
Agnesia, a New Genus of Amazonian Herbaceous Bamboos (Poaceae: Bambusoideae: Olyreae)

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ABSTRACT. *Agnesia lancifolia* from Amazonian South America is described and illustrated. A table distinguishing the new genus from related taxa is given.

In their revision of the herbaceous bamboo genus *Olyra* L. (Poaceae: Bambusoideae: Olyreae), Soderstrom & Zuloaga (1989) left *O. lancifolia* Mez untreated. Merely noting that the species probably represented a genus different from *Olyra*, they declined to describe it based on the little material available, the only collections having been made in 1901, 1943, 1965, and 1976.

In preparing a treatment of the herbaceous bamboos for the *Flora de Colombia* project, however, it has become necessary to deal with *O. lancifolia*. Based on its inflorescence morphology and distinctive, apiculate female floret, we have chosen, following the suggestion of the late Thomas R. Soderstrom, to describe it as yet another segregate of *Olyra*, especially since no new and better collections have been forthcoming over the last 16 years.

Agnesia is distinguished from all other olyroid grasses by its combination of the following characters: reduced, racemelike panicles at the upper nodes, usually with a single terminal female and several subterminal male spikelets; female spikelets with caudate, 3–5-nerved glumes; and ellipsoidal, pubescent, female florets, with the apex prolonged into an abrupt, slender, short-pilose mucro. This short-awned female floret is particularly noteworthy and separates the new genus from any other olyroid grass except *Buergersiochloa* Pilger and *Ekmanochloa* A. Hitchcock.

Using Clayton & Renvoize's (1986) key to grass genera, *Agnesia* would key out near *Rehia* Fijten, *Maclurolyra* Calderón & Soderstrom, and *Reitzia* Swallen (Table 1), genera that the authors note are "... barely distinct, and not much different from *Olyra*" However, *Olyra* would become uncom-

fortably heterogeneous if any of these three genera, or *Agnesia*, were included. All differ from *Agnesia* in their awnless female florets. In addition, *Rehia* differs in its cormose culm bases; male spikelet pedicels longer than the female pedicels; and 1–5 male spikelets below each solitary or paired female spikelet(s). *Maclurolyra* differs in its solitary inflorescence per culm. Using the generic keys in Calderón & Soderstrom (1980), *Agnesia* would key out to *Reitzia*. The latter genus differs, however, in its numerous, often paired female and male spikelets in each inflorescence; cartilaginous female glumes; and glabrous female florets.

Arberella Soderstrom, another olyroid genus, is possibly the closest relative of *Agnesia*. Both genera have inflorescences with a single (rarely several), solitary female spikelet(s) on a clavate pedicel, and have densely silky-hairy female florets. However, *Arberella* differs in the presence of axillary inflorescences at the lower and middle nodes; female glumes often separated from the floret by a distinct internode; the adaxial, proximal portion of leaf blade midnerve terminating in a knoblike swelling; the presence (in some species) of blisterlike callus marks on the culms just below the nodes; and awnless female florets.

Agnesia also shows some similarities to *Olyra amapana* Soderstrom & Zuloaga and *O. juruana* Mez. All three taxa have 1–10 inflorescences borne at the uppermost nodes; subequal female glumes; and a silky-hairy female floret. Furthermore, *O. amapana* has a solitary (or rarely 2–4) terminal female spikelet(s) in each inflorescence. However, these species of *Olyra* differ from *Agnesia* in their more or less strongly asymmetrical leaf blade bases; 7–11-nerved female glumes; and, once again, awnless female florets.

***Agnesia* Zuloaga & Judziewicz, gen. nov. TYPE:**
A. lancifolia (Mez) Zuloaga & Judziewicz.

TABLE 1. Comparison of *Agnesia* to related genera.

