

86. AGROSTIS Linnaeus, Sp. Pl. 1: 61. 1753.

剪股颖属 *jian gu ying shu*

Lu Shenglian (卢生莲); Sylvia M. Phillips

Pentatherum Nábelek.

Annuals or perennials, tufted or sometimes with rhizomes or stolons. Leaf blades linear to filiform or setaceous, flat or rolled; ligule membranous. Inflorescence a panicle, open to contracted or spikelike. Spikelets with 1 floret, small, often gaping, without rachilla extension; rachilla disarticulating above glumes; glumes persistent, longer than floret, subequal or lower a little longer, membranous, 1-veined, apex subacute to acuminate; floret callus glabrous or shortly pilose; lemma oblong to elliptic, thinner than glumes, often hyaline, 5-veined, rounded on back, glabrous or hairy, lateral veins sometimes excurrent, awnless or awned from back, apex truncate or toothed; awn usually geniculate, sometimes weakly so or straight when short; palea shorter than lemma, sometimes very small. Stamens 3. Caryopsis oblong, sulcate on ventral side.

About 200 species: temperate and cold regions of the N hemisphere, also on tropical mountains; 25 species (eight endemic) in China.

The genus includes some good fodder and lawn plants.

Some species are superficially very similar, and correct identification depends on careful observation of spikelet details. It is also important to collect the basal parts to show the presence or absence of rhizomes and stolons. When the palea is long it is normally obvious, but small paleas usually adhere to the mature caryopsis and may appear to be absent. The presence or absence of awns is useful for identification, but awned species may have awnless variants, and vice versa, and the position of the awn on the lemma back can also be rather variable.

- 1a. Lemma hairy.
- 2a. Spikelets 1.5–3 mm; palea almost equaling lemma 1. *A. munroana*
- 2b. Spikelets 3–4 mm; palea clearly shorter than lemma.
- 3a. Palea ca. 1/3 length of lemma; ligule 2.5–6 mm 2. *A. pilosula*
- 3b. Palea ca. 2/3 length of lemma; ligule 1.5–2.5 mm 3. *A. dshungarica*
- 1b. Lemma glabrous.
- 4a. Palea well developed, more than 1/3 lemma length.
- 5a. Culms up to 20 cm tall; alpine grass in Taiwan 17. *A. fukuyamae*
- 5b. Culms up to 130 cm tall; not alpine grasses.
- 6a. Anthers 0.5–0.8 mm; palea slightly under 1/2 lemma length 16. *A. arisan-montana*
- 6b. Anthers 0.8–1.5 mm; palea 1/2–3/4 lemma length.
- 7a. Plant stoloniferous, rhizomes absent; panicle contracted after anthesis 4. *A. stolonifera*
- 7b. Plant tufted or rhizomatous, stolons absent; panicle open after anthesis.
- 8a. Ligule on non-flowering shoots shorter than wide; panicle branches almost smooth; plants up to 70 cm 5. *A. capillaris*
- 8b. Ligule on non-flowering shoots as long as or longer than wide; panicle branches scabrid; plants up to 150 cm.
- 9a. Panicle green or violet tinged, branches moderately slender, branched from near base; floret callus shortly bearded, hairs 0.2–0.5 mm 6. *A. gigantea*
- 9b. Panicle dark purple tinged brown, branches very fine, bare in lower 1/3; floret callus subglabrous 7. *A. divaricatissima*
- 4b. Palea small, 1/3 length of lemma or less, often tiny.
- 10a. Lemma awnless (occasionally a short awnlet present, included within the spikelet).
- 11a. Panicle dense, spikelike, linear or linear-oblong; culms less than 30 cm.
- 12a. Leaf blades filiform, 0.4–0.8 mm wide; spikelets ca. 2.5 mm; callus subglabrous 8. *A. mackliniae*
- 12b. Leaf blades linear, 1–3 mm wide; spikelets 2.8–4 mm; callus hairs ca. 0.2 mm 9. *A. hugoniana*
- 11b. Panicle open to laxly contracted, not spikelike; culms 20–100 cm.
- 13a. Culms weak, scrambling, 100–130 cm long; panicle ovate, ca. 30 cm, very delicate, branches and pedicels divaricate 10. *A. brachiata*
- 13b. Culms erect, tufted, usually less than 100 cm; panicle narrowly oblong to ovate, 3–25 cm, branches and pedicels not divaricate.
- 14a. Spikelets usually dark purple; glumes unequal; plant often less than 30 cm tall 11. *A. nervosa*
- 14b. Spikelets usually green or grayish green, occasionally violet tinged; glumes subequal; plant (20–)40–100 cm tall.
- 15a. Anthers 0.3–0.5(–0.7) mm; spikelets 1.3–1.8 mm (if longer, anthers small).
- 16a. Leaf blades (2.5–)4–11 mm wide; glumes subacute; lemma 3/4–9/10 spikelet length; palea 0.3–0.6 mm 12. *A. micrantha*

