent; a lip with subquadrate lobes, broad connectives, and small, ovoid appendix in the sinus; and a proportionately long ovary.

## Lepanthes ephalmatrix Luer \& Hollowell, sp. nov.

Ety.: From the Greek ephalmatrix, "a tumbler, or dancer," alluding to the shape of the flower.
Planta parvula erecta folio ovato, racemo paucifloro, flore illi Lepanthidis orchestris Luer \& Vásquez similis, sed duplo minore differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, $2-4 \mathrm{~cm}$ long, enclosed by 5-7 thin, pale, ciliate, lepanthiform sheaths with dilated ostia. Leaf erect, coriaceous, suffused with purple beneath, ovate, subacute, $2-3 \mathrm{~cm}$ long, $1.5-1.9 \mathrm{~cm}$ wide, the rounded base contracted into a petiole $1-2 \mathrm{~mm}$ long. Inflorescence a congested, distichous, successively few-flowered raceme up to 8 mm long, borne on top of the leaf by a filiform peduncle $5-10 \mathrm{~mm}$ long; floral bracts oblique, 1 mm long; pedicels 1.5 mm long; ovary 1 mm long; sepals dull rose, ovate, acute, acuminate, carinate, minutely denticulate, the dorsal sepal 4.25 mm long, 2 mm wide, connate to the lateral sepals for 0.5 mm , the lateral sepals oblique, 4.5 mm long, 2 mm wide, connate 1 mm , long-acuminate, the taillike apices diverging; petals purple with yellow margins, minutely pubescent, transversely bilobed, 0.5 mm long, 2.5 mm wide, the upper lobe oblong, subtruncate, the lower lobe smaller, triangular, obtuse; lip purple, bilaminate, the laminae microscopically ciliate-pubescent, oblong-sublunate, with the ends obtuse, 1.6 mm long, the connectives short, thick, from the middle of the lamina, connate to the base of the column, the sinus broad with the appendix small, oblong, ciliate; column 1 mm long, the anther dorsal, the stigma ventral.

ECUADOR: Napo: epiphytic in cloud forest, Guacamayo Range, alt. 1950 m, 13 Apr. 1985, C. Luer, J. Luer, A. Hirtz \& W. Flores 11248 (Holotype of L. ephalmatrix: MO); same area, 18 Nov. 1984 A. Hirtz 2099 (MO); east slopes of Volcán Reventador, alt. $1850 \mathrm{~m}, 11$ Feb. 1986, C. Luer, J. Luer, A. Hirtz, W. Flores \& A. Embree 11778 (MO).

This species occurs locally in the wet forests on the eastern slopes of the Andes of northern Ecuador, where it has been discovered several times in recent years. Because of the similarity of the flower to that of Bolivian Lepanthes orchestris Luer \& R.Vásquez, this species was treated as L. orchestris in the Lepanthes of Ecuador, Icones Pleurothallidinarum XIV, 1996. When the species of Lepanthes of Bolivia were reviewed for the Lepanthes of Bolivia, it became apparent that the Ecuadorian collections were distinguished by a smaller habit; erect, ovate leaves. instead of pendent; and twice smaller flowers, in spite of their morphological similarity. The Ecuadorian species is hereby recognized as Lepanthes ephalmatrix.

Lepanthes sorayae Luer \& Cornejo, sp. nov.
Ety.: Named for Soraya Delgado, biologist and conservationist, Great Wilderness Foundation, Esmeraldas.

Planta parva inflorescentia folio circulari marginibus irregulater undulatis breviore, sepalis obtusis breviter pubescentibus, petalis transverse bilobis suboblongis superiore quam inferiore bis longioribus, labello bilamallato, appendice destructa.

Plant small, epiphytic, caespitose; roots and rhizome unknown. Ramicauls slender, erect, at least 17 mm long, enclosed by at least 6 minutely ciliate, lepanthiform sheaths. Leaf erect, thinly coriaceous, circular, 12 mm long, 10 mm wide, the roubded base contracted into a petiole less than 1 mm long. Inflorescence a congested, successively flowered raceme, borne on top of the leaf by a slender peduncle ca. 5 mm long, floral bracts 1 mm long; pedicels 1 mm long; ovary 1 mm long; sepals yellow, shortly ciliate-pubescent, the dorsal sepal broadly elliptical-ovate, obtuse, 1.8 mm long, 1.8 mm wide, 3 -veined, connate to the lateral sepals for 0.5 mm , the lateral sepals ovate, oblique, acute, shortly acuminate, 1.8 mm long, 1.8 mm wide, 2 -veined, connate 0.5 mm ; petals transversely bilobed, 0.4 mm long, 1.5 mm wide, the lobes opposite, subovate-oblong, the upper lobe twice longer than the lower lobe; lip rose colored, bilaminate, the blades obovate, ca. 0.3 mm long, the connectives and body disintegrated in the single flower.

ECUADOR: Esmeraldas: Reserva Cotacachi-Cayapas, Río Tigre, humid forest, alt. $500 \mathrm{~m}, 13$ Sept. 1998, X. Cornejo \& C. Bonifaz 6533 (Holotype of L. sorayae: MO; Isotype: GUAY), C. Luer illustr. 21510.

The only flower of this species from lowland northwestern Ecuador is very poorly preserved. The distinctive, little, round leaf, with an irregularly undulating border, is about one centimeter long and wide. No raceme is present, but the peduncle is about half the length of the leaf. The minute sepals are ciliate-pubescent, the petals are transversely bilobed, and the blades of the minute, bilaminate lip are obovate. Nothing more can be said, because the rest of the lip is more or less dissolved.