Character	<i>Arberella</i>	<i>Agnesia</i>	<i>Maclurolyra</i>	<i>Piresia</i>	<i>Rehia</i>	<i>Reitzia</i>
Female spikelets/inflorescence	1(several)	1(several)	many	2-4	2-5	5-6
Female glumes awned (+) or not (-)	-	+	-	-	+	-
Female glumes, number of basal nerves	5-11	3-5	3-5(-7)	3-5	7	3-5
Female floret, basal internode present (+) or not (-)	+(+)	-	-	-	-	-
Female floret indument: silky (S) or glabrous (G)	S	S	S	S	S	G
Female floret awned (+) or not (-)	-	+	-	-	-	-
Axillary inflorescences at lower nodes present (+) or absent (-)	+	-	-	-	-	-
Inflorescences on separate culms present (+) or not (-)	-	-	-	+	-	-

Ab omnibus generibus tribus Olyreae a combinatione characterum sequentium optime distincta: panícula reducta, racemoso-paniculata apicem versus, plerumque spicula feminea solitaria, terminali et variis spiculis masculis subterminalibus; floscula feminea glumis 3-5-nerviis; floscula feminea ellipsoideales, pubescentes, apice mucrone gracili, brevi-piloso abrupto producto.

Delicate caespitose, herbaceous perennials. Culms unbranched above the base. Lower and middle leaves bladeless or with minute, erect to reflexed, linear to ovate-lanceolate blades; upper leaves in dense, pinnate-appearing complements of 3-15; sheaths slightly keeled on back, the summit prolonged on one side into a small auricle; inner ligule small, membranous; pseudopetioles present, short; blades linear to lanceolate, flat, cuneate and slightly asymmetrical at the base, acuminate and symmetrical at the apex. Inflorescences several from the uppermost nodes, short-exserted or the bases included in the uppermost leaf sheaths; individual inflorescence a short, racemose panicle, the axis terminating in a clavate pedicel bearing a female spikelet, and several to many subterminal male spikelets (or occasionally several male and female spikelets) borne on erect, filiform pedicels, or occasionally a short, erect branch present in the lower part of the inflorescence, this bearing two male spikelets and often subtended by a minute bract; rachis and pedicels triquetrous. Female spikelets slenderly lanceolate, falling entire or the glumes tardily deciduous; glumes lanceolate-aristate, firmly membranous, caudate, their apices prolonged into stiff, scabrous, scissorslike awns; lower glume 5-nerved, slightly longer than the 3-nerved upper glume; floret deciduous, the lemma shorter

than the glumes, ellipsoidal, coriaceous, pale becoming mottled with dark spots, the surface smooth and shiny, covered throughout with appressed, silky hairs, the apex acute, prolonged into an abrupt, slender, short-pilose mucro 1-1.5 mm long; palea nearly concealed by the overlapping margins of the lemma except at the base; flower and fruit not seen. Male spikelets early deciduous, shorter than the female spikelets, linear, hyaline, lacking glumes, the lemma 3-nerved, caudate-acuminate, the palea 2-nerved, acute; flower not seen. Chromosome number unknown.

Agnesia is a rare, monotypic genus of wet, lowland forests in Amazonian South America.

The genus is named in honor of Agnes Chase (1869-1963), outstanding American agrostologist and author of a monumentally complete and useful index of published grass names (Chase & Niles, 1962). Even today, Chase's handwritten notes on specimens and folders in the U.S. National Herbarium often provide welcome hints and time-saving insights into the identities and relationships of many grasses.

***Agnesia lancifolia* (Mez) Zuloaga & Judziewicz, comb. nov.** Basionym: *Olyra lancifolia* Mez, Notizbl. Bot. Gart. Berlin-Dahlem 7: 45. 1917. TYPE: Brazil. Amazonas: ad flumen Juru prope Fortaleza [confluence of Rio Juru and Rio Solimoes, ca. 2°35'S, 65°40'W], Oct. 1901, *E. Ule* 5951 (holotype, B not seen, probably destroyed; photograph and fragment of leaf, US; isotype, HBG? not seen). Figure 1.



Figure 1. *Agnesia lancifolia* (Mez) Zuloaga & Judziewicz. —A. Habit of plants from typical populations. —B. Habit of plants from a Pará, Brazil, population. C–G. Female spikelet. —C. Entire spikelet and upper part of pedicel.

