

195. **MICROSTEGIUM** Nees in Lindley, Nat. Syst. Bot., ed. 2, 447. 1836.

莠竹属 you zhu shu

Chen Shouliang (陈守良); Sylvia M. Phillips

*Ischnochloa* J. D. Hooker.

Perennial or annual. Culms slender, creeping or rambling, usually much branched and rooting at lower nodes. Leaf blades broadly linear to lanceolate or elliptic, base narrow, apex acuminate to setaceous; ligule membranous, truncate, back pubescent. Inflorescence terminal, composed of 1 to many subdigitate racemes on a short axis; racemes elongate, sparsely hairy, usually fragile, sessile and pedicelled spikelets of a pair similar, rarely both spikelets unequally pedicelled; rachis internodes filiform to clavate or inflated; pedicels resembling internodes but shorter. Sessile spikelet lanceolate, dorsally compressed; callus shortly bearded; glumes herbaceous to cartilaginous; lower glume deeply grooved on back or with a broad median channel, margins inflexed, 2-keeled at least toward apex; upper glume boat-shaped, acute to shortly awned; lower floret almost always sterile, reduced to a single scale or absent; upper floret bisexual, lemma linear to cordate, deeply 2-lobed, shortly 2-toothed, or rarely entire, usually awned; awn flexuous or geniculate. Stamens 2–3. Pedicelled spikelet resembling the sessile but slightly narrower and less concave, occasionally slightly smaller and staminate.

About 20 species: India to Japan and SE Asia, a few species in Africa; 13 species (three endemic) in China.

The name *Microstegium glaberrimum* (Honda) Koidzumi (Bot. Mag. (Tokyo) 43: 394. 1929; *Pollinia glaberrima* Honda, Bot. Mag. (Tokyo) 39: 42. 1925), described from Taiwan, has been misapplied in recent literature to forms of *M. ciliatum*. The protologue describes a grass with only 2 or 3 short racemes of small (ca. 2 mm), awnless spikelets. The type has not been seen, and it has not proved possible to establish the identity of this taxon.

- 1a. Rachis internodes filiform, glabrous or villous, equaling or longer than spikelets.
  - 2a. Rhizomatous perennial; raceme solitary; rachis internodes and pedicels long-ciliate ..... 1. *M. batangense*
  - 2b. Annuals; racemes 2–7; rachis internodes and pedicels glabrous or almost so.
    - 3a. Stamens 3; lower lemma reduced or absent ..... 2. *M. fauriei*
    - 3b. Stamens 2; lower lemma well developed, slightly shorter than glumes.
      - 4a. Spikelets of a pair one sessile, the other pedicelled; raceme rachis fragile ..... 3. *M. nudum*
      - 4b. Spikelets of a pair both pedicelled, one pedicel long, the other short; raceme rachis tough.
        - 5a. Spikelets 1-awned (from upper lemma); lower glume smooth, apex subentire; nodes of culm glabrous ..... 4. *M. japonicum*
        - 5b. Spikelets 3-awned (from upper glume and both lemmas); lower glume scabrid, apex 2-cleft; nodes of culm pubescent ..... 5. *M. somae*
- 1b. Rachis internodes linear to clavate, inflated upward, hairy on angles, usually shorter than spikelets.
  - 6a. Upper lemma well developed, 3–4 mm, split to about middle into 2 long, acute lobes.
    - 7a. Culms rambling, up to 2 m; leaf blades 15–20 cm, pseudopetiolate, at least the lower; racemes 6–20; pedicelled spikelet awned ..... 6. *M. petiolare*
    - 7b. Culms erect, up to 40 cm; leaf blades 3–8 cm, not pseudopetiolate; racemes 2–3; pedicelled spikelet awnless or almost so ..... 7. *M. lanceolatum*
  - 6b. Upper lemma small, 1–2 mm, shortly 2-lobed or entire.
    - 8a. Anthers 0.3–0.5 mm; awn often very short, included within spikelet; sessile spikelet 4–5 mm.
      - 9a. Lower glume with transverse veinlets below apex; leaf blades 5–8 mm wide ..... 8. *M. vimineum*
      - 9b. Lower glume with transverse veinlets below apex and down flanks; leaf blades 8–12 mm wide ..... 9. *M. reticulatum*
    - 8b. Anthers 0.8–2.5 mm; awn clearly exerted from spikelet; sessile spikelet 2–4(–5) mm.
      - 10a. Spikelets 2–2.5 mm; lower glume flat on back or almost so, veins obscure ..... 10. *M. delicatulum*
      - 10b. Spikelets 2.8–5 mm; lower glume grooved on back, veins obvious.
        - 11a. Anthers 0.8–1.5 mm; upper glume with 0.3–3 mm awnlet; awn flexuous, column obscure ..... 11. *M. ciliatum*
        - 11b. Anthers 1.5–3.5 mm; upper glume acute or minutely mucronate; geniculate, column distinct.
          - 12a. Sessile spikelet 2.8–4 mm; anthers 1.5–2.5 mm; upper lemma emarginate, glabrous ..... 12. *M. fasciculatum*
          - 12b. Sessile spikelet 4.5–5 mm; anthers 3–3.5 mm; upper lemma bifid, ciliate ..... 13. *M. multiciliatum*