Lepanthes stewartiorum Thoerle \& Luer, sp. nov.
Ety.: Named for Mr. \& Mrs. Robert E. Stewart of Stow, Massachusetts, who purchased this species fromParkside Nursery.
Species haec Lepanthidis gargantuae Rchb.f. affinis, sed petalorum lobis superioribus transverse ovatis marginibus irregulariter incrassatis minutissime cavernosis seriatis distinguitur.

Plant large, robust, presumably epiphytic, rhizome and roots unknown. Ramicauls erect, stout, more or less 30 cm long, enclosed by 14 microscopically scabrous, lepanthiform sheaths. Leaf erect, coriaceous, oblong, subacute, acuminate, 12 cm long, 4 cm wide, the broadly cuneate below into a
petiole ca. 1 cm long. Inflorescence racemose, 1-2 simultaneous, congested, distichous, successively many-flowered racemes 2-4 cm long, borne behind the leaf by slender peduncles $2.5-5 \mathrm{~cm}$ long; floral bracts $1-1.5 \mathrm{~mm}$ long; pedicels 1.5 mm long; ovary $4-5 \mathrm{~mm}$ long; sepals yellow, glabrous, broadly ovate, obtuse, shortly caudate, entire, the dorsal sepal 4.5 mm long, 4 mm wide, connate to the lateral sepals for 3 mm , the lateral sepals oblique, 4.5 mm long, each 3.5 mm wide, connate 2.5 mm ; petals yellow with dark red upper margin, glabrous, transversely bilobed, 1.5 mm long at the middle, 3.5 mm wide, obtusely angled between the lobes, the upper lobe transversely ovate, obliquely and broadly truncate at the apex, 2 mm long, 1.5 mm wide, the upper margin thickened with a row of multiple microscopic cavities, the lower lobe subpyriform, 2 mm long, 1.25 mm wide; lip yellow with red margins, glabrous, bilaminate, the blades narrowly oblong, convex, with extremities slightly incurved, acute, 2 mm long, the connectives short, broadly cuneate, forming a broad body, connate to the base of the column, the sinus obtuse with a minute, bilobed, minutely ciliate appendix; column stout, 1.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: without collection data, purchased from Ecuagenera by Parkside Nursery, No. 151, July 2003, purchased from Parkside Nursery by Bob \& Dee Stewart, June 2009, flowered in cultivation July 2009, at Little Compton, RI. by Lisa Thoerle 145 (Holotype of L. stewartiorum: MO), C. Luer illustr. 21465.

This robust species from somewhere in Ecuador is superficially similar to Lepanthes gargantua Rchb.f., but with slightly smaller flowers, and a strange, unique pair of petals. The obliquely truncate margins of the upper lobes of the yellow petals are dark red and thickened. The lower edge of the marginal thickening is minutely scalloped, as a row of minute concavities.

Masdevallia gentianoides Luer \& J.Leathers, sp. nov.
Ety.: Named for a similarity of the purple, tubular flowers of Gentiana L.
Species haec Masdevalliae ventriculariae Rchb.f. affinis, sed flore majori, sepalis crassisimis, petalis edentatis et labelli lateribus plicatis differt.

Plant medium in size, epiphytic, caespitose; roots thick, fleshy. Ramicauls stout, erect, $1-2 \mathrm{~cm}$ long, enclosed by 2-3 loose, tubular sheaths. Leaf erect, coriaceous, 11 cm long including the petiole 2 cm long, the blade elliptical-oblong, obtuse, 1.8 cm wide, cuneate below into the petiole. Inflorescence a solitary, tubular flower borne by a relatively stout, erect to suberect peduncle 6.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 12 mm long; pedicel 10 mm long, ovary 5-7 mm long; sepals fleshy, rigid, dark purple, lighter purple at base, glabrous, the dorsal sepal oblong, 24 mm long, 11 mm wide expanded, connate to the lateral sepals for 20 mm to create a cylindrical, ventricose sepaline tube, constricted above the middle, the free portion triangular, the apex obtuse, abruptly contracted into a slender, dull yellowish tail 30 mm long, the lateral sepals 24 mm long, connate 20 mm into an abruptly concave synsepal, $3-5 \mathrm{~mm}$ deep, the synsepal 15 mm wide unexpanded, the free portions triangular, acute, reflexed, contracted into tails 25 mm long; petals suboblong, acute, 7 mm long, 2.5 mm wide, the labellar margin with a longitudinal callus ending in an obtuse angle above the base; lip oblong, 7 mm long, 3 mm wide, with plicate margins beginning near the middle and continuing forward as low, thickened calli, the apex obtuse with microscopically erose margins, the base truncate to subcordate, hinged beneath; column semiterete, 4 mm long, the foot thick, equally long with a short, incurved extension.
ECUADOR: without collection data, obtained by Colomborquídeas from Rodrigo Escobar 335A many years ago, obtained by J. Leathers from Colomborquídeas in 2008, flowered in cultivation Sept. 2009, J. Leathers s.n. (Holotype of M. gentianoides: MO); C. Luer illustr. 21474.

More closely related to Masdevallia ventricularia Rchb.f., but more closely resembling a purple-flowered M. constricta Poepp. \& Endl., this species of subsection Saltatrices is characterized by a dark purple, ventricose sepaline tube that is ventricose below the middle and constricted above the middle before terminating with a broadly rounded ostium with deflexed tails of the lateral sepals. The petals are acute with the marginal callus ending in an obtuse angle at the base. The lip is oblong with marginal folds that are found in only M. os-draconis Luer \& R.Escobar and the hybrid M. ligiae Luer \& R.Escobar among all the members of subsection Saltatrices.