- 16b. Leaf blades 1–5 mm wide; glumes acuminate; lemma 2/3–3/4 spikelet length; palea less than 0.25 mm 13. *A. clavata*
- 15b. Anthers 0.5–1.5 mm; spikelets 1.8–3.2 mm.
- 17a. Spikelets 2.5–3.2 mm; anthers 1–1.5 mm 14. *A. kunmingensis*
- 17b. Spikelets 1.9–2.8 mm; anthers 0.5–1 mm.
- 18a. Panicle open, elliptic to narrowly ovate; branches bare in lower part; palea less than 0.2 lemma length 15. *A. infirma*
- 18b. Panicle usually contracted, lanceolate-oblong; branches often bearing spikelets from base; palea 0.2–0.4 lemma length 16. *A. arisan-montana*
- 10b. Lemma awned, awn flexuous or geniculate, exerted from spikelet.
- 19a. Awn usually arising from middle of lemma back or above; anthers 0.5–1.2 mm.
- 20a. Panicle open, ovate to broadly elliptic; branches widely spreading to divaricate, up to 10 cm, bare in lower part.
- 21a. Leaf blades 2–5 mm wide; panicle elliptic, branches ascending; spikelets 1.8–2.7 mm 18. *A. sozanensis*
- 21b. Leaf blades 0.5–2 mm wide; panicle ovate, branches divaricate; spikelets 2.6–3.5 mm 19. *A. hookeriana*
- 20b. Panicle laxly contracted, lanceolate; branches ascending, up to 3.5 cm, with spikelets from near base.
- 22a. Culms 12–20 cm tall; cauline leaf blades 1–2 mm wide; spikelets dark purple; awn arising from middle of lemma 20. *A. sinorupestris*
- 22b. Culms 30–50 cm tall; cauline leaf blades 3–5 mm wide; spikelets greenish gray; awn arising from upper 1/4–1/3 of lemma 21. *A. sinocontracta*
- 19b. Awn usually arising from below middle of lemma back; anthers 1–1.6 mm.
- 23a. Plant with creeping surface stolons 22. *A. canina*
- 23b. Plant with subterranean rhizomes or tufted.
- 24a. Leaf blades smooth on abaxial surface; panicle branches smooth 23. *A. flaccida*
- 24b. Leaf blades scabrid on abaxial surface; panicle branches smooth or scabrid.
- 25a. Rhizomes present, plant loosely tufted; panicle open, at least at anthesis; callus subglabrous, hairs 0.1–0.3 mm 24. *A. vinealis*
- 25b. Rhizomes absent, plant densely tufted; panicle contracted; callus bearded, hairs 0.3–0.4 mm 25. *A. turkestanica*

1. *Agrostis munroana* Aitchison & Hemsley, J. Linn. Soc., Bot. 19: 192. 1882.

长稈剪股颖 chang fu jian gu ying

Calamagrostis munroana (Aitchison & Hemsley) Boissier.

Annual. Culms solitary or in small tufts, erect or geniculate at base, 10–45(–70) cm high, 3–5-noded. Leaves all cauline; leaf sheaths loose, smooth; leaf blades linear, flat, 3–15 cm × 1.5–5 mm, smooth or slightly scaberulous; ligule 2.5–4 mm, apex obtuse. Panicle contracted to open, narrowly oblong to broadly lanceolate in outline, 3–15(–20) cm; branches 2–7 per node, ascending to spreading, capillary, scaberulous, bare in lower part. Spikelets 1.5–3 mm, usually purple tinged; glumes lanceolate-elliptic, equal, keel scabrid, apex acute; callus hairs ca. 0.5 mm; lemma 3/4–4/5 spikelet length, back villous, awnless or a fine straight awn up to 3 mm arising at or below middle, apex truncate-denticulate; palea almost as long as lemma. Anthers 0.4–0.8 mm.

Grassy slopes, moist meadows; ca. 3700 m. NE Xizang, Yunnan (Gongshan) [Afghanistan, NW India, Kashmir, Nepal, N Pakistan].

2. *Agrostis pilosula* Trinius, Mém. Acad. Imp. Sci. Saint-Pétersbourg, Sér. 6, Sci. Math., Seconde Pt. Sci. Nat. 6, 4(3–4): 372. 1841.

柔毛剪股颖 rou mao jian gu ying

Agrostis beimushanica J. L. Yang; *A. ciliata* Trinius (1845), not Thunberg (1784); *A. eriolepis* Keng ex Y. C. Yang; *A. muliensis* J. L. Yang; *A. pilosula* var. *wallichiana* (Steudel) Bor; *A. royleana* Trinius; *A. wallichiana* Steudel; *Calamagrostis pilosula* (Trinius) J. D. Hooker; *Pentatherum pilosulum* (Trinius) Tzvelev.

