

30. SCLERIA P. J. Bergius, Kongl. Vetensk. Acad. Handl. 26: 142. 1765.

珍珠茅属 zhen zhu mao shu

Zhang Shuren (张树仁); Gordon C. Tucker, David A. Simpson

Herbs, perennial or annual, rhizomatous or not; stolons sometimes present. Culms erect, 3-angled or rarely terete. Leaves cauline or both basal and cauline; sheaths at middle part of culm, winged or not, apex sometimes with contraligule opposite blade; leaf blade linear, scabrid, sheathing, usually prominently 3-veined. Involucral bracts leaflike and sheathing, setaceous, or glumelike; bractlets usually setaceous, rarely glumelike. Inflorescences terminal, paniculate, usually stout and elongated, sometimes reduced into a discontinuous spike. Unisexual spikelets usually dominant on inflorescence, rarely bisexual ones dominant; basal 2–4 glumes of spikelets empty. Male spikelets with several flowers. Female spikelets with a single flower. Bisexual spikelets with a basal female flower and several male flowers. Flowers unisexual. Male flowers: stamens 1–3; anthers linear or linear-oblong; connective apex often protruding and subulate. Female flowers: style base not inflated; stigmas 3. Nutlet brick red, white, or yellowish purple, spherical or ovoid, often obtusely 3-sided, smooth or variously sculptured, mostly shiny, glabrous or hairy (hairs simple or stellate), usually borne on a gynophore apically dilated into a ± 3-lobed disk.

About 200 species: pantropical and extending into temperate regions in S Africa, E Asia, and North and South America; 24 species (three endemic) in China.

Note: nutlets and underground parts are essential for accurate identification.

- 1a. Bisexual spikelets dominant on inflorescences; disk subtending nutlet either stipelike or indistinct.
 - 2a. Annuals, without a rhizome; inflorescences spicate; glumes ovate; nutlet surface transversely rugose 1. *S. pergracilis*
 - 2b. Perennials, with a woody creeping rhizome; inflorescences paniculate; glumes lanceolate or ovate-lanceolate; nutlet surface smooth, subsmooth, or slightly rugose.
 - 3a. Spikelets 4–10 mm, pilose; disk stalklike.
 - 4a. Nutlet 1.5–1.8 mm, covered with tufts of stellate hairs; contraligule absent 2. *S. neesii*
 - 4b. Nutlet 2.5–2.7 mm, glabrous; contraligule narrow 3. *S. tonkinensis*
 - 3b. Spikelets 3–4.5 mm, glabrous; disk appressed to nutlet.
 - 5a. Culms 30–60 cm tall, 1.4–2 mm thick; leaf blade 1.5–2 mm wide; lateral branches of inflorescence often spicate, single; nutlet ca. 2.5 mm 4. *S. lithosperma*
 - 5b. Culms 60–200 cm tall, 3–7 mm thick; leaf blade 15–20 mm wide; lateral branches of inflorescence cymose, often binate; nutlet ca. 3.5 mm 5. *S. corymbosa*
- 1b. Bisexual spikelets few or absent on inflorescences; disk subtending nutlet lobed or cup-shaped (but not well developed in *S. novae-hollandiae*).
 - 6a. Small annuals (or short-lived perennials); rhizomes absent or not well developed.
 - 7a. Involucral bracts linear-lanceolate; nutlet ca. 1.5 mm in diam.; disk lobes obtuse 7. *S. rugosa*
 - 7b. Involucral bracts setaceous; nutlet ca. 2 mm in diam.; disk lobes acute or acuminate.
 - 8a. Leaf sheath glabrous; disk ca. 1/2 height of nutlet, lobes brown, membranous, apex acuminate; nutlet surface smooth.
 - 9a. Nutlet ± spherical, apex with purple tip 8. *S. biflora*
 - 9b. Nutlet trisulcate, apex with yellowish white tip 9. *S. laxa*
 - 8b. Leaf sheath villous; disk 1/4–1/3 height of nutlet, lobes yellowish white, thick, apex acute; nutlet surface pitted with regular longitudinally elongate pattern.
 - 10a. Nutlet 2–2.5 mm, subovoid-spherical; perianth lobes rounded at apex 6. *S. novae-hollandiae*
 - 10b. Nutlet 2.8–3 mm, spheroid to obovoid-spherical; perianth lobes acute at apex 10. *S. parvula*
 - 6b. Perennials; rhizomes well developed and prominent.
 - 11a. Culms terete or slightly 3-angled; leaf sheath not winged.
 - 12a. Nutlet surface smooth, only apically slightly hispid; disk not cup-shaped, scarcely 1/5 height of nutlet, appressed to base of nutlet, lobes triangular, margins reflexed; leaves alternate, well spaced, not whorled 23. *S. harlandii*
 - 12b. Nutlet surface hexagonally reticulate, pilose; disk cup-shaped, 1/2–4/5 height of nutlet and enclosing it, lobe apex dentate, margins not reflexed; leaves ± 3-whorled 24. *S. sumatrensis*
 - 11b. Culms 3-angled or triquetrous; leaf sheath winged at middle part of culm (not obviously in *S. hookeriana*).
 - 13a. Nutlet smooth.
 - 14a. Inflorescences subspicate, branches short or without secondary branches; spikelets with 3–5 awns; nutlet 4–4.5 mm; disk obscurely 3-lobed 19. *S. psilorrhiza*
 - 14b. Inflorescences paniculate; spikelets without or with fewer fine awns; nutlet 3–3.5 mm; disk obviously 3-lobed.

- 15a. Bractlets glumelike, shorter than spikelet; leaf blade thickly leathery, contraligule scarcely developed; stamen 1; nutlet ca. 2.5 mm in diam.; disk lobes triangular 20. *S. poiformis*
 15b. Bractlets setaceous, longer than spikelet; leaf blade papery, contraligule conspicuous and triangular; stamens 3; nutlet ca. 2 mm in diam.; disk lobes subrounded at apex.
 16a. Inflorescences with 4 or 5 lateral branches; disk lobes semicircular 21. *S. radula*
 16b. Inflorescences with 1–3 lateral branches; disk lobes ovate 22. *S. oblata*
- 13b. Nutlet ± reticulate and stellate-hairy.
 17a. Glumes blackish purple; leaf sheath obscurely winged; inflorescences without or rarely with a distant branch 11. *S. hookeriana*
 17b. Glumes brown or reddish brown; leaf sheath obviously winged; inflorescences with 1–3 distant branches.
 18a. Contraligule oblong to oblong-lanceolate, 4–12 mm, glabrous 12. *S. ciliaris*
 18b. Contraligule depressed rounded, semicircular or nearly semicircular, at most 4 mm, ciliate or glabrescent.
 19a. Disk slightly 3-lobed or barely lobed; lobes flatly semicircular, apex rounded.
 20a. Nutlet with white reticulation 13. *S. terrestris*
 20b. Nutlet with purplish brown reticulation 14. *S. dulungensis*
 19b. Disk deeply 3-lobed; lobes lanceolate-triangular or ovate-triangular, apex acute to subtruncate.
 21a. Nutlet ca. 2 mm in diam., rugose 15. *S. levis*
 21b. Nutlet 2.5–2.8 mm in diam., reticulate-pitted or scrobiculate.
 22a. Leaves alternate, not whorled; disk yellowish white 16. *S. jiangchengensis*
 22b. Leaves in whorls of 2–5; disk brownish purple.
 23a. Nutlet whitish when mature, 2.2–2.7 mm wide, scrobiculate to smooth 17. *S. scrobiculata*
 23b. Nutlet at first whitish but brownish purple when mature, 1.7–2 mm wide, cancellate 18. *S. purpurascens*

1. *Scleria pergracilis* (Nees) Kunth, Enum. Pl. 2: 354. 1837.