Masdevallia gerhardii Luer \& Sijm, sp. nov.
Ety.: Named for Gerhard Vierling, of Neckargemund, Germany, in whose collection this species was found.
Species haec Masdevalliae laevis Lindl. affinis, sed sepalis glabris albis roseosuffusis, lateralium ad juncturam mentosibus et labello oblongo ad apicem concavo differt.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 3 cm long, enclosed by 2-3 loose, tubular sheaths. Leaf erect, coriaceous, $7-10 \mathrm{~cm}$ long including the petiole 3-4 cm long, the blade elliptical, obtuse, $1-1.3 \mathrm{~cm}$ wide, cuneate below into the petiole. Inflorescence a solitary flower borne by a slender, erect to suberect peduncle $10-11 \mathrm{~cm}$ long, with a bract above the base, from low on the ramicaul; floral bract 10 mm long; pedicel $12-15 \mathrm{~mm}$ long, ovary 5 mm long; sepals white, suffused with rose, glabrous, the dorsal sepal oblong, 15 mm long, 7 mm wide expanded, connate to the lateral sepals for 11 mm to create a campanulate sepaline tube, the free portion ovate, the apex rounded to obtuse, abruptly contracted into a slender tail 4 cm long, the lateral sepals ovate, 14 mm long, $7-8 \mathrm{~mm}$ wide, connate 10 mm into bifid, concave synsepal, with a small, conical mentum at their junction, the apices subacute, each contracted into a tail 4.5 cm long; petals oblong, 5 mm long, 2 mm wide, the apex obliquely truncate and tridenticulate, the labellar margin with a longitudinal callus ending in an acute process protruding beyond the base; lip oblong, 5 mm long, 2.25 mm wide, the distal quarter concave, broadly rounded or truncate at the apex, with a minute midline callus, the base subcordate, hinged beneath; column semiterete, 4 mm long, the foot thick, 1 mm long with a slender, incurved extension.

COLOMBIA: Norte de Santander: flowered in cultivation in Venhuizen, Holland, Aug. 2009, by A.P. Sijm 290814 (Holotype of M. gerhardii: MO); C. Luer illustr. 21473.

Masdevallia gerhardii (subsect. Masdevallia) from the Eastern Cordillera of Colombia is related to other species of Masdevallia Ruiz \& Pav. that inhabit that area, e.g., M. laevis Lindl., but is distinguished from them by the white, rosesuffused flowers, and a peculiar, small, conical mentum at the junction between the lateral sepals. The concave apex of the lip is also unique in these species.

## Masdevallia lophina Luer \& Sijm, sp. nov.

Ety.: From the Greek lophinus, "with a cock's comb," referring to the callus at the tip of the lip.
Inter species Masdevalliae subsect. Caudatae H.J.Veitch habitu mediocre, sepalis antrorsis suboblongis longicaudatis lateralibus in mentum connatis, et labello antice infra apicem constricto crestatoque differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 2-2.5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, elliptical-obovate, obtuse to rounded at the tip, petiolate, 6.5 cm long including the petiole, 1.7 cm wide, the base cuneate into the petiole 1.5 cm long. Inflorescence a solitary flower borne by a suberect, slender peduncle 7 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 0.8 cm long; 1.7 cm long; ovary $5-6$ mm long; sepals pale dull yellow, minutely flecked with brown or dull purple, glabrous, the dorsal sepal obovate-oblong, concave, 14 mm long, 12 mm wide unexpanded, 3 -veined, with the apex obtuse, contracted into a slender, forwardly directed, dull purplish tail 2.5 cm long, connate to the lateral sepals for 4 mm to form a shallow sepaline cup, the lateral sepals elliptical-oblong, obtuse, 13 mm long, 6 mm wide, 3 -veined, with the tip contracted into a descending tail similar to that of the dorsal sepal, connate to each other less than 1 mm below a conspicuous mentum formed by the bases of the lateral sepals; petals suboblong, 5.5 mm long, 2 mm wide, the apex oblique, bidentate, the labellar margin with a longitudinal callus terminating in a thick, obtuse process above and beyond the base; lip rose colored, thin, erect, ovate, 5 mm long, 2.75 mm wide, constricted less than 1 mm below the tip to form a transverse lobule with rounded corners, with an erect, midline lamella with an irregular, anterior margin, the disc featureless below a thickening of the basal quarter, the base broadly subtruncate to indistinctly bilobed, narrowly hinged beneath; column light rose, semiterete, longitudinally winged, 4.5 mm long, 1.5 mm thick, the foot with a slender, incurved extension 2 mm long.

PERU: Amazonas: San Carlos, flowered in cultivation in Venhuizen, Holland, Nov. 2009, by T. Sijm 29130 (Holotype of M. lophina: MO), C. Luer illustr. 21506.

Known only from the original collection, this species with incompletely spreading sepals and a deep mentum is similar to several others, such as the Colombian Masdevallia arminii Linden \& Rchb.f. of subsection Caudatae. It is distinguished by pale yellow, forwardly directed, long-caudate sepals; not distinctly unusual petals for the subsection; and a lip with a constriction near the tip that forms a small transverse lobule with an erect, central crest.