Annual or short-lived perennial, tufted. Culms loosely ascending or decumbent at base and rooting from lower nodes, 30–90 cm tall, 3- or 4-noded. Leaf sheaths glabrous; leaf blades linear, flat, 3–20 cm × 3–5 mm, both surfaces scabrid; ligule 2.5–6 mm, apex lacerate. Panicle lanceolate to ovate in outline, 10–30 cm, open or somewhat contracted; branches 2–7 at each node, 2–5 cm, scabrid, bearing branchlets mainly in distal half. Spikelets 3–4 mm, green or purple; glumes oblong-lanceolate, lower glume slightly longer than upper glume, keel conspicuously scabrid-hispidulous, apex acuminate, upper glume scabrid upward on keel, apex acute; callus hairs 0.4–0.5 mm; lemma ca. 2/3 spikelet length, back villous except below apex, awned at or near lower 1/3, apex truncate, erose; awn geniculate, 3–4 mm; palea usually ca. 1/3 length of lemma. Anthers 0.7–1.5 mm. Fl. Aug.

Grassy mountain slopes; 3600–4200 m. Qinghai, W Sichuan, Yunnan [Bhutan, India, Nepal, Pakistan, Sri Lanka].

This is a polymorphic species in which several rather ill-defined varieties have been distinguished. *Agrostis pilosula* var. *pilosula* has a large, effuse panicle with branches to 10 cm. The name *A. pilosula* var. *wallichiana* has been misapplied to a variant with a smaller, stiffly branched panicle and small, purple spikelets. The type of *A. wallichiana* has a pale green panicle with long, flexuous branches.

3. *Agrostis dshungarica* (Tzvelev) Tzvelev, Rast. Tsentr. Azii 4: 292. 2001.

线序剪股颖 xian xu jian gu ying

Pentatherum dshungaricum Tzvelev, Rast. Tsentr. Azii 4: 77. 1968; *Agrostis sinkiangensis* Y. C. Yang.

Annual or short-lived perennial, tufted. Culms 20–50 cm tall, 2–4-noded. Leaf sheaths smooth, glabrous; leaf blades narrowly linear, flat, 4–10 cm × 1–3 mm, abaxial surface sub-smooth, adaxial surface scaberulous; ligule 1.5–2.5 mm. Panicle contracted, linear, 5–10 cm; branches short, erect, almost smooth, bearing spikelets to base; pedicels usually pubescent. Spikelets 3–4 mm, purple; glumes oblong-lanceolate, lower glume slightly longer than upper glume, keel scaberulous; callus hairs ca. 1 mm; lemma 1/2–2/3 spikelet length, back villous except below apex, awned from lower 1/3, apex irregularly toothed; awn weakly geniculate, 3–4.3 mm; palea ca. 2/3 length of lemma. Anthers 0.7–0.9 mm. Fl. and fr. Aug–Sep.

- Mountain slopes. Xinjiang.

This is a local variant of the variable species *Agrostis pilosula*, distinguished mainly by its longer palea in combination with a narrow, purple panicle. It is also geographically disjunct.

4. *Agrostis stolonifera* Linnaeus, Sp. Pl. 1: 62. 1753.

西伯利亚剪股颖 xi bo li ya jian gu ying

Agrostis palustris Hudson; *A. sibirica* V. A. Petrov.

Perennial, tufted, stoloniferous; stolons slender, leafy, widely spreading, developing after anthesis. Culms erect or geniculate and rooting at base, 30–50(–100) cm tall. Leaf sheaths smooth; leaf blades linear, flat or inrolled, 4–10 cm × 2–5 mm, scaberulous, apex acute to acuminate; ligule on non-flowering shoots 2–3.5 mm, rounded to truncate, often lacerate. Panicle narrow, linear to lanceolate in outline, 5–20 cm, open only at anthesis, otherwise contracted, often dense; branches several per node, closely divided, ascending, scabrous, main branch at a node often bare in lower 1/3, but accompanied by shorter branches bearing spikelets to base. Spikelets 1.8–3 mm, yellowish green; glumes lanceolate, subequal or lower glume slightly longer, lower glume scabrous along keel distally, upper glume often smooth, apex acute; callus minutely hairy; lemma 3/4 as long to subequaling spikelet, usually awnless, apex rounded; palea 1/2–3/4 length of lemma. Anthers 0.8–1.5 mm. Fl. Aug.

Moist places along roadsides. Anhui, Gansu, Guizhou, Heilongjiang, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, Xinjiang, Xizang, Yunnan [Bhutan, India, Japan, Mongolia, Nepal, Russia; C and SW Asia, Europe].

This is a widespread and polymorphic species, adventive in many temperate countries.

5. *Agrostis capillaris* Linnaeus, Sp. Pl. 1: 62. 1753.

