

LIGEOPHILA LONGIBRACTEATA (ORCHIDACEAE), A NEW JEWEL ORCHID OF THE GOODYERINAE SUBTRIBE FROM THE NEOTROPICS

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ABSTRACT. A new species, *Ligeophila longibracteata*, from Ecuador is described and illustrated. It represents the twelfth known species of the neotropical genus *Ligeophila*, first described by Garay in 1977. An updated overview of the genus precedes the species description.

Key words: Ecuador, Goodyerinae, *Ligeophila longibracteata*, Orchidaceae

INTRODUCTION

The center of diversity of the Goodyerinae subtribe of orchids lies in Asia, but a significant secondary concentration is located in the neotropics. Prior to 1977, these New World taxa had been assigned either to the pan-global, type-genus of the subtribe, *Goodyera* R. Brown or to a broad concept of the genus *Erythrodes* Blume. Prior to 1922, the latter had mostly been described under the invalid synonym *Physurus* L.C. Richard.

Leslie A. Garay (1977) proposed that more than half of the neotropical species then assigned to *Erythrodes* be split off from that genus and transferred to seven new genera, which he described. One of these segregate genera is *Ligeophila*, derived from the Greek words 'lyge' (shadow) and 'phila' (loving), referring to the shaded habitat of the plants. Garay transferred six species of *Erythrodes* to *Ligeophila* and described two new ones in his revision. He described two more species in his contribution to the *Flora of Ecuador* (Garay 1978). Paul Ormerod (2004) described an additional species and has indicated that two species described in 2005 are to be reduced or reassigned. The subject of this article thus represents the twelfth known species of the genus to date.

Given the expansion of species assigned to *Ligeophila* since its description nearly 3 decades ago, the development of a botanical key for the genus would be useful and a worthwhile goal. Construction of such a key, however, had best wait description of taxa represented in various other collections. Included here, in lieu of a *Ligeophila* key is an updated overview of the genus (TABLE 1) and an accompanying map depicting the distribution of the type species (FIGURE 1).

TAXONOMIC TREATMENT

Ligeophila longibracteata Soroka, sp. nov.

TYPE: Ecuador—Azuay Province, Bella Rica. Montane cloud forest, 1600 m. Flow-

ered in cultivation: Florida, July 2004. Soroka 60504 (Holotype: Herbarium Soroka). FIGURES 2, 3.

Herbula terrestris, decumbens, usque ad 24 cm alta; foliis 6–10, lanceolatis, involutis, petiolo incluso usque ad 12 × 3 cm, late univittatis pallide viridibus argenteis notatis; inflorescentia brevi, subsessili, dense multiflora, circa 6 cm longa, rhachi pubescenti; bracteis conspicuis, contractis ad medium, involutis, usque ad 30 × 5 mm, glabris; floribus 8 mm longis, glabris; ovario clavato, 6 × 1.2 mm, sparse pubescenti; sepalis postico lanceolato, 4 mm longo, sepalis lateralibus ob lanceolatis, 4 mm longis; petalis subfalcatis, 4 mm longis, lobo ventrali circulari 1 mm lato; calcare ellipsoideo, 4 × 1.6 mm; labello, 4 × 3 mm, basin subcuneatis et involutis cum bilamellata ante aperturam calcaris; mesochilio marginem undulato prope utrinque lamellato serpentino; epichilio sessili, semilunato, deflexo, 1.2 × 3 mm; columna 2.9 × 1.1 mm, axe brevi, dilatato distali truncato; rostello ovato, subterstigmato articulado, membranaceo, stigmatate transverse obovato, 6 × 9 mm; anthera ovata, concava, articulata; pollinario concavo, 1.4 × 1 mm, polliniis clavatis, viscidio deltato et atro.

Plant small, terrestrial, decumbent herb to 24 cm, leafy part of stem to 18 cm; inflorescence ca. 6 cm. **Rhizome** prostrate, creeping, rooting from nodes; roots fleshy, villose. **Stem** increasingly ascendant, then erect at terminal inflorescence, terete, to 5 mm thick, green. **Leaves** 6–10, lax; blade lanceolate, moderately involute, apex acuminate and lightly crispate, margin hyaline, base attenuate, to 9 × 3 cm, velutinous, medium green with single broad, pale silvery green longitudinal stripe along midvein, 6–12 mm wide with spargate (scattered) margin. **Petiole** to 3 cm including sheathing base. **Transitional leaves** 2–3, at inflorescence base, lanceolate, crispate, to 6 × 1 cm. **Inflorescence** almost sessile, short, pale purple. **Peduncle** 1 cm long, enveloped by vaginate bases of 2–3 bracts. **Sheathing bracts** unguiculate with central constriction, involute, apex acute and undulate, to 30 × 5 mm, glabrous; **rachis** ca. 5 cm, laxly pubescent, tightly congested with ca. 30–40

TABLE 1. Generic overview of *Ligeophila* Garay.