Masdevallia oversteegeniana Luer \& Sijm, sp. nov.
Ety.: Named in honor of the late Pieter Oversteegen, of Eindhoven, Holland, editor and publisher of the series "Orchids in Color."
Species haec Masdevalliae ampullaceae Luer \& Andreetta affinis, sed pedunculo erecto longiore, sepalorum caudis brevioribus, et sepalis intus brevissime pubescentibus differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, long-petiolate, $10-15 \mathrm{~cm}$ long including the petiole $3-4 \mathrm{~cm}$ long, the blade elliptical, acute to subacute, $1.5-2.5 \mathrm{~cm}$ wide, the base cuneate below into the petiole. Inflorescence a solitary, suberect flower borne by a slender, erect peduncle to 9 or more cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 12 mm long; pedicel 20 mm long; ovary $5-8 \mathrm{~mm}$ long; sepals yellow-orange, glabrous externally, microscopically pubescent within toward the apices, the dorsal sepal oblong, broadly obtuse to rounded at the apex, 25 mm long, 10 mm wide, connate to the lateral sepals for 23 mm into a cylindrical, ventricose tube, the free portion broadly ovate, contracted abruptly into a broad, erect to recurved tail 15 mm long, the lateral sepals 25 mm long, connate $22-23 \mathrm{~mm}$ into an oblong, shallowly ventricose lamina ca. 10 mm wide, 13 mm wide at the ostium, the free portions ovate, oblique, the obtuse apices produced into broad tails similar to that of the dorsal sepal; petals yellow-orange, oblong, 7.5 mm long, 3 mm wide, the obtuse apex more or less twisted, the labellar half thick with a longitudinal callus ending in a broad, obtuse angle at the base; lip oblong, rounded at the tip, 5.5 mm long, 2.5 mm wide, with broadly rounded, lateral angles above the middle, the base truncate, hinged beneath; column white, semiterete, 6 mm long, the foot thick, 1 mm long with a very short, incurved extension.
PERU: San Martín: Moyobamba, flowered in cultivation, Nov. 2009, by T. Sijm 290925 (Holotype of M. oversteegeniana: MO), C. Luer illustr. 21486.

This species of Masdevallia subsection Saltatrices is related to the relatively frequent Masdevallia ampullacea Luer \& Andreetta of southern Ecuador. It differs from the latter with longer, erect peduncles that bear the flower above the leaves. The flowers are similar in size and also orange in color, but the tube is longer, because the free portions of the sepals are shorter. Instead of conspicuous, the internal pubescence is microscopic. The petals are similar, but the margins of the lip possess only indistinct, short, rounded lobes above the middle, instead of acute angles below the middle.

## Masdevallia singeri Luer \& Sijm, sp. nov.

Ety.: Named for Benjamin Erik Singer of Wijdenes, Holland, life-long contributor to the study of orchids.
Species haec Masdevalliae prodigiosae Königer affinis, sed flore minore, sepalis latioribus non profunde connatis, et labelli antice leviter concavo differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls stout, erect, to 2 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, elliptical, obtuse, petiolate, 7 cm long including the petiole, 3 cm wide, the base cuneate below into the petiole 2 cm long; Inflorescence a solitary flower borne by a suberect, slender peduncle 2 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 1 cm long; pedicel 1 cm long; ovary 5 mm long; sepals pale yellow-orange, suffused with rose, glabrous, the dorsal sepal subcircular, concave into a semiorbicular blade, 15 mm long, 10 mm wide unexpanded, 5 -veined, with the apical margin round, abruptly produced into a slender, suberect, yellowish tail 17 mm long, connate to the lateral sepals for 4 mm to form a gaping sepaline cup, the lateral sepals elliptical, obtuse, each 11 mm long, 7 mm wide, 2 -veined, connate 4 mm , deflexed beyond the tube, the apex acuminate into a slender, descending tail similar to that of the dorsal sepal; petals suboblong-triangular, 5 mm long, 2 mm wide at the base, the apex oblique, bidentate, the labellar margin with a longitudinal callus terminating in a thick, obtuse process above the base; lip white, thin, erect, ovate, 5 mm long, 3 mm wide, slightly narrowed above the middle with minutely erose margins, the apex rounded, shallowly concave, with a small, midline callus, the disc featureless, the base broadly subtruncate to rounded, narrowly hinged beneath; column light rose, semiterete, longitudinally winged, 4 mm long, 1.5 mm thick, the foot thick, 2 mm long, with an incurved extension 1 mm long.

PERU: Amazonas: San Carlos, flowered in cultivation in Venhuizen, Holland, Nov. 2009, by T. Sijm 29115 (Holotype of M. singeri: MO), C. Luer illustr. 21505.

This species, related to Masdevallia prodigiosa Königer of subsection Caudatae, is also found in Amazonian Peru. Although vegetatively inseparable, it differs from the latter with smaller, less colorful flowers borne by suberect peduncles. The rounded dorsal sepal is concave, the elliptical lateral sepals are spreading and free above the middle, and the much shorter tails are not reflexed.

Octomeria corrigiosa Luer \& Toscano, sp. nov.
Ety.: From the Latin corrigia, "a shoelace," hence, corrigiosa, with shoe-laces.
Species haec Octomeriae tridentatae Lindl. affinis, sed foliis linearibus multo angustioribus, caulibus gracillimis, sepalis trinervis, labelli lobis lateralibus grandis latissimis lobo antico quadrato differt.

Plant medium in size, presumably epiphytic, densely caespitose, roots slender. Ramicauls very slender, erect, terete, $8-10 \mathrm{~cm}$ long, enclosed by $5-6$ deciduous, tubular sheaths. Leaf erect, coriaceous, narrowly linear, acute, $17-18 \mathrm{~cm}$ long, 0.5 cm wide, gradually narrowed below into the base. Inflorescence at least a single flower, produced by a peduncle ca. 1 mm long, at the apex of the ramicaul; floral bracts 3 mm long; pedicels 3.5 mm long; ovary 2 mm long; flowers without color notes; sepals free, glabrous, the dorsal sepal narrowly obovate, acute, 8 mm long, 3 mm wide, 3 -veined, the lateral sepals oblong, acute, 8 mm long, 3 mm wide, 3 -veined; petals elliptical, acute, 7 mm long, 2.5 mm wide, 3 veined; lip glabrous, suboblong-trilobed, 5 mm long, 6 mm wide expanded, the lateral lobes on basal half, erect, large, uncinate, antrorse, round at the tip, the apical lobe quadrate, truncate, the disc with a converging pair of calli above the middle, with a thickened, midline vein above the base, the base truncate, hinged to the tip of the column-foot; column semiterete, 2 mm long, the foot 1 mm long, the anther subapical, the stigma ventral.
BRAZIL: Minas Gerais: Munic. Santa Bárbara, Caraça, alt. $1500 \mathrm{~m}, 22$ July 1940, Mulford \& Racine Foster 700 (Holotype of Octomeria corrigiosa: AMES), C. Luer illustr. 21417.