1. **Microstegium batangense** (S. L. Zhong) S. M. Phillips & S. L. Chen, **comb. nov.** Agric. Coll. 1982(4): 97. 1982.

巴塘莠竹 ba tang you zhu

Basionym: *Arthraxon batangensis* S. L. Zhong, J. S. W.

Perennial with tough, spreading rhizomes. Culms slender, much branched at lower nodes, sprawling, ascending to 20–45 cm, nodes glabrous. Leaf sheaths glabrous; leaf blades linear-

lanceolate, firm, glaucous, 1–5.5 cm × 1.5–2 mm, smooth, abaxial surface glabrous, adaxial surface sparsely setose toward ligule with 2–3 mm bristles, apex acuminate; ligule 0.6–1 mm. Raceme solitary, 3.5–6.5 cm; rachis internodes filiform, ciliate with ca. 2 mm hairs, equaling spikelet. Sessile spikelets 6–7.8 mm; callus hairs 2–3 mm; lower glume linear-lanceolate, keels rounded in lower 2/3, sharp and scabrid above, deeply grooved between keels in middle 1/3, 5–7-veined with transverse veinlets, apex acuminate; upper glume with rounded keel, 7-veined with transverse veinlets, upper margins shortly ciliate, apex acute and mucronate; lower floret male with well-developed palea, anthers ca. 3 mm; upper lemma 3.5–4 mm, 2-lobed to below middle, lobes acuminate, ciliate on outer margins; awn geniculate, 1–1.4 cm; upper palea well developed. Pedicelled spikelet lanceolate, male and weakly awned or reduced and barren. Fl. and fr. Aug–Oct.

- Dry river valleys, under shrubs; 2600–3100 m. Sichuan.

This grass is not a species of *Arthraxon* because the awn arises from the sinus of the 2-lobed lemma, not from low down the lemma back. The habit, grooved lower glume of the sessile spikelet, and the usually well-developed pedicelled spikelet indicate that it is better placed in *Microstegium*.

**2. *Microstegium fauriei*** (Hayata) Honda, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 3: 410. 1930.

法利莠竹 fa li you zhu

Annual. Culms decumbent, rooting at lower nodes, up to 50–100 cm, nodes glabrous or pubescent. Leaf sheaths glabrous or pubescent; leaf blades narrowly lanceolate, 5–20 × 0.3–1 cm, thinly pilose to tomentose, apex acuminate; ligule ca. 2 mm. Racemes 3–10, spreading, 4–10 cm; rachis internodes filiform, glabrous or lower edges sparsely ciliate, equaling or slightly longer than spikelet. Spikelets 4–5.5 mm; callus shortly bearded; lower glume lanceolate, back shallowly concave, obscurely 2-veined between keels, glabrous, keels stoutly pectinate-ciliate, apex shortly 2-toothed; upper glume hispid on keel, apex attenuate into 1(–3) mm awnlet; lower floret absent; upper lemma ca. 1 mm, hyaline, minutely 2-toothed; awn fine, flexuous, 2–2.5 cm, apex hairlike; upper palea ca. 1.5 mm, irregularly toothed. Anthers 3, 1.5–1.8 mm. Fl. and fr. Aug–Oct.