纤秆珍珠茅 xian gan zhen zhu mao

Hypoporum pergracile Nees, Edinburgh New Philos. J. 17: 267. 1834.

Annuals. Rhizomes absent. Culms tufted, erect, 11–30 cm tall, ca. 0.5 mm wide, 3-angled, sulcate, glabrous. Leaves basal and cauline, sheathing; contraligule rounded to obtuse; leaf blade capillary, ca. 1 mm wide. Involucral bracts setaceous, basal one to 0.6 cm and shorter than spikelet cluster; bractlets glumelike. Inflorescences spicate, 2.5–8.5 cm, formed by clusters of 2 or 3 spikelets each separated by 2–17 mm. Spikelets mostly bisexual, ovoid, 3–4 mm, rarely basal one unisexual with a single male flower. Glumes ovate, keeled, both sides of midvein membranous with reddish brown lines, apex mucronate; basal 2 glumes empty; middle glume with a female flower; apical 1 or 2 glumes with a male flower. Male flowers: stamens 3; connective apex protruding, forming a thin tip. Female flowers: stigmas 3. Disk obscure. Nutlet white, subspherical, ca. 1 mm in diam., slightly 3-sided, transversely rugose, base with a brown stalk, apex tipped. Fl. and fr. Aug–Oct. $2n = 10$.

Alpine grasslands, valley pastures; 1200–4000 m. Guangdong, Guangxi, Jiangsu, E Xizang, Yunnan [Bangladesh, Cambodia, India, Indonesia, Kashmir, Korea, Laos, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; tropical Africa, NE Australia].

2. *Scleria neesii* Kunth, Enum. Pl. 2: 358. 1837.

柄果珍珠茅 bing guo zhen zhu mao

Perennials. Rhizomes short, thick, woody, oblique, not

creeping. Culms 16–70 cm tall, slender, triquetrous, glabrous or pilose. Leaves basal and cauline. Basal leaves only with closed sheath, without leaf blade; sheath pale brown, 3-angled, edges villous, surfaces pubescent, not winged, apex with 3 triangular teeth. Cauline leaves with a sheath like that of basal leaves; contraligule absent; leaf blade linear, 1.5–3 mm wide but apically narrowing, both surfaces villous, margins scabrous, apex obtuse. Involucral bracts leaflike, basalmost to 5 cm, sheathing; bractlets setaceous, both surfaces densely pilose. Inflorescences subcapitate, laxly globose, 1–3 cm, with 5–20 spikelets. Spikelets narrowly ovoid, 4–8 mm, villous especially distally, unisexual, with 14–16 glumes. Glumes yellowish brown, awned, basal 1 or 2 empty, 1 above empty ones with a female flower, others with male flowers. Male flowers: stamens 3. Female flower: style slender; stigmas 3, longer than style, slightly puberulent. Disk brown, stalklike, not lobed. Nutlet white or light brown, subspherical, 1.5–2 mm, obscurely if at all 3-sided, tuberculate, shiny, with tufts of stellate hairs, apex rounded and with a fine tip. Fl. and fr. Apr–Jul.

Moist sandy open or shaded habitats; low elevations. Hainan [India, Laos, Malaysia (Peninsular), Sri Lanka, Thailand, Vietnam; Indian Ocean islands].

3. *Scleria tonkinensis* C. B. Clarke, Bull. Misc. Inform. Kew, Addit. Ser. 8: 57. 1908.

越南珍珠茅 yue nan zhen zhu mao

Scleria kwangtungensis Chun & F. C. How; *S. levis* Retz. var. *scaberrima* Benth.

Perennials. Rhizomes short, thick, woody, creeping, densely covered with scales; scale brown, tubular, with several

parallel veins. Culms 16–70 cm tall, thinner, sharply 3-angled, villous at apical part. Leaves basal and cauline. Basal leaves only with closed sheath, without leaf blade; sheath pale brown, 3-angled, edges villous, surfaces pubescent, not winged, apex with 3 triangular teeth. Cauline leaves with a sheath like that of basal leaves; contraligule dark reddish brown, narrowly triangular, membranous; leaf blade linear, 0.5–1.5 cm wide but apically attenuate, both surfaces villous, margins scabrous, apex obtuse. Involucral bracts leaflike, basalmost to 5 cm, sheathing; bractlets setaceous, both surfaces villous. Inflorescences paniculate, 2.5–6 cm. Spikelets narrowly ovoid, 8–10 mm, villous, both bisexual and unisexual spikelets numerous, with 14–16 glumes. Glumes pale brown to yellowish green, basal 1 or 2 empty, 1 above empty ones with a female flower, others with male flowers. Male flowers: stamens 3. Female flower: style slender; stigmas 3, longer than style, slightly puberulent. Disk brown, stalklike, not lobed. Nutlet white, broadly obovoid to subspherical, 3–3.5 mm, obscurely 3-sided, obscurely rugose to subsmooth, shiny, apex rounded with a fine tip. Fl. and fr. Apr–Jul.

Moist grasslands, thickets; below 100 m. Guangdong, Guangxi, Hainan [Cambodia, Thailand, Vietnam].

Scleria tonkinensis was misidentified as *S. radula* by Tang and F. T. Wang (Fl. Reipubl. Popularis Sin. 11: 206. 1961).

4. *Scleria lithosperma* (Linnaeus) Swartz, Prodr. 18. 1788.

石果珍珠茅 shi guo zhen zhu mao

Perennials. Rhizomes short, thick, woody, creeping. Culms tufted, 30–50 cm tall, 1.4–2 mm wide, 3-angled, glabrous. Leaves basal and cauline. Basal leaves sheathlike, bladeless. Cauline leaves with sheath 3-angled, closed, pilose; contraligule depressed rounded or depressed deltoid, ciliate; leaf blade narrowly linear, 1.5–2 mm wide, margins finely serrate, apex attenuate into a caudate tip. Involucral bracts leaflike, basal one to 10 cm, sheathing. Inflorescences paniculate, well-developed ones more than 30 cm, with 1–3 lateral branches or without branch at basal part; basal part often reduced to spikelike, 3.5–7 cm. Spikelets 1–3 in a cluster, 3–4.5 mm, with 4 or 5 glumes, with 1 or 2 male flowers and 1 female flower below male ones. Glumes ovate-lanceolate, keeled, both sides of midvein membranous with short brown lines, apex mucronate. Disk not well developed. Nutlet white, broadly obovoid to subellipsoid, ca. 2.5 mm, 3-sided or not, smooth or transversely rugose or irregularly ± reticulate with wavy ridges, shiny, base narrow and triangular. Fl. and fr. Jun–Oct.