This tall, spindly species from Minas Geraes is known only from a collection cultivated by Mulford and Racine Foster in the mid-twentieth century. It is characterized by a densely caespitose, very slender ramicauls that bear narrowly linear leaves to 18 centimeters long. The sepals and petals are three-veined. The broad, antrorse, lateral lobes of the lip are similar to those of Octomeria tridentata Lindl., but the anterior lobe is quadrate with the pair of calli above the middle.

Octomeria fusiformis Luer \& Toscano, sp. nov.
Ety.: From the Latin fusiform, "spindle-shaped," referring to the shape of the leaves.
Planta mediocris caespitosa, racemo congesto folio fusiformi multibreviore, sepalis glabrous, ellipticis, lateralibus liberis, petalis ovatis acutis, labello oblongo-trilobo lobis lateralibus rotundis infra medium, lobo antico ovato truncato, disco tricalloso distinguitur.

Plant medium in size, lithophytic, caespitose, roots fleshy. Ramicauls erect, terete, stout, 0.5 cm thick above, $3.5-5 \mathrm{~mm}$ long, enclosed by 3-4 close, tubular sheaths. Leaf erect, thickly coriaceous, rigidly fusiform, acute, $4-5 \mathrm{~cm}$ long, $0.9-1 \mathrm{~cm} \mathrm{~mm}$ wide, 0.8 cm deep, the base sessile. Inflorescence a congested, simultaneously several-flowered fascicle of single flowers, borne by peduncles less tham 1 mm long, from the apex of the ramicaul; floral bracts 4 mm long; pedicels 3 mm long; ovary 2.5 mm long; sepals yellow, suffused with red, glabrous, free, elliptical, acute, the dorsal sepal $7-8 \mathrm{~mm}$ long, 3 mm wide, 3 -veined, the lateral sepals slightly oblique, $6.5-7.5 \mathrm{~mm}$ long, 3 mm wide, 3 -veined; petals colored similarly, ovate, acute, 6.75 mm long, 2.25 mm wide, 3 -veined; lip yellow with a central, purple spot, oblong-trilobed, glabrous, 4 mm long, 2.5 mm wide, the lateral lobes erect, rounded, below the middle, the middle lobe ovate, truncate, with minutely irregular margins, the disc with a pair of parallel calli on the middle third, and a single callus centrally above the middle; the base truncate hinged to the column-foot; column semiterete, wingless, 2 mm long, the foot 1.5 mm long, the anther subapical, the stigma ventral.
BRAZIL: Bahia: Munic. Rio de Contas, Pico das Almas, on rocks, alt. ca. 1800 m , collected by E.C. Smidt s.n., flowered in cultivation, 2 Feb, 2002, by A. Toscano de Brito 2396 (Holotype of O. fusiformis: HUEFS); C. Luer illustr. 21349.

Vegetatively, this species from Bahia is similar to the thickly terete, rupicolous species of Acianthera Scheidw. that grow in exposed, rocky habitats. The leaves are fusiform, about one centimeter broad and thick. Toward the leaf, the ramicaul is about a half centimeter broad and thick. Flowers are produced in a dense fasci-
cle with peduncles less than one millimeter long. The sepals are elliptical while the petals are more ovate and acute. The lateral lobes of the lip are erect and rounded, while the anterior lobe is ovate and truncate.

Octomeria tweediei Luer \& Toscano, sp. nov.
Ety.: Named for John Tweedie, 1775-1862, Scottsman, landscape gardener and botanist, and immigrant to Brazil, who collected this species.
Species haec Octomeriae grandiflorae Lindl. affinis, sed floribus minoribus et labelli lobis lateralibus multo minoribus differt.

Plant large, presumably epiphytic, caespitose to very shortly repent, the rhizome thick, roots slender. Ramicauls stout, erect, terete, $10-15 \mathrm{~cm}$ long, enclosed by 3-4 tubular sheaths. Leaf erect, coriaceous, narrowly ovate, acute, $10-18 \mathrm{~cm}$ long, $1.4-1.8 \mathrm{~cm}$ wide in the dry state, cuneate below into a sessile base. Inflorescence at least a single flower, produced by a peduncle ca. 1 mm long, at the apex of the ramicaul; floral bracts $3-4 \mathrm{~mm}$ long; pedicels $3-4 \mathrm{~mm}$ long; ovary 2.5 mm long; sepals free, glabrous, the dorsal sepal elliptical-ovate, narrowly obtuse, 7 mm long, 2.75 mm wide, 3 -veined, the lateral sepals oblong, oblique, obtuse, 7 mm long, 2.5 mm wide, 3 -veined; petals elliptical-ovate, narrowly obtuse, 7 mm long, 2.5 mm wide, 3 -veined; lip glabrous, subobovate-trilobed, 3.5 mm long, 2.25 mm wide expanded, the lateral lobes on basal quarter, erect, proportionately small, uncinate, antrorse, the apical lobe obovate, truncate, more or less tridentate, with more or less obtusely angled margins, the disc broadly channeled between a pair of calli descending from the lateral lobes, the midvein slightly thickened toward the apex, the base narrowly truncate, hinged to the tip of the col-umn-foot; column semiterete, 2 mm long, the foot 1 mm long with the tip free, the anther subapical, the stigma ventral.

BRAZIL: Rio Grande do Sul: without specific locality, collected by J. Tweedie s.n. (Holotype of Octomeria tweediei: K). C. Luer illustr. 19166.