Montane forests and forest margins, moist places on pathsides, clearings, streams, forming colonies; middle elevations. Fujian, Guangdong, Taiwan [Indonesia, Malaysia].

- 1a. Nodes of culm glabrous; leaf blades glabrous or sparingly pilose ..... 2a. subsp. *fauriei*  
1b. Nodes of culm shortly bearded; leaf blades tomentose ..... 2b. subsp. *geniculatum*

**2a. *Microstegium fauriei*** subsp. *fauriei*

法利莠竹(原亚种) fa li you zhu (yuan ya zhong)

*Pollinia fauriei* Hayata, Icon. Pl. Formosan. 7: 73. 1918.

Culms 50–80 cm, nodes glabrous. Leaf blades glabrous or adaxial surface sparingly pilose with soft, tubercle-based hairs. Racemes 4–6, 5–9 cm.

- Montane forest margins. Taiwan.

**2b. *Microstegium fauriei*** subsp. *geniculatum* (Hayata) T. Koyama, Grasses Japan Neighboring Regions, 516. 1987.

膝曲莠竹 xi qu you zhu

*Pollinia geniculata* Hayata, Icon. Pl. Formosan. 7: 73. 1918; *Microstegium hendersonii* (C. E. Hubbard) C. E. Hubbard; *Pollinia hendersonii* C. E. Hubbard.

Culms up to 100 cm, nodes pubescent. Leaf blades tomentose on both surfaces. Racemes 5–10, 6–10 cm.

Montane forests, moist places on pathsides, clearings, streams. Fujian, Guangdong, Taiwan [Indonesia, Malaysia].

**3. *Microstegium nudum*** (Trinius) A. Camus, Ann. Soc. Linn. Lyon, n.s., 68: 201. 1921.

竹叶茅 zhu ye mao

*Pollinia nuda* Trinius, Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 2: 307. 1833; *Eulalia nuda* (Trinius) Kuntze; *Leptatherum royleanum* Nees; *Microstegium arisanense* (Hayata) A. Camus; *Pollinia arisanensis* Hayata.

Annual. Culms rambling, rooting at lower nodes, 20–80 cm long, nodes pubescent. Leaf sheaths glabrous, one margin ciliate; leaf blades narrowly lanceolate, thin, 3–8 × 0.5–1.1 cm, usually glabrous, midvein a white line below middle, apex acute; ligule ca. 0.5 mm. Racemes 2–7, very slender, slightly flexuous, lower becoming divaricate, 4–8 cm; rachis internodes filiform, glabrous, longer than spikelet. Sessile spikelet 3.5–5 mm; callus hairs 1–1.3 mm; lower glume narrowly lanceolate-oblong, back shallowly concave, glabrous or rarely hispidulous near apex, 2–4-veined, apex attenuate, hyaline, sometimes 2-toothed; upper glume weakly keeled or rounded on back, acuminate; lower lemma lanceolate, hyaline, slightly shorter than glumes; upper lemma linear, hyaline, 1.5–3 mm, emarginate; awn very fine, flexuous, 1–2 cm, apex hairlike, tangled; upper palea absent or minute. Anthers 2, 0.5–1 mm. Fl. and fr. Aug–Oct.

Moist mountainsides, forest undergrowth; ca. 3000 m. Anhui, Fujian, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, Nepal, Pakistan, Philippines, Vietnam; Africa, Australia].