Thickets in forests, woods; 100–1000 m. Guangdong, Hainan, Taiwan, SE Yunnan [India, Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; tropical Africa, America, and Australia, Indian Ocean islands, North and South America, Pacific islands].

- 1a. Nutlet smooth 4a. subsp. *lithosperma*
- 1b. Nutlet transversely rugose or irregularly somewhat reticulate with wavy ridges 4b. subsp. *linearis*

4a. *Scleria lithosperma* subsp. *lithosperma*

石果珍珠茅(原亚种) shi guo zhen zhu mao (yuan ya zhong)

Scirpus lithospermus Linnaeus, Sp. Pl. 1: 51. 1753.

Nutlet smooth.

Thickets in forests; 100–1000 m. Guangdong, Hainan, Taiwan, SE Yunnan [India, Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; tropical Africa, America, and Australia, Indian Ocean islands, North and South America, Pacific islands].

4b. *Scleria lithosperma* subsp. *linearis* (Bentham) T. Koyama in Dessanayake & Fosberg, Revis. Handb. Fl. Ceylon 5: 353. 1985.

线叶珍珠茅 xian ye zhen zhu mao

Scleria lithosperma var. *linearis* Bentham, Fl. Austral. 7: 430. 1878; *S. lithosperma* var. *roxburghii* C. B. Clarke; *S. roxburghii* (C. B. Clarke) Domin.

Nutlet transversely rugose or irregularly somewhat reticulate with wavy ridges.

Woods. Hainan [India, Indonesia, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; N Australia, Pacific islands (Fiji)].

5. *Scleria corymbosa* Roxburgh, Fl. Ind., ed. 1832, 3: 574. 1832.

伞房珍珠茅 san fang zhen zhu mao

Scleria ridleyi C. B. Clarke.

Perennials. Rhizomes thick, subwoody, covered with brown scales. Culms 0.6–2 m tall, 3–7 mm wide, sharply 3-angled. Leaves on apical part of culms nearly whorled; sheath laxly embracing culm; contraligule semicircular, margin ca. 1 mm wide and membranous; leaf blade linear, 50–80 × 1.4–2 cm, midvein and margins apically scabrid, apex acute. Involucral bracts leaflike, basalmost to 47 cm, sheathing, glabrous; bractlets setaceous, 1–1.5 cm, base dilated, margin ciliate. Inflorescences compound paniculate, ca. 40 cm; lateral inflorescence branches 5–7, cymose, often binate, ovoid, ca. 4 cm; inflorescence axes robust, 3-angled, slightly hairy. Spikelets 3–4 mm, 1–3 in a cluster, mostly bisexual, fewer male. Glumes broadly ovate to ovate-lanceolate, leathery, keel green, laterally brown with rust-colored short lines, apex mucronate. Male flowers: stamens 3; anthers linear, ca. 2 mm; connective apex protruding beyond anthers. Disk reduced, appressed to nutlet. Nutlet white or grayish white, obovoid to ellipsoid, ca. 3.5 × 2.5 mm, slightly 3-sided, smooth, glabrous, base attenuate, apex apiculate. Fl. and fr. summer and autumn.

Water margins, valleys, woods; elevation probably below 100 m. Guangdong, Hainan [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand].

6. *Scleria novae-hollandiae* Boeckeler, Flora 58: 120. 1875.

角架珍珠茅 jiao jia zhen zhu mao

Scleria fujianensis G. P. Li; *S. nankingensis* Tang & F. T. Wang.

Annuals. Rhizomes short, subwoody. Culms 30–60 cm

tall, slender, 3-angled, glabrous. Leaves cauline; sheath 3-angled, not winged, glabrous; contraligule semicircular; leaf blade narrowly linear, 2.5–3.5(–5.5) mm wide, papery, slightly shiny, glabrous, margin scabrous, apex acute. Involucral bracts leaflike, sheathing; bractlets small, narrow, sheathless. Inflorescences paniculate; branches single or binate, (0.5–)1–2 cm, distant. Spikelets mostly unisexual, narrowly ovoid, ca. 5 mm, lax, with ca. 9 flowers, with 11 or 12 glumes. Bisexual spikelets with 1 or 2 empty basal glumes, middle glumes with a female flower, apicalmost glume empty or with a reduced flower. Glumes pale brown, ovate to ovate-lanceolate but apical ones lanceolate, membranous, keel abaxially green, apex acute. Perianth lobes rounded at apex. Male flowers: stamens 2 or 3. Female flowers: style slender; stigmas 2, almost as long as style. Disk not well developed. Nutlet white, subovoid-spherical, 2–2.5 mm (excluding stalk), obscurely reticulate, glabrous, base truncate, apex subrounded and without a tip. Fl. and fr. Jul–Oct.

Slopes, swamps; near sea level. Fujian (Zhao'an), Guangdong, Jiangsu (Lianyungang, Nanjing) [Indonesia, Papua New Guinea, Philippines, Vietnam; Australia, Pacific islands (Micronesia)].

7. *Scleria rugosa* R. Brown, Prodr. 240. 1810.

垂序珍珠茅 chui xu zhen zhu mao

Scleria fenestrata Franchet & Savatier var. *pubigera* (Makino) Ohwi; *S. onoei* Franchet & Savatier; *S. onoei* var. *pubigera* (Makino) Ohwi; *S. pubigera* Makino.

Annuals. Roots fibrous. Rhizomes absent. Culms tufted, erect, 10–25 cm tall, 3-angled, glabrous or villous. Leaves cauline; sheath barely winged, pubescent to villous; contraligule semicircular, margin ciliate; leaf blade linear, 2–4 mm wide but apically attenuate, papery, both surfaces hairy, margins scabrous, apex obtuse. Involucral bracts leaflike, to 14 cm, sheathing, opening of sheath with dense brown pubescence; bractlets small, sheathless. Inflorescences paniculate, with 3–5 branches; branches 0.7–1.5 cm, distant, with few spikelets; branch peduncles 0.4–4 cm, usually winged. Spikelets 1 or 2 in a cluster, narrowly ovoid, 2–4 mm, mostly unisexual; female spikelets with 3–5 glumes and 1 female flower. Female flowers: ovary obovoid, smooth, glabrous. Disk 1/4–1/3 height of nutlet, 3-lobed; lobes semicircular, margin reflexed, apex rounded. Nutlet white or grayish white, spherical to subspherical, ca. 1.5 mm in diam., smooth, shiny, apex subrounded and slightly tipped.