This rather large species is known from a single collection by Tweedie in the mid-nineteenth century. In the distant past, the collection at K had been annotated "Octomeria baueri," a synonym of Octomeria graminifolia (L.) R.Br., a smaller repent species. Octomeria tweediei is characterized by a very shortly repent, or caespitose habit; stout ramicauls; a narrowly ovate leaf similar to that of Octomeria crassifolia Lindl.; three-veined sepals and petals not remarkably different from many other Brazilian species of Octomeria; and a type A lip with a pair of small, erect, uncinate, antrorse lateral lobes that are much smaller than those of either $O$. grandiflora Lindl. or $O$. tridentata Lindl., both of which have a 5 -veined dorsal sepal.

Platystele cornejoi Luer, sp. nov.
Ety.: Named for Xavier Cornejo of the University of Guayaquil, Ecuador, collector of this species.
Species haec Platystelis ovatilabiae (Ames \& C.Schweinf.) Garay, persimilis, sed planta multiminore et omnibus partibus floralibus minoribus differt.

Plant minute, epiphytic, caespitose; roots slender. Ramicauls erect, slender, $2-4 \mathrm{~mm}$ long, enclosed by 2 thin, tubular sheaths. Leaf erect, coriaceous, elliptical, subacute to obtuse, 7-12 mm long, $3.5-5 \mathrm{~mm}$ wide, narrowly cuneate below into the petiole $1-1.5 \mathrm{~mm}$ long. Inflorescence $1-2$ loose, successively subflexuous racemes, to 4 cm long, including a capillary peduncle ca. 15 mm long, with a few distant bracts, from low on a ramicaul; floral bracts 0.5 mm long; pedicels $1-1.5 \mathrm{~mm}$ long; ovary 0.75 mm long; sepals widely expanded, free, translucent light yellow-green, glabrous, the dorsal sepal ovate, obtuse, 1 mm long, 0.75 mm wide, 1 -veined, the lateral sepals similar, slightly oblique; petals translucent, similar in color, glabrous, elliptical, acute, 0.8 mm long, 0.3 mm wide, 1 -veined; lip ovate, microscopically ciliate, 1 mm long, 0.85 mm wide, 3 -veined, obtuse at the apex, slightly incurved, broadly truncate at the base with a minute, midline, triangular callus, hinged to the base of the column; column membranous, 1 mm long and wide.

ECUADOR: Esmeraldas: Reserva Ecológica Manglares Cayapas Mataje (REMACAM), comunidad El Viento, epiphytic on roots of red mangrove (Rhizophora sp.), alt. $5 \mathrm{~m}, 26$ Aug. 2001, X. Cornejo \& C. Bonifaz 7232 (Holotype of P. cornejoi: GUAY; La Tolita de Los Ruanos, tropical wet forest, sea level, 11 Oct. 2009, X. Cornejo \& M. Canagá 8137 (GUAY, MO, QCA, QCNE, SEL), C. Luer illustr. 21499.

This minute, caespitose species, with a raceme exceeding the leaves, grows abundantly but locally on the prop roots of red mangrove (Rhizophora sp.) along the coast of northwestern Ecuador. It is related to both Platystele ovalifolia (H.Focke) Garay \& Dunst., from which it is distinguished by a caespitose habit, and Platystele ovatilabia (Ames \& C.Schweinf.) Garay, from which it is distinguished by the minute size. It could be considered to be a geographical variation of the latter, but because of the isolation in coastal mangroves, and the strikingly different appearance of the habit, it is given specific status.

Platystele speckmaieri Luer \& Sijm, sp. nov.
Ety.: Named for Manfred Speckmaier of Freising, Germany, cultivator of this species.
Inter species generis Platystelis Schltr., planta minuta caespitosa, pedunculo foliis ellipticis multilongiore, racemo laxe paucifloro, sepalis longissime attenuatis ad apicem leviter incrassatis, petalis attenuatis, et labello ovato supra medium angustato distinguitur,

Plant minute, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 mm long, enclosed by 2 thin, tubular sheaths. Leaf erect, coriaceous, elliptical-obovate, subacute to obtuse, 8-12 mm long, 2 mm wide, narrowly cuneate below into the petiole. Inflorescence a loose, successively few-flowered raceme, to ca, 10 mm long, borne by a suberect, arching peduncle, up to ca .6 cm long, with a few distant bracts, from low on a ramicaul; floral bracts 1-1.5 mm long; pedicels $5-8 \mathrm{~mm}$ long; ovary smooth, 0.6 mm long; sepals widely expanded, free, translucent yellow, glabrous, the dorsal sepal ovate, acute, long-attenuate, slightly thickened at the tip, 15 mm long, 1 mm wide, 1 -veined, the lateral sepals similar, diverging; petals translucent yellow, narrowly ovate, acute, attenuate, 5 mm long, 0.5 mm wide, 1 -veined; lip red, cellular-glabrous, ovate below the middle, 2 mm long, 1.25 mm wide, 3 -veined, contracted above the middle, becoming thick, narrowly obtuse, the base truncate, hinged to the base of the column with a short claw; column membranous, 0.8 mm long, 0.8 mm wide.

PANAMA: Panama: El Valle de Anton, flowered in cultivation at Wien, Sept. 2009, A.P. Sijm 290815 (Holotype of P. speckmaieri: MO), C. Luer illustr. 21487.

With the exceedingly long, extremely thin, attenuated sepals, this minute, caespitose species is distinguished from all others of the genus. Only the dorsal sepal of the tiny, repent Platystele johnstonii (Ames) Garay is also long-attenuate. Except for all three attenuated sepals, Platystele speckmaieri is most similar to a small, vegetative variation of Platystele oxyglossa (Schltr.) Garay.