Species no.	Description years(s)	Specific name	Describing botanist(s)	Holotype provenance
1	1840 [1977]	<i>Ligeophila rosea</i>	(Lindley) Garay	Brazil: Minas Gerais
2	1856 [1977]	<i>L. clavigera</i>	(Rchb.f.) Garay	Officially unknown**
3	1873 [1977]	<i>L. stigmatoptera</i> *	(Rchb.f.) Garay	Brazil: Amazonas
4	1895 [1977]	<i>L. peteriana</i>	(Cogn.) Garay	Suriname
5	1906 [1977]	<i>L. bicornuta</i>	(Cogn.) Garay	Brazil: Amazonas
6	1910 [1977]	<i>L. juruensis</i>	(Hoehne) Garay	Brazil: Mato Grosso
7	1977	<i>L. amazonica</i>	Garay	Venezuela: Amazonas
8	1977	<i>L. umbraticola</i>	Garay	Colombia: Amazonas
9	1978	<i>L. jamesonii</i>	Garay	Ecuador
10	1978	<i>L. lutea</i>	Garay	Ecuador: Zamora-Chin.
11	2004	<i>L. misera</i>	Ormerod	Peru: Cusco
12	2006	<i>L. longibracteata</i>	Soroka	Ecuador: Azuay

Note: Species numbers correspond with those in the FIGURE 1 distribution map. * Type species of the genus *Ligeophila* designated by Garay in 1977. ** No definitive data, but Costa Rica is widely suspected as origin.

flowers. **Floral bracts** conspicuous, lanceolate above an auriculate base, involute, apex acute and undulate, to 25 × 5 mm decreasing in size, ascending rachis, glabrous; **flowers** extrorse, exerted around base of each ascendant floral bract. **Ovary and pedicel** collectively clavate, 7 × 0.2–1.2 mm, sparsely pubescent. **Dorsal sepal** lanceolate, apex acute, 4 × 1.3 mm, glabrous. **Lateral sepals** oblanceolate, ventral margin arcuate, dorsal margin serpentine, 4 × 1.2 mm,

glabrous; **petals** subfalcate with a circular lobe on ventral margin, 4 × 0.2–1 mm, white. **Spur** ellipsoidal, depressed, straight, 4 × 1.6 mm and 0.9 mm high. **Labellum** 4 × 0.7–3 mm, extending to 5 × 1.1–3 mm when flattened out. **Hypochile and Mesochile** collectively subcuneate, and involute above a pair of longitudinal fleshy ridges that form a central groove on internal surface tapering toward nectary spur entrance; mesochile margins undulate, adjacent to a pair of

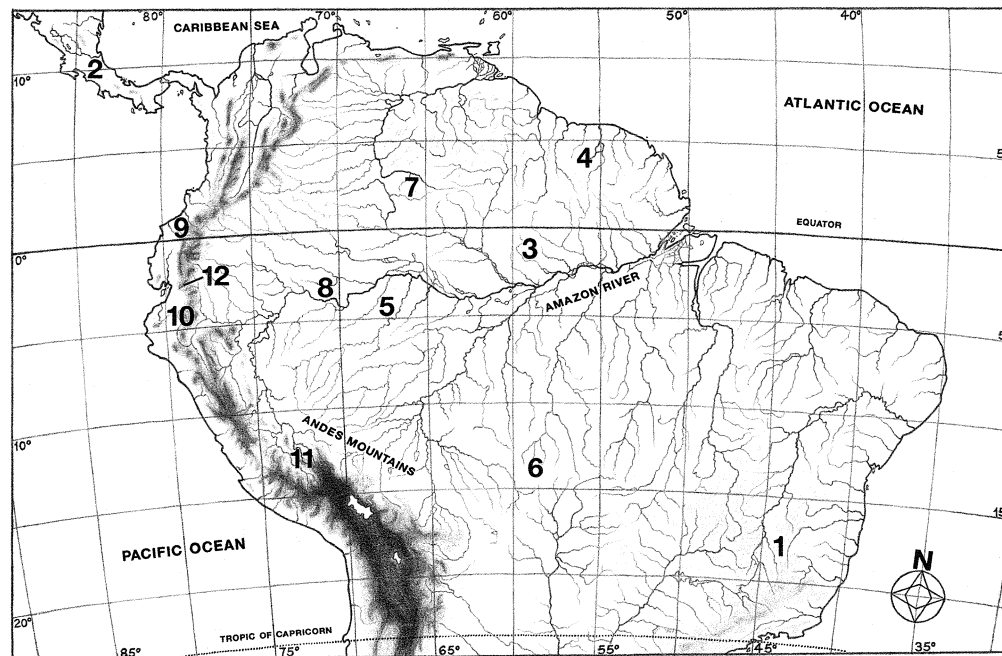


FIGURE 1. Distribution map of *Ligeophila* Garay in Central America and South America. Numbers correspond to the *Ligeophila* species listed in TABLE 1.