Wet grassy places; 600–700 m. SW Fujian, Guangdong, Hainan, Jiangsu, Taiwan, S Yunnan [India, Indonesia, Japan, S Korea, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; N Australia, Indian Ocean islands, Pacific islands].

8. *Scleria biflora* Roxburgh, Fl. Ind., ed. 1832, 3: 573. 1832.

二花珍珠茅 er hua zhen zhu mao

Scleria biflora var. *ferruginea* J. Kern; *S. ferruginea* Ohwi (1938), not Peter (1937).

Annuals. Roots fibrous. Rhizomes absent. Culms nearly tufted, 30–40 cm tall, slender, 3-angled, glabrous. Leaves cauline; sheath tubular, 3-angled, barely winged, glabrous, apex of

basal ones with triangular teeth; contraligule semicircular, pubescent; leaf blade linear, 2.5–5.5 mm wide but apically attenuate, papery, smooth, glabrous, margins scabrous, apex slightly obtuse. Involucral bracts leaflike, basal one to 15 cm, sheathing, opening of sheath with brown pubescence; bractlets setaceous, sheathless, much longer than spikelet. Inflorescences paniculate, with 2 or 3 branches; branches 1.5–2.5 cm, with many spikelets; lateral branches distant. Spikelets 1 or 2 in a cluster, narrowly ovoid, 3.5–4 mm, mostly unisexual; female spikelets with 4 or 5 glumes and 1 female flower; male spikelets with 7–9 or more glumes. Glumes ovate to lanceolate, apically attenuate, keel green to same color as glume, apex acute and apiculate. Male flowers: stamens 2 or 3. Female flowers: ovary obovoid, finely reticulate, densely pubescent. Disk ca. 1/2 height of nutlet, 3-lobed; lobes ovoid-triangular, slightly shiny. Nutlet white or yellowish, subspherical, ca. 2 mm in diam., reticulate, apex with a purple tip. Fl. and fr. Aug–Sep.

Grasslands, wastelands, field margins; 600–1800 m. Fujian, Guangdong, Guangxi, Hainan, N Jiangsu, Taiwan, Yunnan [India, Indonesia, Japan (Ryukyu Islands), Kashmir, Malaysia (Peninsular), Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam].

Scleria biflora was misidentified as *S. tessellata* C. B. Clarke by Tang and F. T. Wang (Fl. Reipubl. Popularis Sin. 11: 208. 1961).

9. *Scleria laxa* R. Brown, Prodr. 240. 1810.

疏松珍珠茅 shu song zhen zhu mao

Scleria trisulcata G. P. Li.

Annuals. Roots fibrous. Rhizomes short or not well developed, thick. Culms tufted, 20–40 cm tall, slender, 3-angled, smooth, glabrous, apically often nodding. Leaves cauline; sheaths at culm base glabrous, barely winged, bladeless or with a short blade; sheaths at middle and apical part of culm narrowly winged, villous and more densely so near contraligules; contraligule semicircular, apex obtuse; leaf blade linear, 3.5–5.5 mm wide but apically attenuate, papery, both surfaces hairy or only on 2 lateral veins of abaxial surface, margins scabrous, apex slightly obtuse to acute. Involucral bracts leaflike, sheathing, opening of sheath with dense brown pubescence; bractlets setaceous, as long as or slightly longer than spikelet. Inflorescences paniculate, with 2–4 branches; branches 1.2–3 cm, distant, with few spikelets. Spikelets narrowly ovoid, 4–5 mm, mostly unisexual; female spikelets with 4 or 5 glumes and 1 female flower; male spikelets with 7–9 or more glumes. Glumes deeply straw-colored to brownish purplish, ovate to lanceolate, keeled, apex acute and apiculate. Male flowers: stamens 2 or 3. Female flowers: ovary subspherical, glabrous. Disk yellowish white, 1/4–1/3 height of nutlet, slightly 3-lobed; lobes ovoid-triangular to subglobose, margin reflexed, apex truncate. Nutlet subspherical to obovoid-spherical, 2.8–3 × 1.8–2 mm, trisulcate, pitted with irregular longitudinally elongate lacunae (i.e., trabeculate), glabrous, apex with a yellowish white tip. Fl. and fr. Aug–Oct.

Grassy swamps; near sea level. Fujian (Zhao'an), Guangdong, Hainan [Papua New Guinea, Philippines; N Australia].

10. *Scleria parvula* Steudel, Syn. Pl. Glumac. 2: 174. 1855.

小型珍珠茅 xiao xing zhen zhu mao

Scleria fenestrata Franchet & Savatier; *S. tessellata* C. B. Clarke (1903), not Willdenow (1805).

Annuals. Roots fibrous. Rhizomes short or not well developed, thick. Culms tufted, 40–60 cm tall, slender, 3-angled, smooth, glabrous. Leaves cauline; sheaths at culm base glabrous, barely winged, bladeless or with a short blade; sheaths at middle and apical part of culm narrowly winged, villous and more densely so near contraligules; contraligule semicircular, apex obtuse; leaf blade linear, 3.5–5.5 mm wide but apically attenuate, papery, both surfaces hairy or only on 2 lateral veins of abaxial surface, margins scabrous, apex slightly obtuse to acute. Involucral bracts leaflike, basalmost to 20 cm, sheathing, opening of sheath with dense brown pubescence; bractlets setaceous, as long as or slightly longer than spikelet. Inflorescences paniculate, with 2–4 branches; branches 1.2–3 cm, distant, with few spikelets. Spikelets narrowly ovoid, 4–5 mm, mostly unisexual; female spikelets with 4 or 5 glumes and 1 female flower; male spikelets with 7–9 or more glumes. Glumes deeply straw-colored to brownish purplish, ovate to lanceolate, keeled, apex acute and apiculate. Perianth lobes acute at apex. Male flowers: stamens 2 or 3. Female flowers: ovary subspherical, glabrous. Disk yellowish white, 1/4–1/3 height of nutlet, slightly 3-lobed; lobes ovoid-triangular to subglobose, margin reflexed, apex acute. Nutlet subspherical to obovoid-spherical, 2.8–3 × 1.8–2 mm, pitted with regular longitudinally elongate lacunae, glabrous, apex with a yellowish white tip. Fl. and fr. Jul–Oct.

Slopes, valleys, wastelands, paddy fields; 700–2700 m. Fujian, Guangdong, Guizhou, Hunan, NE Jiangsu, Jiangxi, Shandong, Sichuan, SE Xizang, Yunnan, Zhejiang [Bhutan, Cambodia, India, Japan, Korea, Laos, Nepal, Papua New Guinea, Philippines, Sri Lanka, N Thailand, Vietnam; tropical Africa].