**4. *Microstegium japonicum*** (Miquel) Koidzumi, Bot. Mag. (Tokyo) 43: 394. 1929.

日本莠竹 ri ben you zhu

*Pollinia japonica* Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 290. 1866; *Leptatherum japonicum* (Miquel) Franchet & Savatier; *Microstegium nudum* (Trinius) A. Camus subsp. *japonicum* (Miquel) Tzvelev.

Annual. Culms trailing, rooting at lower nodes, up to 80 cm long, nodes glabrous. Leaf sheaths glabrous, one margin ciliate; leaf blades ovate-lanceolate, 2–5 × 0.6–1.2 cm, glabrous, midvein obscure except near base, base rounded, apex acute; ligule 0.2–0.5 mm. Racemes 3–7, very slender, slightly flexuous, lower becoming divaricate, 4–6 cm; rachis internodes

filiform, glabrous, longer than spikelet; spikelets both pedicelled, shorter pedicel ca. 1 mm, longer 2.5–3 mm. Spikelets 3–4 mm; callus very shortly bearded or subglabrous in lower spikelet; lower glume narrowly lanceolate-oblong, back shallowly concave, 2–4-veined, keels scabrid, otherwise smooth, apex attenuate, hyaline, subacute or minutely 2-toothed; upper glume weakly keeled or rounded on back, apex acuminate; lower lemma lanceolate, hyaline, slightly shorter than glumes; upper lemma linear, hyaline, emarginate; awn very fine, flexuous, ca. 1 cm, apex hairlike, tangled; upper palea absent or minute. Anthers 2, 0.5–0.7 mm. Fl. and fr. Jul–Sep.

Mountainsides, forest margins, roadsides. Anhui, Hubei, Hunan, Jiangsu, Jiangxi, Zhejiang [Japan, Korea].

This species is very close to *Microstegium nudum*, but differs mainly in its pedicelled spikelets.

**5. *Microstegium somae*** (Hayata) Ohwi, Acta Phytotax. Geobot. 11: 155. 1942 [“*somai*”].

多芒莠竹 duo mang you zhu

*Polliniopsis somae* Hayata, Icon. Pl. Formosan. 7: 76. 1918 [“*somai*”]; *Microstegium japonicum* subsp. *somae* (Hayata) Koyama.

Annual. Culms slender, trailing, rooting at lower nodes, ascending to 30–40 cm, nodes bearded. Leaf sheaths glabrous, one margin ciliate; leaf blades ovate-lanceolate, 3–4 × 0.3–0.6 cm, glabrous, base rounded, apex acute; ligule 0.2–0.5 mm. Racemes 3–5, very slender, slightly flexuous, 3–8 cm; rachis internodes filiform, glabrous, equaling or longer than spikelets; spikelets both pedicelled, shorter pedicel 1–1.5 mm, longer 2.5–3 mm. Spikelets 4–5 mm; callus hairs 1/4–1/3 spikelet length; lower glume narrowly lanceolate-oblong, back shallowly concave, 4-veined, scabrid, apex 2-cleft, lobes usually mucronate; upper glume weakly keeled, scabrid, apex 2-toothed with 2–10 mm awn; lower lemma linear-lanceolate, hyaline, ca. 2 mm, 2-toothed with up to 1 cm awn; upper lemma similar to lower but slightly shorter; awn ca. 12 mm; upper palea absent. Anthers 2, 0.6–0.8 mm. Fl. and fr. autumn to winter.

Montane forests. Anhui, Fujian, Taiwan [Japan (Ryukyu Islands)].

This species may prove to be a variant of *Microstegium japonicum* with extra awns developed, but it seems sufficiently distinct on the basis of specimens available at present.

**6. *Microstegium petiolare*** (Trinius) Bor, Indian Forest Rec., Bot. 1(3): 87. 1938.

柄莠竹 bing you zhu

*Spodiopogon petiolaris* Trinius, Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 2: 301. 1833; *Andropogon petiolaris* (Trinius) Steudel; *Ischaemum petiolare* (Trinius) Hackel; *Microstegium yunnanense* R. J. Yang.