FIGURE 2. *Ligeophila longibracteata* Soroka. A flowering plant drawn by the author from a cultivated specimen of the holotype/Herbarium Soroka. Scale: double bar 1 cm.

serpentine ridges on external surface. **Epichile** sessile, naturally deflexed, distally introrse, semilunate, trilobed, a pair of sinuses separate the lateral lobes from the apiculate apex, 1.2×3

mm. **Column** 2.9×1.1 mm; rostellum ovate, articulated underneath the stigma at its base, membranous, translucent. **Stigma** transversely obovate, 6×9 mm, papillose; anther ovate, cen-

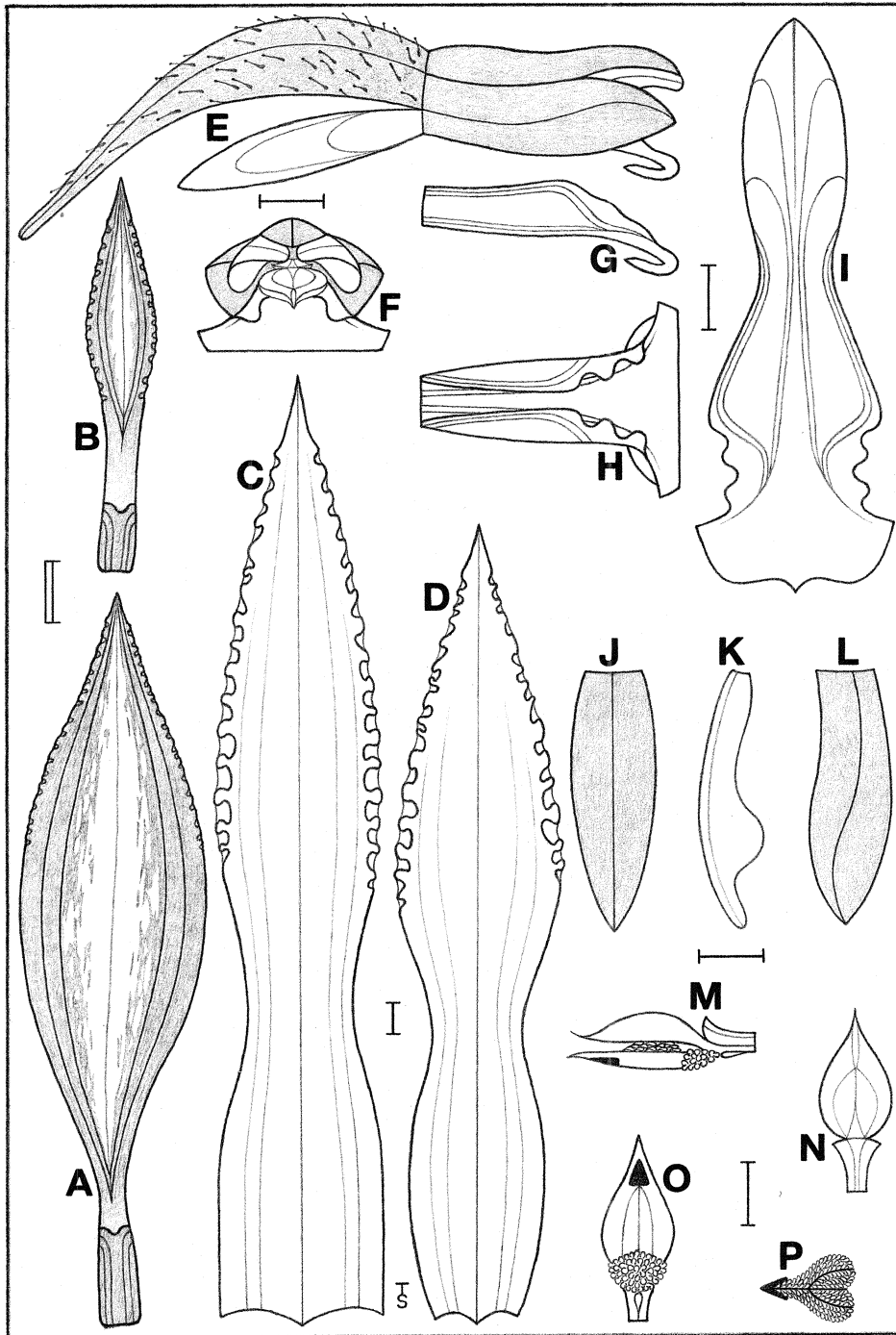


FIGURE 3. *Ligeophila longibracteata* Soroka. A. Mature leaf. B. Transitional leaf. C. Sheathing bract. D. Floral bract. E. Flower/lateral. F. Flower/distal. G. Labellum/lateral. H. Labellum/dorsal. I. Labellum and spur/spread. J. Dorsal sepal. K. Petal. L. Lateral sepal. M. Column/lateral. N. Column and anther. O. Column and rostellum. P. Pollinarium. Drawn by the author from the holotype/Herbarium Soroka. Scale: single bar 1 mm, double bar 1 cm.

trally concave, apex acuminate and recurved, its base forms articulation above column's short, distally dilated, then truncate axis. *Pollinarium* dorsally concave at pollinia apices, 1.4×1 mm. *Pollinia* 2 broadly clavate, yellow. *Viscidium* deltoid, 0.4×0.3 mm, black.

Hierbas pequeñas, terrestres, decumbentes ca. 24 cm alto. *Hojas* 6–10, lanceoladas, involutas, incluyendo los pecíolos hasta 12×3 cm, marcadas con una raya ancha y longitudinal verde pálido plateada. *Inflorescencia* corta, subsésil, densamente multiflora, ca. 6 cm de largo; raquis pubescente. *Brácteas* conspicuas, contraídas en la mitad, involutas hasta 30×5 mm, glabras. *Flores* 8 mm de largo, glabras. *Ovario* claviforme, 6×1.2 mm, ligeramente pubescente. *Sépalo* dorsal lanceolado, 4 mm de largo; sépalos laterales oblanceolados, 4 mm de largo. *Pétalos* subfalcados, 4 mm de largo con un lóbulo ventral redondeado 1 mm de ancho. *Espolón* elipsoideo, 4×1.6 mm. *Labelo* 4×3 mm; la porción basal subcuneiforme y involuta con 2 quillas delante de la entrada del espolón; los bordes de la porción medial ondulados y con una lamela ondulada en cada lados; la porción apical sésil, semilunulada, reflexa, 1.2×3 mm. *Columna* 2.9×1.1 mm; eje corto, dilatado hacia adelante y truncado; rostelo ovado, articulado debajo del estigma, membránaceo; estigma transversalmente obovado, 6×9 mm; antera ovada, cóncava, articulada; polinario cóncavo, 1.4×1 mm, polinios claviforme, viscidio triangular, negro.