Scleria parvula was misidentified as *S. biflora* by Tang and F. T. Wang (Fl. Reipubl. Popularis Sin. 11: 208. 1961).

11. *Scleria hookeriana* Boeckeler, Linnaea 38: 498. 1874.

黑鳞珍珠茅 hei lin zhen zhu mao

Perennials, stoloniferous. Rhizomes short, woody, densely covered with purplish red oblong-ovate scales. Culms erect, 60–100 cm tall, 2–4 mm wide, 3-angled, slightly scabrous, sometimes pubescent. Leaf sheath 1–10 cm, sometimes pubescent; sheaths basal on culm purplish red to pale brown, obtusely 3-angled, with 3 triangular teeth of various sizes at opening; sheaths at middle part of culm green, sharply 3-angled, rarely narrowly winged; contraligule semicircular, with purple barbs; leaf blade linear, 4–35 cm × 4–8 mm, papery, slightly scabrous, glabrous or slightly pubescent. Involucral bracts leaflike, basalmost to 30 cm, sheathing; bractlets setaceous, base auriculate with barbate auricles. Inflorescences paniculate, 4–7 × 2–4 cm. Spikelets (1 or)2–4 in a close cluster, ca. 3 mm, mostly unisexual, rarely bisexual. Male spikelets oblong-ovoid; glumes ovate-lanceolate to oblong-lanceolate. Female spikelets usually at basal part of inflorescence branch, narrowly ovoid, with few glumes; glumes broadly ovate, triangular, or ovate-lanceolate. Male flowers: stamens 3. Female flowers: ovary villous; stig-

mas 3. Disk yellowish, ± 3-lobed; lobes semicircular, margin reflexed, apex rounded. Nutlet white, ovoid, ca. 2 mm in diam., reticulate, slightly rust-colored hispid, apex obtusely 3-sided. Fl. and fr. May–Jul.

Sunny slopes, valleys, scrub, roadsides, grasslands; 1400–2200 m. Chongqing, Fujian, Guangdong, Guangxi, Guizhou, W Hubei, Hunan, Jiangxi, Sichuan, Yunnan, S Zhejiang [India, Vietnam].

12. *Scleria ciliaris* Nees in Wight, Contr. Bot. India, 117. 1834.

华珍珠茅 hua zhen zhu mao

Scleria chinensis Kunth.

Perennials. Rhizomes woody, covered with purple to purplish brown scales. Culms tufted, 70–120 cm tall, ca. 5 mm wide, 3-angled, slightly scabrous, glabrous. Leaf sheath 1–10 cm, papery, glabrous; sheaths at culm base brown to purplish brown, not winged, with 3 narrowly ovoid teeth of various sizes at opening; sheaths at middle part of culm green, wing 1–3 mm wide; contraligule brown to reddish brown, lanceolate to oblong-lanceolate, 4–12 mm (fragile tip sometimes broken off), glabrous, margin sometimes apically purple; leaf blade linear, 15–35 cm × 6–9 mm, papery, slightly scabrous, glabrous. Involucral bracts leaflike, basalmost to 20 cm, sheathing; bractlets setaceous, base auriculate and hispid. Inflorescences paniculate, with 1–3 slightly distant lateral branches; branches 6–10 × 2–6 cm, slightly condensed. Spikelets brown to purple, (1 or)2–4 in a cluster, ca. 4 mm, mostly unisexual. Male spikelets oblong-ovoid; glumes 3–4 mm, membranous, margin sometimes ciliate; basal glumes keeled, apex aristate to apiculate. Female spikelets usually growing at base of branch, narrowly ovoid; glumes broadly ovate to ovate-lanceolate, keeled, apex aristate to apiculate. Male flowers: stamens 3. Female flowers: ovary pubescent; stigmas 3. Disk yellow, 1.6–2 mm in diam., with dense rust-colored lines, 3-lobed; lobes nearly semicircular, margin reflexed, apex rounded. Nutlet white, subspherical, ca. 2.5 mm in diam., slightly 3-sided, slightly reticulately pitted, slightly stellate pubescent. Fl. and fr. Dec–Apr.

Valleys, forests, grasslands; (below 100–)300–900 m. Guangdong, Hainan [Cambodia, Indonesia, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand, Vietnam; tropical Australia, Pacific islands].

13. *Scleria terrestris* (Linnaeus) Fassett, Rhodora 26: 159. 1924.

高秆珍珠茅 gao gan zhen zhu mao

Zizania terrestris Linnaeus, Sp. Pl. 2: 991. 1753; *Scleria doederleiniana* Boeckeler; *S. elata* Thwaites; *S. elata* var. *latior* C. B. Clarke.

Perennials, stoloniferous. Rhizomes woody, with dark purple scales. Culms sparse, 0.6–3 m tall, 4–7 mm wide, 3-angled, often scabrous, glabrous. Leaf sheaths 1–8 cm, papery; basal 2 or 3 sheaths on culm purplish red, not winged; sheaths at middle part of culm with wings 1–3 mm wide; contraligule semicircular, short, usually barbate, barbs purple; leaf blade line-

ar, 30–40 cm × 6–10 mm, papery, slightly scabrous, glabrous. Involucral bracts leaflike, basalmost to 40 cm, sheathing; bractlets setaceous, basally auriculate, auricles slightly hispid. Inflorescences paniculate, with 1–3 distant branches; branches 3–8 × 1.5–6 cm. Spikelet 1(or 2) in a cluster, entirely unisexual, oblong-ovoid to narrowly ovoid, apex truncate to acuminate. Glumes of male spikelets 2–3 mm, thickly membranous, basal ones keeled and with rust-colored short lines, apical ones pale colored and scarious. Female spikelets usually growing at base of branch; glumes broadly ovate to ovate-lanceolate, 2–4 mm wide, sometimes with rust-colored short lines, keeled, apex apiculate. Male spikelets 3-flowered. Male flowers: anthers linear. Female flowers: stigmas 3. Disk yellow, ca. 1.8 mm in diam., slightly 3-lobed to barely lobed; lobes semicircular, flat, margin reflexed. Nutlet white or pale brown, spherical to ovoid, ca. 2.5 mm in diam., sometimes ± 3-sided, reticulate, slightly hispid, apex tipped. Fl. and fr. May–Oct.

Slopes, dry or moist places, valleys, stream margins, under shrubs, open woods, beside farms or roads; near sea level to 2000 m. Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hainan, S Hunan, Jiangsu, Jiangxi, SE Sichuan, Taiwan, SE Xizang, Yunnan, Zhejiang [Bhutan, Cambodia, India, Indonesia, S Japan, Kashmir, Laos, Malaysia, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; N Australia].

14. *Scleria dulungensis* P. C. Li, Acta Bot. Yunnan. 12: 12. 1990.