Perennial, clump-forming or rambling. Culms hard, up to 2 m long, farinose below nodes, nodes densely bearded in tuft at sheath margin or all round. Leaf sheaths glabrous or tuberculate-pilose, margins broad at apex, extended into ligule; leaf blades lanceolate, 15–20 × 1–1.5 cm (excluding pseudopetiole),

adaxial surface glabrous, adaxial surface pilose, midvein white, margins scabrid, base narrowed to a pseudopetiole up to 4 cm in lower blades, apex setaceous; ligule 4–11 mm. Racemes 6–20, corymbiform on 2–5 cm axis, lower racemes sometimes on side branches, straw-colored tinged purplish, 6–10 cm; rachis internodes linear, shortly ciliate, equaling spikelet. Sessile spikelet 4.7–5 mm; callus hairs short, soft; lower glume oblong, back grooved, granular-scabrid, 6–8-veined, sharply keeled, keels slightly winged near apex, apex obtuse-denticulate; upper glume sharply keeled, granular-scabrid, apiculate; lower floret staminate, lemma narrowly oblong, subequaling glumes, palea well developed; upper lemma ovate-oblong, 3–4 mm, 2-lobed to about middle; awn geniculate, 0.8–1 cm. Anthers 3, ca. 3 mm. Fl. and fr. Aug–Oct.

Grassy places along roadsides, sometimes scrambling through shrubs; ca. 2100 m. Yunnan [NE India, Myanmar, Nepal].

This is a distinctive species used for forage. The hard, rambling culms, broad, pseudopetiole leaf blades with long ligules, and corymbose inflorescence of many racemes all contribute to a recognizable habit.

**7. *Microstegium lanceolatum*** (Keng) S. M. Phillips & S. L. Chen, **comb. nov.**

披针叶莠竹 pi zhen ye you zhu

Basionym: *Ischaemum lanceolatum* Keng, J. Wash. Acad. Sci. 21: 155. 1931.

Perennial, forming large tussocks. Culms stiff, up to 40 cm tall, branched below, many-noded, nodes glabrous. Leaf sheaths glabrous or pubescent at junction with blade; leaf blades lanceolate, tough, glaucous, 3–8 × 0.3–1 cm, uppermost much reduced, glabrous, base constricted, margins firm, closely scabrid, apex acute; ligule firm, 2–3 mm. Racemes 2–3, subdigitate, erect, slender, 3–6 cm, brownish or purplish; rachis internodes linear, ciliate along angles, shorter than spikelet. Sessile spikelet 5–6 mm; callus hairs ca. 1 mm; lower glume lanceolate-oblong, papery, 4–7-veined, flat across back but grooved between median veins, keels indistinctly winged and scaberulous near apex, apex subentire; upper glume 3-veined, acute; lower floret with well-developed lemma and palea, lemma margins pilose above middle; upper lemma oblong, ca. 4 mm, bifid to middle or slightly below, outer margins of lobes pilose; awn of upper lemma 0.8–1.2 cm. Pedicelled spikelet laterally compressed, resembling sessile or rudimentary, shortly awned or awnless.

● Habitat unknown; 2800–3000 m. Yunnan.

This species is known only from the type gathering. It was first described in *Ischaemum*, but is anomalous in that genus because of its slender, linear rachis internodes and pedicels, and grooved lower glume of the sessile spikelet.

**8. *Microstegium vimineum*** (Trinius) A. Camus, Ann. Soc. Linn. Lyon, n.s., 68: 201. 1921.

柔枝莠竹 rou zhi you zhu

*Andropogon vimineus* Trinius, Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 2: 268. 1833; *Arthraxon nodosus* Komarov; *Eulalia cantonensis* (Rendle) Hitchcock; *Microste-*

*gium cantonense* (Rendle) A. Camus; *M. dilatatum* Koidzumi; *M. imberbe* (Nees ex Steudel) Tzvelev; *M. nodosum* (Komarov) Tzvelev; *M. vimineum* subsp. *nodosum* (Komarov) Tzvelev; *M. vimineum* var. *imberbe* (Nees ex Steudel) Honda; *M. vimineum* var. *willdenowianum* (Nees ex Steudel) Sur; *M. willdenowianum* Nees ex Steudel; *Pollinia cantonensis* Rendle; *P. imberbis* Nees ex Steudel; *P. imberbis* var. *willdenowiana* (Nees ex Steudel) Hackel; *P. viminea* (Trinius) Merrill; *P. willdenowiana* (Nees ex Steudel) Benth.