DISCUSSION

Ligeophila Garay is taxonomically characterized by a short, unstalked column, an articulated rostellum that moves on its hinged base from porrect to erect after pollinarium removal, a transversely confluent stigmatic surface, a concave anther, a spurred labellum that bears a pair of fleshy, ridged lamellae on the hypochile's interior surface leading back to the nectary spur, and typically an elaborate lunate to anchoriform, deflexed epichile.

Ligeophila longibracteata shares all of these details yet does not appear to have any close relatives in the genus, at least not among the species described to date. It exhibits a number of features, both macro and micro characters, which collectively serve to easily distinguish it.

The floral bracts, which have an auriculate base below a central contraction, are striking in their length and measure up to three times longer than the flowers. They are well over double the proportional length found in any other described

Ligeophila, regardless of whether the ovary is included or excluded in flower length.

Paul Ormerod (pers. comm.) has examined a collection of *Ligeophila rosea* (Lindley) Garay that bears exceptionally long floral bracts as well. Although this trait is not found in the type of that species, his careful analysis of all other details in that specimen agree with *Ligeophila rosea*, including its much taller inflorescence with a longer peduncle.

The flowers of *Ligeophila longibracteata* possess several distinctive characteristics that set this species apart from all others in the genus. The relatively broad and short spur is ellipsoidal in shape. The margins of the labellum's mesochile are prominently undulate, adjacent to which is a pair of narrow serpentine ridges on the external surface of the lip. The unclawed labellum's sessile, semilunate epichile is shaped overall much like the blade of a common garden hoe. The dorsal and lateral sides of the column axis are dilated distally and then abruptly truncate at the articulated base of the anther.

This species displays an interesting leaf color pattern that serves to increase its light-capture efficiency. The involute leaf blades bear a broad longitudinal band of pale silvery green along the midvein with a spargate border (see FIGURE 3). At this border, it intermingles with the darker green of the leaf margins, forming numerous inclusions.

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