独龙珍珠茅 du long zhen zhu mao

Rhizomes not seen. Culms to 100 cm tall, 5–8 mm wide, 3-angled, scabrous on ridges. Leaf sheath pale green, 3-angled, glabrous, not winged; contraligule oblong, barbate; leaf blade 15–20 cm, glabrous, veins and margin scabrous. Involucral bracts leaflike, sheaths pale green; bractlets glumelike, long awned. Inflorescences paniculate, to 50 cm, with 9–11 lateral branches; branches 10–15 × 10–12 cm, spreading and distant, with many spikelets. Spikelets single, unisexual, blackish purple; basal spikelets female, apex obovate; apical spikelets male, oblong, apex truncate; female glumes ovate-oblong, 3–3.5 mm, midrib green, apex acuminate. Disk ca. 3 mm in diam., 3-lobed; lobes golden yellow with purple lines, semicircular, margins reflexed. Nutlet white, spherical, ca. 3 mm, puberulent, reticulation purplish brown, apex tipped. Fl. and fr. Aug.

• Grasslands bordering evergreen broad-leaved forests on slopes; 1300–1400 m. Yunnan (Gongshan).

15. *Scleria levis* Retzius, Observ. Bot. 4: 13. 1786.

毛果珍珠茅 mao guo zhen zhu mao

Scleria hebecarpa Nees; *S. hebecarpa* var. *pubescens* (Steudel) C. B. Clarke; *S. levis* var. *pubescens* (Steudel) C. Z. Zheng; *S. pubescens* Steudel.

Perennials, stoloniferous. Rhizomes woody, covered with purple scales. Culms laxly tufted or scattered, 70–90 cm tall, 3–5 mm wide, 3-angled, scabrous, pubescent. Leaf sheath 1–8 cm, papery; sheath of leaves at culm base brown, not winged; sheaths on apical half of culm green, wing 1–3 mm wide; contraligule nearly semicircular, short, barbate; leaf blade linear, ca. 30 cm × 7–10 mm. Involucral bracts leaflike, basalmost to 13

cm; bractlets setaceous, auriculate at base, auricles barbate. Inflorescences paniculate, with 1 or 2 lateral branches; branches 3–8 × 1.5–3 cm. Spikelets 1 or 2 in a cluster, brown, unisexual, sessile, ca. 3 mm. Male spikelets narrowly ovoid to oblong-ovoid; glumes 1.5–3 mm, keeled, thickly membranous. Female spikelets usually at basal part of branch, narrowly ovoid; glumes oblong-ovate, broadly ovate, or ovate-lanceolate, keeled, with rust-colored short lines. Male flowers: stamens 3; anthers linear, ca. 1.3 mm. Female flowers: stigmas 3. Disk pale yellow, slightly narrower than nutlet, deeply 3-lobed; lobes lanceolate-triangular, margin reflexed. Nutlet white, spherical to ovoid, ca. 2 mm in diam., bluntly 3-sided, ± smooth to rugulose, apex tipped. Fl. and fr. Jun–Sep.

Dry places, grasslands on slopes, thickets in forests, scrub; near sea level to 1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, SE Xizang, Yunnan, Zhejiang [Bangladesh, Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; NE Australia, Pacific islands].

16. *Scleria jiangchengensis* Y. Y. Qian, Bull. Bot. Res., Harbin 19: 241. 1999.

江城珍珠茅 jiang cheng zhen zhu mao

Perennials, stoloniferous. Rhizomes woody, covered with brown scales. Culms laxly tufted to scattered, 70–110 cm tall, 3–4 mm wide, 3-angled, slightly puberulent. Sheath brown to greenish brown at middle part of culm, 1–6 cm, papery, puberulent, wings 1–3 mm wide; contraligules nearly semicircular, puberulent, barbate; leaf blade linear, to 35 cm × 3–8 mm, both surfaces pubescent. Involucral bracts leaflike, sheathing; bractlets setaceous, puberulent, base auriculate. Inflorescences paniculate, with 2–4 lateral branches; branches 2–7 × 1.5–5 cm, slightly distant. Spikelets 1 or 2 in a cluster, greenish purple to dark purple, 3.5–4.5 mm, unisexual. Male spikelets narrowly ovoid; basal glumes 1.5–3.3 mm, thickly membranous; apical glumes thinner and paler. Female spikelets usually at basal part of branch, narrowly ovoid; glumes 5; basal 2 glumes ovate, not keeled; apical 3 glumes ovate to ovate-lanceolate, keeled, apex awned. Male flowers: stamens 3. Female flowers: stigmas 3. Disk yellowish white, slightly narrower than nutlet, deeply 3-lobed, margins partly reflexed. Nutlet white, spherical, 2.5–2.8 mm in diam., 3-sided, reticulate, puberulent, apex tipped. Fl. and fr. Jul–Sep.

• Forests; 1000–1100 m. Yunnan (Jiangcheng).

No specimen of this species has been seen by the present authors. The description was adapted from the original protologue of the species.

17. *Scleria scrobiculata* Nees & Meyen in Wight, Contr. Bot. India, 117. 1834.

轮叶珍珠茅 lun ye zhen zhu mao

Perennials. Rhizomes hardened. Culms 1–2.5 m, 4–10 mm thick, triquetrous, scabrous on apical angles. Leaves ± in whorls of 2–5 at mid-culm (otherwise scattered); sheaths 4–6 cm, papery, glabrous, winged or not; contraligule depressed rounded, margin ciliate; leaf blade linear, ca. 40 × 1–1.3 cm, thickly papery, slightly scabrous, apically attenuate. Involucral bracts leaflike, basalmost to 15 cm, sheathing; bractlets setaceous, auriculate at base, auricles barbate. Inflorescences paniculate, with 1 or 2 lateral branches; branches 3–8 × 1.5–3 cm. Spikelets 1 or 2 in a cluster, brown, unisexual, sessile, ca. 3 mm. Male spikelets narrowly ovoid to oblong-ovoid; glumes 1.5–3 mm, keeled, thickly membranous. Female spikelets usually at basal part of branch, narrowly ovoid; glumes oblong-ovate, broadly ovate, or ovate-lanceolate, keeled, with rust-colored short lines. Male flowers: stamens 3; anthers linear, ca. 1.3 mm. Female flowers: stigmas 3. Disk pale yellow, slightly narrower than nutlet, deeply 3-lobed; lobes lanceolate-triangular, margin reflexed. Nutlet white, spherical to ovoid, ca. 2 mm in diam., bluntly 3-sided, ± smooth to rugulose, apex tipped. Fl. and fr. Jun–Sep.

ceous. Inflorescences paniculate, with several branches; lateral branches spreading, often 2 or 3 in a cluster, 6–7 × ca. 10 cm, axes angled. Spikelets 2 or 3 in a cluster, brown, 3–4 mm, unisexual. Male spikelets oblong-ovoid, pedicellate, apex truncate; glumes rust-colored to brown, 3–4 mm, membranous, basal ones keeled and with a cuspidate apex. Female spikelets narrowly ovoid, apex acuminate; glumes broadly ovate to ovate, keeled. Male flowers: stamens 3; anthers linear, ca. 1 mm; connective apex protruding, ca. 1/4 as long as anther. Female flowers: stigmas 3. Disk brown to purple, 3-lobed; lobes smooth, narrow, apex acute. Nutlet whitish, globose, 2.5–3 × 2.2–2.7 mm, slightly 3-sided, with hexagonal reticulation, scrobiculate (marked with many shallow depressions, grooves, or pits), glabrous but sparsely pubescent on ridges, apex cuspidate. Fl. and fr. Apr–Aug.