Pleurothallopsis rinkei Luer, sp. nov.
Ety.: Named for Bryon K. Rinke of Winfield, KS, who imported and cultivates this species.
Inter species Pleurothallopsis Porto \& Brade, planta parva, folio obovato apice rotundato, sepalis liberis, petalis membranaceous obtusis, et labello supra medium valde convexo distinguitur.

Plant small, presumably epiphytic, caespitose; roots absent in specimen. Ramicauls erect, slender, 4.5 cm long, enclosed by $4-5$ imbricating, ribbed, tubular sheaths with microscopically ciliate, dilated ostia. Leaf erect, coriaceous, obovate, rounded at the apex, 22 mm long, 11 mm wide, the base cuneate into a petiole 1 mm long. Inflorescence a succession of single flowers produced in a fascicle by peduncles $4-5 \mathrm{~mm}$ long from near the apex of the ramicaul; floral bract $1-1.5 \mathrm{~mm}$ long; pedicel 2 mm long, with a filament 1 mm long; ovary 1 mm long; sepals orange, suffused with red centrally, the dorsal sepal elliptical-ovate, acute, 8 mm long, 4 wide, 3 -veined, the lateral sepals similar to the dorsal sepal, 7.5 mm long, 3.5 mm wide, connate 1 mm at the bases; petals membranous, translucent yellow, elliptical, obtuse, 4 mm long, 2.25 mm wide, 1 -veined; lip orange, oblong-trilobed, 3 mm long, 1.3 mm wide, the lobes lateral, broadly rounded, erect, below the middle, shallowly concave between a pair of thick, rounded calli on the middle third, ovate, obtuse and markedly convex above the middle with minutely suberose, deflexed margins; column red, semiterete, 1.3 mm long, with a thick foot 1 mm long, pollinia 4.

COLOMBIA: without collection data, obtained from Andrea Niessen de Uribe of Orquídeas del Valle, Cali, Colombia, flowered in cultivation, Jan. 2010, by B. Rinke s.n. (Holotype of P. rinkei: MO), C. Luer illustr. 21511.

Among the species of Pleurothallopsis Porto \& Brade, this species is distinguished by a small habit; very slender ramicauls; an obovate leaf rounded at the tip; orange sepals suffused with red medially, with the lateral sepals free; a thick, bicallous lip that is strongly convex above the middle, and two pairs of pollinia.

Porroglossum gerritsenianum Luer \& R.Parsons, sp. nov.
Ety.: Named for Mary Gerritsen of San Mateo, CA, author and pleurothallid enthusiast.
Species haec Porroglosso dactylo Luer persimilis, sed sepalorum caudis brevioribus crassicylindricisque, et synsepalo profunde concavo differt.

Plant medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls slender, erect, ca. 1 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, petiolate, $5-7 \mathrm{~cm}$ long including the petiole ca. 2.5 cm long, the blade elliptical, subacute, ca. 1 cm wide, the base cuneate into the slender petiole. Inflorescence a congested, successively few-flowered raceme, the flowers nonresupinate, borne by an erect, smooth, slender peduncle 13 cm long, with 2-3 closely applied, distant bracts, from low on the ramicaul; floral bracts thin, tubular, imbricating, 5 mm long; pedicel $4-5 \mathrm{~mm}$ long; ovary twisted, pitted, 5 mm long; sepals whitish with dark rose spots, glabrous, the middle sepal obovate, deeply concave, 5 mm long, 5 mm wide expanded, connate to the lateral sepals for 2 mm , the apex obtuse, contracted into a 1 mm thick, 4 mm long, cylindrical, descending, greenish white tail with minute purple spots, the lateral sepals transversely oblong, oblique, 5 mm long, 8 mm wide, connate to each other for 5 mm behind the free apex of the column-foot to form a deeply concave, cucullate apex, the broadly obtuse apices abruptly contracted into cylindrical tails 5 mm long, 1 mm thick, colored as that of the dorsal sepal; petals yellow-green with purple midvein and margins, ovateoblong, 4 mm long, 1-1.75 mm wide, narrowed below the thickened, clavate apex, both margins with an acute, triangular process in the middle third; lip uppermost, whitish with minute purple spots, glabrous, the blade thick, triangular, truncate, 5 mm long, 3 mm wide, the lateral angles rounded, the apex with a short, triangular, sulcate apiculum, the base with a low, obtuse, dark red-purple, pyramidal callus, deflexed below into a straplike claw bent with tension around the free apex of the columnfoot; column stout, semiterete, 2 mm long, the foot 5 mm long, the stigma with a minute pair of pointed processes.
ECUADOR: source of plant unknown, obtained ca. 2005, flowered in cultivation, San Francisco, CA, Nov. 2009, by R. Parsons s.n. (Holotype of P. gerritsenianum: MO), C. Luer illustr. 21501.

This species of section Torta is most similar to Porroglosum dactylum Luer, but differs from the uniformly dark maroon flowers of $P$. dactylum with clavate sepaline tails longer than the blade, by having dark rose-spotted sepals with shorter, terete, sepaline tails. The uppermost synsepal is distinctly concave, or cucullate between the thick, outstretched tails.