Annual. Culms decumbent, up to 1 m long. Leaf sheaths shorter than internodes, upper usually enclosing cleistogamous spikelets; leaf blades narrowly elliptic, 4–9 × 0.5–0.8 cm, pubescent, often sparsely, midvein white, apex acuminate; ligule ca. 0.5 mm. Racemes 1–6, ascending, 4–6 cm; rachis internodes linear-clavate, ciliate, shorter than spikelet. Sessile spikelet 4–5.5 mm; lower glume narrowly lanceolate-oblong, back deeply grooved, puberulous-scaberulous or occasionally hispidulous, 0–4-veined between keels, veins connected by veinlets below apex, apex subtruncate; upper glume scabrid on keel, acuminate; lower floret reduced to an inconspicuous linear-lanceolate scale or absent; upper lemma lanceolate or oblong, 1–1.5 mm, acute or bidenticulate, awnless or shortly awned; awn weakly geniculate, often included within spikelet, up to 6(–9) mm; upper palea ovate, ca. 1 mm. Anthers 3, 0.5–1.5 mm. Fl. and fr. Aug–Nov.

Forest margins, moist grassy places. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, NE India, Japan, Korea, Myanmar, Nepal, Philippines, Russia, Vietnam; SW Asia (Iran); introduced in America and elsewhere].

This is a variable species, usually with apparently awnless spikelets, where in fact a weakly developed awn is enclosed within the glumes. Sometimes the awn is exerted and obvious; rarely it is completely absent. The fertile lemma is accompanied by an ovate upper palea, clasping the opposite side of the caryopsis. Additionally an inconspicuous, linear-filiform remnant of the lower floret is often present.

**9. *Microstegium reticulatum*** B. S. Sun ex H. Peng & X. Yang, Acta Phytotax. Sin. 34: 213. 1996.

网脉莠竹 wang mai you zhu

Annual. Culms very slender, weak, decumbent, up to 50 cm tall. Leaf sheaths glabrous, without cleistogamous spikelets; leaf blades lanceolate to narrowly ovate, thin, 5–6 × 0.8–1.2 cm, pilose with tubercle-based hairs, base narrow, apex acute; ligule ca. 0.8 mm. Racemes 1–3(–4), 3–5 cm; rachis internodes linear-clavate, ciliate or glabrous. Sessile spikelet 5–6 mm, pallid with green veins; lower glume cartilaginous, back grooved, smooth or minutely scaberulous, flanks keeled above middle, veins reticulately connected by veinlets below apex and along most of length of glume flanks; upper glume smooth, acuminate; lower floret reduced to a small lanceolate scale; upper lemma lanceolate, ca. 1.5 mm, acute, awnless; upper palea ovate, 0.5–0.8 mm. Anthers 3, ca. 0.5 mm. Fl. and fr. Sep–Oct.

Roadsides, ditches, grasslands; 1500–2500 m. Yunnan [NE India].

This taxon represents an extreme local variant from the *Micro-*

*stegium vimineum* complex. It is distinguished from typical *M. vimineum* by the combination of a more delicate habit, broader leaf blades, and a conspicuously reticulately veined lower glume.

**10. *Microstegium delicatulum*** (J. D. Hooker) A. Camus, Ann. Soc. Linn. Lyon, n.s., 68: 200. 1921.

荏弱莠竹 ren ruo you zhu

*Pollinia delicatula* J. D. Hooker, Fl. Brit. India 7: 117. 1896 [“1897”].