Evergreen broad-leaved forests; below 100–300 m. Guangdong (Lianzhou), Taiwan (Taidong) [Indonesia, Malaysia, Papua New Guinea, Philippines, Thailand, Vietnam; N Australia, Indian Ocean islands, Pacific islands].

18. *Scleria purpurascens* Steudel, Syn. Pl. Glumac. 2: 169. 1855.

紫花珍珠茅 zi hua zhen zhu mao

Perennials. Rhizomes hardened. Culms 1–2 m tall, 3–7 mm thick, triquetrous, scabrous or smooth on apical angles, glabrous or pubescent. Leaves ± in whorls of 2–5 at mid-culm (otherwise scattered); sheath 3–6 cm, papery, glabrous, wingless; contraligule depressed rounded, margin hirsute-ciliate; leaf blade linear, 30–60 × 0.3–1.5 cm, thickly papery, slightly scabrous, apically long acuminate. Involucral bracts leaflike, basalmost to 15 cm, sheathing; bractlets setaceous. Inflorescences paniculate, 20–50 cm, with 1–4 branches; lateral branches often 2 or 3 clustered, spreading, 4–10 × ca. 10 cm, axes angled. Spikelets 2 or 3 in a cluster, brown, 3–4 mm, unisexual (rarely bisexual). Male spikelets oblong-ovoid, pedicellate, apex truncate; glumes rust-colored to brown, 3–4 mm, membranous, basal ones keeled and with a cuspidate apex. Female spikelets obovoid, apex acuminate; glumes broadly ovate to ovate, keeled. Male flowers: stamens 3; anthers linear, ca. 1 mm; connective apex protruding, ca. 1/4 as long as anther. Female flowers: stigmas 3. Disk brown to purple, 3-lobed; lobes smooth, narrow, apex acute. Nutlet white but purplish brown when mature, ovoid, ellipsoid, or obovoid, 2–2.5 × 1.7–2 mm, slightly 3-sided, with hexagonal reticulation, conspicuously cancellate, sparsely pubescent on ridges and apex, apex cuspidate. Fl. and fr. summer.

Slopes, valleys, open woods; below 1000 m. Guangdong, Hainan [India, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam; Indian Ocean islands].

19. *Scleria psilorrhiza* C. B. Clarke in J. D. Hooker, Fl. Brit. India 6: 691. 1894.

细根茎珍珠茅 xi gen jing zhen zhu mao

Perennials. Stolons ca. 3 mm in diam., covered with brown [or purplish] scales. Culms 60–100[–150] cm tall, 2–4 mm wide, sharply 3-angled, smooth to scabrous, glabrous. Leaf sheath 1–15 cm; several sheaths brown at base of culm, mem-

branous to papery, not winged; other sheaths yellowish green, papery, wing 2–5 mm wide; ligule yellowish brown, glabrous or pilose; contraligule ovate-deltoid; leaf blade linear, ca. 30 × 0.5–1.5 cm, papery, glabrous. Involucral bracts leaflike, basalmost to 23 cm, sheathing; bractlets setaceous, base dilated. Inflorescences paniculate, with 1 distant lateral branch; branch spicate. Spikelets usually 2 or 3 in a cluster, rust-colored brown, sessile, ca. 3.5 mm, unisexual [or bisexual]. Male spikelets ellipsoid to oblong; glumes 2–3 mm, thickly membranous. Female spikelets usually at base of branch, ellipsoid to narrowly ovoid; glumes broadly ovate-lanceolate to broadly ovate, keeled, apex aristate. Male flowers: stamens 3; anthers linear, ca. 1.5 mm. Female flowers: stigmas 3. Disk pale brown, bluntly triangular, ca. 2.5 mm in diam., shallowly 3-lobed; lobes nearly semicircular, short, margin reflexed. Nutlet white or pale brown, ovoid, ca. 3 mm in diam., smooth, shiny, glabrous. Fl. and fr. Jul.

Sunny slopes; ca. 200 m. Yunnan [Cambodia, India, Indonesia, Papua New Guinea, Philippines, Thailand; N Australia].

20. *Scleria poiformis* Retzius, Observ. Bot. 4: 13. 1786.

稻形珍珠茅 dao xing zhen zhu mao

Scleria oryzoides J. Presl & C. Presl.

Perennials. Culms to 1 m tall, robust, 3-angled, scabrous, glabrous. Leaf sheath 7–25 cm, to 2 mm thick, leathery to ± fleshy, glabrous, sometimes 3-winged, basal ones purplish red; contraligule not prominent; leaf blade linear, ca. 1 m × 1–2.5 cm, glabrous, margins sometimes scabrous, apex acute. Involucral bracts setaceous, basalmost to 1.5 cm; bractlets glumelike, shorter than spikelets. Inflorescences compound paniculate, ca. 15 × 7–8 cm, with many branches; branch axes long, angled, scabrous, with many spikelets. Spikelets 1 or 2 in a cluster, dark brown, unisexual. Male spikelets many, more than female ones, oblong-ovoid, ca. 4 mm, apex truncate; glumes 2–3 mm, membranous, with rust-colored lines. Female spikelets usually at base of branch, narrowly ovoid, slightly longer than male ones, apex acuminate; glumes triangular-ovate, ovate-lanceolate, or broadly ovate, slightly longer than male glumes. Male flowers: stamen 1; anther linear, ca. 1.7 mm; connective apex protruding, 1/5–1/4 as long as anthers. Female flowers: stigmas 3. Disk brown, triangular-cordate, ca. 1.5 mm in diam., 3-lobed; lobes triangular, short, margin reflexed, apex acute. Nutlet white or gray, ovoid, ca. 3 × 2.5 mm, bluntly triangular, smooth, shiny, glabrous. Fl. and fr. Apr.

Water margins. Hainan [Cambodia, India, Indonesia, Laos, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; tropical Africa and Australia, Madagascar].

21. *Scleria radula* Hance, Ann. Sci. Nat., Bot., sér. 4, 18: 232. 1862.

光果珍珠茅 guang guo zhen zhu mao

Scleria laeviformis Tang & F. T. Wang.