Culms 7–10 per clump, erect, 15–50 cm tall, 1 mm diam.; internodes puberulent in lines; nodes flaring, the lower geniculate and at maturity splitting in two, glabrous. Lower and middle leaves bladeless or with minute blades up to 5 mm long; upper leaves with sheaths 20–30 mm long, folded width 2 mm, glabrous on the back, puberulent toward the broad, hyaline margins, the auricle 0.5 mm long, pilose or glabrous; inner ligule 0.3–0.6 mm long, ciliate; pseudopetiole 1–2 mm long, densely pubescent adaxially, glabrous abaxially; blades (60–)80–160 mm long, (3–)10–30 mm wide, green above, green or purplish below, glabrous, the margins scabrous. Inflorescences 1–6 from the terminal and subterminal nodes, 20–40 mm long, borne on puberulent peduncles up to 80 mm long; individual inflorescences 10–40 mm long, with a terminal (occasionally 3–4) female spikelet(s) and 4–12 subterminal male spikelets, borne on pedicels 0.5–3 mm long, the basal branch up to 5 mm long, its bract to 0.5 mm long. Female spikelets 11–15 mm long; glumes glabrous to puberulent; lower glume 11–18 mm long including an awn 4.5–8 mm long, 5-nerved (or 7–8-nerved toward the apex), the nerves anastomosing, scabrous toward the apex on the inner surface; upper glume 9–15 mm long including an awn 2.5–5 mm long, 3-nerved; floret lanceolate, the lemma 7–8 mm long, 1.7–2 mm wide, covered with hairs ca. 1 mm long. Male spikelets reportedly linear, 7–8 mm long, densely pilose, the lemma prolonged into a flexuous awn 1–2 mm long; flower not seen.

Habitat and distribution. Shaded understory of wet, lowland, terra firme forests of Amazonian Brazil, Colombia, and Peru.

The Prance collection from Pará, eastern Amazonia, which is unfortunately sterile, has narrow,

linear leaf blades in complements of 7–15 (Fig. 1B; compared with 3–7 in the other collections, Fig. 1A) and linear blades only 60–80 mm long and 3–4.5 mm wide (compared with 100–160 mm long and 10–30 mm wide in the other collections). More collections may show this very elegant population to be a species separate from *A. lancifolia*.

Additional specimens examined. BRAZIL. **Pará:** 10 km S of Rio Muirapiranga, Rios Pacaj and Muirapiranga, 2°33′–50′S, 50°38′–50′W, terra firme, 12 Oct. 1965 (sterile), *Prance et al. 1619* (NY, US). COLOMBIA. **Guaviare:** confluence of Río Macaya and Río Ajajú, Puerto Hevea, 300 m, July 1943 (fl), *Grassl 10031a* (GH, US). PERU. **Loreto:** Río Javari, 2 hours above Javarizinho, forest on terra firme, 24 Oct. 1976 (fl), *Prance et al. 24087* (MO, NY, US).

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Literature Cited

- Calderón, C. E. & T. R. Soderstrom. 1980. The genera of Bambusoideae (Poaceae) of the American continent: Keys and comments. *Smithsonian Contr. Bot.* 44: 1–27.
- Chase, A. & C. D. Niles. 1962. *Index to Grass Species*. 3 vols. G. K. Hall, Boston.
- Clayton, W. D. & S. A. Renvoize. 1986. *Genera Graminum: Grasses of the World*. Kew Bull. Add. Ser. XIII. Her Majesty's Stationery Office, London.
- Soderstrom, T. R. & F. O. Zuloaga. 1989. A revision of the genus *Olyra* and the new segregate genus *Parodiolyra* (Poaceae: Bambusoideae: Olyreae). *Smithsonian Contr. Bot.* 69: 1–79.

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—D. Lower glume. —E. Upper glume. —F. Floret, dorsal view. —G. Floret, ventral view. —H. Outline of male spikelet. (A, C–G based on *Grassl 10031A*, US; B based on *Prance et al. 1619*, US; H based on an unpublished drawing by Chase from *Ule 5951*, B.)



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