Annual. Culms very slender, weak, rambling, ascending to ca. 50 cm, nodes pilose. Leaf sheaths glabrous or with scattered setae, one margin ciliate; leaf blades linear-elliptic, thin, flaccid, 6–10 × 0.5–0.8 cm, thinly hispid on adaxial surface with tubercle-based hairs, puberulous on abaxial surface, base setose, apex acuminate, setaceous; ligule ca. 0.5 mm. Racemes 3–5, pale, slender, erect, 3–6 cm; rachis internodes linear, inflated upward, shorter than spikelet, margins ciliate. Sessile spikelet 2–2.5 mm; callus hairs ca. 1 mm; lower glume oblong, back flat or shallowly grooved, smooth, glossy, scabrid near apex, veins obscure, keels shortly ciliate above middle, apex broadly obtuse; upper glume sharply keeled, apex acute, minutely mucronate; lower floret absent; upper lemma tiny, ca. 0.2 mm, broad, rounded; awn geniculate, 6–8 mm; upper palea ca. 0.2 mm. Anthers 3, ca. 1 mm. Pedicelled spikelet similar to sessile or reduced and awnless. Fl. and fr. Oct–Dec.

Forest margins; ca. 600 m. Yunnan [Myanmar, Thailand].

**11. *Microstegium ciliatum*** (Trinius) A. Camus, Ann. Soc. Linn. Lyon, n.s., 68: 201. 1921.

刚莠竹 gang you zhu

*Pollinia ciliata* Trinius, Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 2: 305. 1833; *Andropogon biaristatus* Steudel; *A. formosanus* Rendle var. *minor* Rendle; *Microstegium biaristatum* (Steudel) Keng; *M. biforme* Keng; *M. ciliatum* var. *formosanum* (Hackel) Honda; *M. ciliatum* var. *integrum* Ohwi; *M. formosanum* (Hackel) A. Camus; *Pollinia ciliata* Trinius var. *formosana* (Hackel) Honda; *P. formosana* (Hackel) Hayata; *P. monantha* var. *formosana* Hackel.

Perennial. Culms wiry, creeping, 1 m or more long, pubescent below inflorescence, nodes glabrous or pilose. Leaf sheaths pilose or glabrous, one margin ciliate; leaf blades linear-elliptic, 6–16 × 0.5–1.5 cm, adaxial surface thinly pilose with short tubercle-based hairs, abaxial surface softly pilose, apex acuminate into a setaceous point; ligule 1–2 mm. Racemes 3–15, flexuous, usually pale green, fastigiate, 6–10 cm; rachis internodes linear, slightly inflated upward, shorter than spikelet, margins ciliate. Sessile spikelet 3–4 mm; callus hairs 1–1.5 mm; lower glume narrowly lanceolate, back sharply grooved at lower midline, glabrous or scaberulous toward apex, 2-veined between keels, upper keels stiffly pectinate-ciliate, apex 2-toothed; upper glume sharply keeled, apex acuminate into a 0.3–3 mm hairlike awnlet; lower lemma absent or very small; upper lemma linear or lanceolate, occasionally broader, 0.5–1 mm, apex usually entire; awn 1–2 cm, flexuous with weakly developed column and fine hairlike apex. Anthers 3, 0.8–1.5 mm. Fl. and fr. Sep–Dec.

Open woodlands, shady banks, pathsides, forming loose mats. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan [Bhutan, India, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam].

This species is closely related to *Microstegium fasciculatum*, and the two are difficult to distinguish, at least in the herbarium. *Microstegium ciliatum* is a more slender species, forming loose mats rather than large, rambling colonies, usually with pale green rather than purplish inflorescences. The spikelets are narrower, with obviously longer, flexuous awns and an awned upper glume. Occasionally some spikelets in an inflorescence have tiny anthers (the basis of *M. biforme*).

The name "*Ischnochloa monostachya* L. Liu" (Fl. Reipubl. Popularis Sin. 10(2): 65. 1997) has been placed in synonymy under this species (in Fl. Yunnan. 9: 637. 2003), but was not validly published because no Latin description was provided.