Perennials. Culms ca. 1 m tall, ca. 1 cm wide, 3-angled. Leaf sheath laxly embracing culm, to 15 cm, sometimes pubescent, winged on middle part of culm, wing 1–4 mm wide;

contraligule purple, triangular; leaf blade linear, 15–50 × 1.5–2.5 cm, papery, slightly scabrous, glabrous. Involucral bracts leaflike, basalmost to 25 cm, sheathing; bractlets setaceous, pubescent. Inflorescences paniculate; lateral branches 4 or 5, 6–5 × 5–10 cm, compact, with many spikelets, ca. 2/3 of spikelets male. Male spikelets brown, oblong-ovoid; glumes membranous. Female spikelets usually basal, narrowly ovoid to ovoid; glumes brown, thickly membranous, hispid, apex apiculate. Male flowers: stamens 3. Female flowers: stigmas 3. Disk yellow, ca. 1.5 mm in diam., 3-lobed; lobes semicircular, margins thick and reflexed. Nutlet white, ovoid, ca. 2.5 × 2 mm, bluntly 3-sided, smooth, glabrous, apex tipped. Fl. and fr. Apr–Aug.

• Valleys, streamsides, dense forests, wet places among hills; 100–800 m. Guangdong, Guangxi, Hainan, Taiwan, Yunnan.

22. *Scleria oblata* S. T. Blake, *Blumea* 11: 219. 1961.

扁果珍珠茅 bian guo zhen zhu mao

Perennials. Rhizomes woody, covered with purple to purplish brown scales. Culms tufted, 60–120 cm tall, 2–3 mm wide, triquetrous, smooth, glabrous. Leaves cauline; sheath 2–7 cm, papery, glabrous; sheath at culm base brown to purplish brown, not winged, with 3 ovoid-lanceolate teeth of various sizes at opening; sheath at middle part of culm green, wing 1–3 mm wide; contraligule brown to reddish brown, shortly deltate, 1–3 mm, glabrous or ciliate; leaf blade linear, 15–60 cm × 6–9 mm, papery, slightly scabrous, glabrous. Involucral bracts leaflike, basalmost to 25 cm, sheathing; bractlets setaceous, base auriculate and hispid. Inflorescences paniculate, 10–20 cm, with 1–3 slightly distant lateral branches; branches 6–10 × 2–6 cm, slightly condensed. Spikelets 2 or 3 in a cluster, brown to purple, ca. 4 mm, unisexual. Male spikelets oblong-ovoid to narrowly ovoid-oblong; glumes 3–4 mm, membranous, margin sometimes ciliate; basal glumes keeled, apex aristate to apiculate. Female spikelets usually at base of branch, ovoid; glumes ovate-orbicular, keeled, apex acuminate. Male flowers: stamens 3. Female flowers: ovary pubescent; stigmas 3. Disk yellow, 1.6–2 mm in diam., deeply 3-lobed; lobes ovate, margin reflexed, apex obtuse to rounded. Nutlet white, ± spherical, ca. 2.5 mm in diam., smooth, glabrous.

Open wet grasslands; below 700 m. Guangdong [Bangladesh, India, Indonesia, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam; Indian Ocean islands].

23. *Scleria harlandii* Hance, *Ann. Sci. Nat., Bot.*, sér. 5, 5: 248. 1866.

圓秆珍珠茅 yuan gan zhen zhu mao

Scleria purpurascens Benth (1861), not Steudel (1855).

Perennials. Culms to more than 1 m tall, ca. 6 mm wide, subcylindric to sometimes slightly 3-angled, shiny, glabrous. Leaf sheath yellow with purple lines, tightly embracing culm, 4–6 cm, thinly leathery, not winged, sometimes pilose, apical ones often overlapped; contraligule purple, semicircular, margin ciliate, cilia ca. 1 mm; leaf blade linear, ca. 30 × 0.6–0.8 cm, thinly leathery, slightly scabrous, glabrous, apex attenuate. Involucral bracts leaflike, basalmost to 35 cm, sheathing; bractlets setaceous, subequaling spikelets, hairy, base auriculate. Inflo-

rescences compound paniculate, to 40 cm, with 8 or 9 branches; branches ca. 5 cm, triangular, axes often pubescent. Spikelets 1 or 2 in a cluster, light rust-colored to purple, 3–4 mm, mostly unisexual. Male spikelets oblong-ovoid to narrowly ovoid, apex truncate to acute; glumes 1.4–3 mm, membranous, with rust-colored lines. Female spikelets usually at base of branch, narrowly ovoid, apex acuminate; glumes broadly ovate to ovate-lanceolate, ± keeled, margin apically ciliate, apex cuspidate. Male flowers: stamens 3; anthers linear, ca. 1 mm; connective apex ca. 0.3 mm. Female flowers: stigmas 3. Disk yellow with light rust-colored lines, ca. 2 mm in diam., 3-lobed; lobes triangular, margins reflexed, apex acute to acuminate or 2- or 3-lobed. Nutlet white, subspherical, ca. 2.5 mm in diam., bluntly 3-sided, smooth, shiny, only apical part sparsely hairy, apex tipped. Fl. and fr. Mar–Sep.

Slopes, valleys, woodlands; below 400 m. Fujian, Guangdong, Guangxi, Hainan, SE Yunnan [Vietnam].

24. *Scleria sumatrensis* Retzius, *Observ. Bot.* 5: 19. 1788.

印尼珍珠茅 yin ni zhen zhu mao

Perennials. Culms 2–4 m tall, 6–7 mm wide, 3-angled, glabrous. Leaves ± in whorls of 3; sheaths ca. 4 cm, papery, glabrous, basal ones winged; contraligule nearly semicircular, very short, margin ciliate; leaf blade linear, ca. 40 × 1–1.3 cm, thickly papery, slightly scabrous, apically attenuate. Involucral bracts leaflike, basalmost to 25 cm, sheathing; bractlets setaceous, laterally hairy, base dilated. Inflorescences compound paniculate, with several branches; lateral branches often 2 or 3 in a cluster, 6–7 × ca. 10 cm, spreading, axes angled. Spikelets 1 or 2 in a cluster, brown, ca. 5 mm, unisexual, basal glumes distichous. Male spikelets oblong-ovoid, apex truncate; glumes rust-colored to brown, 2–3.5 mm, membranous, basal ones keeled and with a cuspidate apex. Female spikelets narrowly ovoid, apex acuminate; glumes broadly ovate-lanceolate, ovate, or oblong-ovate, keeled. Male flowers: stamens 3; anthers linear, ca. 1.2 mm; connective apex protruding, ca. 1/4 as long as anther. Female flowers: stigmas 3. Disk brown, purple, yellowish, or bright shiny red, cup-shaped, 1/2–4/5 height of nutlet and enclosing it, 3-lobed; lobes smooth, shiny, apex dentate. Nutlet flattened globose, ca. 1.5 × 2–2.5 mm, with hexagonal reticulation, sparsely pubescent, apex cuspidate. Fl. and fr. Apr.

Stream margins; 200–300 m or less. Hainan, Taiwan (Pingdong) [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam; N Australia, Indian Ocean islands, Pacific islands].