## Porroglossum oversteegenianum Luer \& Sijm, sp. nov.

Ety.: Named in honor of the late Pieter Oversteegen, of Eindhoven, Holland, editor and publisher of the series "Orchids in Color."
Inter species generis Porroglossi Schltr., planta parva, foliis leviter verruculosis, pedunculo laevi, sepalorum caudis crassis similibus, labello non protuberanti ubi extenso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1 cm long, enclosed by 2 thin, tubular sheaths. Leaf erect, thickly coriaceous, slightly verrucose, petiolate, $3.5-4 \mathrm{~cm}$ long including the petiole ca. 1 cm long, the blade elliptical obovate, subacute to obtuse, $0.8-0.9 \mathrm{~mm}$ wide, narrowly cuneate below into the petiole. Inflorescence a single flower produced successively, borne by an ascending, slender, smooth peduncle 8 cm long, with a few distant bracts, from the base of a ramicaul; floral bract tubular, 5 mm long; pedicel 5 mm long; ovary smooth, 5 mm long; sepals translucent white, faintly suffused with rose, glabrous, veins prominent externally, the dorsal sepal ovate, 17 mm long including a tail $7-8 \mathrm{~mm}$ long, 6 mm wide, connate to the lateral sepals for 3 mm to form a gaping cup, the apex obtuse, contracted into a thick, ascending tail, the lateral sepals ovate, oblique, acute, 6 mm long, 7 mm wide, connate 3 mm to each other and to the column-foot to form the floor of the cup, the apices contracted into thick, extended tails $7-8 \mathrm{~mm}$ long; petals white, oblong, round at the apex, 4.5 mm long, 1 mm wide, 1 -veined, the lower margin with a broadly obtuse angle below the middle; lip white, suffused with rose, glabrous, the blade obtriangular, 4.5 mm long, 4.5 mm wide, the apex broadly subtruncate with the angles rounded, with a short, obtuse apiculum, the base of the blade with a low, obtuse, more or less broadly conical callus, the base extended into a straplike claw bent with tension around the free apex of the column-foot; column stout, semiterete, 2,5 mm long, the foot 4 mm long.
ECUADOR: Without collection data, flowered in cultivation in Venhuizen, Holland, Sept. 2009, by A.P. Sijm 280714 (Holotype of Porroglossum oversteegenianum: MO), C. Luer illustr. 21406.

This small species has no single diagnostic feature. It is characterized by a smooth, slender peduncle longer than the leaf; an untwisted ovary, and a mediumsized flower with translucent white sepals suffused with rose. The sepaline tails are thick, and about as long as the blade. The petals are narrowly oblong, and the blade of the lip is obtriangular with rounded angles, and the callus of the claw is low and obscurely conical.



Fig. 1. Brachionidium carmeniae


Fig. 3. Lepanthes clementinensis


Fig. 2. Brachionidium inkaterrense


Fig. 4. Lepanthes cornejoi


Fig. 5. Lepanthes ephalmatrix


Fig. 7. Lepanthes stewartiorum


Fig. 6. Lepanthes sorayae


Fig. 8. Masdevallia gentianoides


Fig. 9. Masdevallia gerhardii


Fig. 11. Masdevallia oversteegeniana


Fig. 10. Masdevallia lophina


Fig. 12. Masdevallia singeri


Fig. 13. Octomeria corrigiosa


Fig. 15. Octomeria tweediei


Fig. 14. Octomeria fusiformis


Fig. 16. Platystele cornejoi


Fig. 17. Platystele speckmaieri


Fig. 19. Porroglossum gerritsenianum


Fig. 18. Pleurothallopsis rinkei


Fig. 20. Porroglossum oversteegenianum

## CORRIGENDA

Lepanthes millei Schltr,, Repert. Spec. Nov. Regni Veg. 14: 127, 1915.
Type: Ecuador: epiphytic in subandine forest, alt. ca. 2600 m , s.d., L. Mille 8 (Lectotype here designated: QPLS).

No lectotype had been selected for Lepanthes millei in Monogr. Syst. Bot. Missouri Bot. Gard. 61: 74, 1996.

Lepanthes rhodophylla Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 56, 1921. Type: Ecuador: Cordillera Tegua, 1898, Sodiro 236 (Lectotype here designated: BR).
An incorrect specimen at BR was erroneously cited as the lectotype in Monogr. Syst. Bot. Missouri Bot. Gard 61: 147, 1996.

Luzama chaucana (Luer \& Hirtz) Luer, comb. nov.
Bas.: Masdevallia chaucana Luer \& Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 103: 287, 2005 as chaucae.
Type: Ecuador: Azuay, western declivity, alt. 2000 m , coll. by Ecuagenera, fl. in cult., 2 May 2004, A. Hirtz 8738 (Holotype: MO), C. Luer 20878.

Niphantha Luer, gen. nov.
Type: Pleurothallis gelida Lindl., Edwards's Bot. Reg. 27: Misc. 91, 1841.
Habitus grandis, folia valde petiolata, spatha grandis, sepala lateralia quasi libera, labellum obcuneatum, columna semiteres alata.

This taxon of two species has been treated in Pleurothallis, Specklinia, and Stelis, in none of which can it be accommodated morphologically. Niphantha was first proposed in Monogr. Syst. Bot. 112: 107, 2007, but the validation is herein.

Niphantha gelida (Lindl.) Luer, comb. nov.
Bas.: Pleurothallis gelida Lindl., Edwards's Bot. Reg. 27: Misc. 91, 1841.
Type: Jamaica: cult. 1841, Loddiges s.n. (Lectotype here designated: K).
Niphantha pidax (Luer) Luer, comb. nov.
Bas.: Pleurothallis pidax Luer, Selbyana 5(2): 174, 1979.
Type: Ecuador: Los Rios, Río Palenque Sc. Center, km 47, S of Santo Domingo, alt. 2000 m, Mar. 1976, fl. in cult. at SEL, Jan 1978, C. Luer 2277 (Holotype: SEL).

Stelis mucronella Luer, nom. nov.
Replaced name for Stelis mucronata Lindl., Folia Orchid. Stelis 18(132), 1858, not Stelis mucronata D.Don, Prodr. Flora Nepalensis 32, 1825.

Type: Ecuador: Pichincha, without locality, Jameson s.n. (Holotype: K).
Pleurothallopsis niesseniae (Luer) Luer, comb. nov.
Bas.: Restrepiopsis niesseniae Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 130, 2001.
Type: Colombia: Cauca: cultivated by A. Niessen \& J.C. Uribe 114 (Holotype: MO).