**12. *Microstegium fasciculatum*** (Linnaeus) Henrard, Blumea 3: 453. 1940.

蔓生莠竹 man sheng you zhu

*Andropogon fasciculatus* Linnaeus, Sp. Pl. 2: 1047. 1753; *A. formosanus* var. *minor* Rendle; *Microstegium gratum* (Hackel) A. Camus; *M. monanthum* (Nees ex Steudel) A. Camus; *M. vagans* (Nees ex Steudel) A. Camus; *Pollinia ciliata* var. *breviaristata* Rendle; *P. grata* Hackel; *P. monantha* Nees ex Steudel; *P. vagans* Nees ex Steudel.

Perennial. Culms rambling, rooting at base, branching, up to 4 m long, internodes sometimes pubescent, nodes pilose. Leaf sheaths pubescent to tuberculate-hispid, at least below blade, one margin ciliate; leaf blades narrowly elliptic, 10–18 × (0.5–)0.8–2 cm, pilose, more densely on abaxial surface, base sometimes setose, apex acuminate into a setaceous point; ligule 1–2 mm. Racemes 3–12, purplish, flexuous, fastigiate, 7–12 cm; rachis internodes linear, slightly inflated upward, shorter than spikelet, margins ciliate. Sessile spikelet 2.8–4 mm; callus hairs 1–1.5 mm; lower glume elliptic-oblong, back shallowly grooved or almost flat, scabrid-hispidulous, 2-veined between keels, upper keels stiffly pectinate-ciliate, apex subentire; upper glume sharply keeled, apex acuminate or with a brief mucro; lower floret usually absent; upper lemma ovate, ca. 0.5 mm, rounded to emarginate; awn geniculate with distinct column, 5–8 mm; upper palea lanceolate, 0.7–1.2 mm, obtuse or 3-dentate. Anthers 3, 1.5–2.5 mm. Fl. and fr. Aug–Jan.  $2n = 80$ .

Forming extensive colonies, moist banks, slopes, usually in shade. Guangdong, Guizhou, Hainan, Hubei, Sichuan, Yunnan [Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, Thailand, Vietnam; Africa].

Normally the lower floret is completely absent in this species. In a few gatherings (including the type of *Pollinia vagans*) the lower floret is represented by a well-developed palea supporting stamens. A specimen from Hong Kong has a rudimentary lower lemma, but no lower palea. The presence or absence of parts of the lower floret appears to be of no taxonomic significance.

**13. *Microstegium multiciliatum*** B. S. Sun, J. Yunnan Univ. 21: 95. 1999 [*"multicilliatum"*].

多纤毛莠竹 duo xian mao you zhu

Perennial. Culms rambling, robust, thinly pilose, nodes

pubescent. Leaf sheaths hispid with tubercle-based hairs; leaf blades oblong-elliptic, up to 23–25 × 2–2.5 cm, thinly pilose with tubercle-based hairs, base setose, apex acuminate into a

setaceous point; ligule 1.5–2 mm. Racemes ca. 10, whitish tinged purple, 9–12 cm; rachis internodes linear, slightly inflated upward, equaling or shorter than spikelet, margins ciliate. Sessile spikelet 4.5–5 mm; callus hairs 1–1.5 mm; lower glume narrowly oblong, back grooved below middle, smooth except below apex, upper keels stiffly pectinate-ciliate, obscurely 2-veined between keels, apex subentire; upper glume sharply keeled, upper margins broadly hyaline, fimbriate, apex subacute; lower floret absent or represented by ca. 1 mm scale; upper lemma 0.8–1 mm, deeply 2-lobed, lobes lanceolate, ciliate; awn geniculate with distinct column, 10–12 mm; upper palea broad, ca. 1.5 mm, 3-dentate, apex ciliate with ca. 1.5 mm hairs. Anthers 3, 3–3.5 mm.

- Mountain slopes. W Yunnan (Tengchong).

Flora of China 22: 593–598. 2006.