细弱剪股颖 xi ruo jian gu ying

Agrostis sylvatica Hudson; *A. tenuis* Sibthorp; *A. vulgaris* Withering.

Perennial, rhizomatous; rhizomes scaly, short. Culms tufted, geniculate or decumbent and rooting at base, 20–70 cm tall. Leaf sheaths smooth; leaf blades linear, flat or inrolled, 2–15 cm × 1–4 mm, scabrous or nearly smooth, apex acuminate; ligule on non-flowering shoots 1–2 mm, shorter than wide, truncate. Panicle elliptical in outline, up to 20 cm, open, very lax; branches 2–5 per node, spreading, capillary, 1.5–3.5 cm, slightly flexuous, smooth or almost so, bare in lower half, spikelets well spaced. Spikelets 1.5–2.5 mm, purplish brown; glumes elliptical-lanceolate, subequal or lower glume slightly longer, lower glume scabrid along keel distally, upper glume often smooth, apex acute; callus minutely hairy; lemma 2/3–3/4 spikelet length, glabrous, midrib slightly prominent, usually awnless, apex truncate; palea 1/2–3/4 length of lemma. Anthers 0.8–1.5 mm. Fl. Aug.

Moist grassy places, probably introduced; 1000–1500 m. Henan, Nei Mongol, Ningxia, Shanxi, Xinjiang [Afghanistan, W Russia; N Africa, SW Asia (Caucasus, Turkey), Europe; introduced in North America and other temperate countries].

6. *Agrostis gigantea* Roth, Tent. Fl. Germ. 1: 31. 1788.

巨序剪股颖 ju xu jian gu ying

Agrostis stolonifera Linnaeus var. *gigantea* (Roth) Koch; *A. stolonifera* subsp. *gigantea* (Roth) Maire & Weiler; *A. stolonifera* var. *ramosa* (S. F. Gray) Veldkamp; *Vilfa alba* (Linnaeus) P. Beauvois var. *ramosa* S. F. Gray.

Perennial, rhizomatous; rhizomes tough, scaly, spreading. Culms loosely tufted, ascending to prostrate at base, rooting and branching from lower nodes, up to 130 cm tall. Leaf sheaths smooth or scaberulous; leaf blades linear, flat, 5–30 cm × 3–10 mm, scabrid, apex acuminate; ligule on tillers 1.5–6 mm, as long as or longer than wide, toothed. Panicle oblong or conical in outline, 8–25 cm, contracted at first, open after anthesis; branches 5 or more per node, spreading, very scabrous, bearing branchlets nearly to base, spikelets clustered at the branch apices. Spikelets 2–3 mm, yellowish green or purplish; glumes elliptical-lanceolate, subequal or lower glume slightly longer, scabrid or pilosulous along upper keel and margins, apex acute; callus hairs 0.2–0.4 mm; lemma 2/3–3/4 spikelet length, glabrous, usually awnless, apex obtuse; palea 1/2–3/4 length of lemma. Anthers 1–1.5 mm. Fl. and fr. summer and autumn.

Moist ground, rough grasslands, as a field weed. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan, Zhejiang [Afghanistan, NW India, Japan, Korea, Mongolia, Nepal, Pakistan, Russia; N Africa, SW Asia, Europe].

This is a widespread and polymorphic species, introduced for pasture or adventive in Australia, North America, and elsewhere. The name *Agrostis alba* Linnaeus has sometimes been used for this species, but the correct application of that name is uncertain.

Agrostis gigantea, *A. capillaris*, and *A. stolonifera* are closely re-

lated, widespread weeds, which sometimes hybridize. While the lemma is usually awnless, a small awnlet from at or near the apex may be present in some spikelets.

7. *Agrostis divaricatissima* Mez, Repert. Spec. Nov. Regni Veg. 18: 4. 1922.

歧序剪股颖 qí xū jiǎn gǔ yǐng

Agrostis koreana Ohwi.

Perennial, loosely tufted, sometimes shortly rhizomatous. Culms usually many, erect, 40–100 cm tall, ca. 2 mm in diam., 4–5-noded. Leaf sheaths smooth; leaf blades linear, soft, 7–8 cm × 1–3 mm, sharply scabrid on both surfaces, narrowly acuminate; ligule on tillers 2–2.5 mm, on culm leaves 2.5–4 mm. Panicle ovate in outline, 10–25 cm, remaining open after anthesis; branches 6–8 per node, widely spreading, very slender, slightly flexuous, up to 15 cm, sharply scabrid, bare in lower half. Spikelets 1.8–2.3 mm, dark purple; glumes lanceolate, equal, keel of lower glume scabrid above middle, apex acuminate; callus glabrous or nearly so; lemma 2/3–3/4 spikelet length, awnless or sometimes with awnlet up to 1 mm, apex obtuse; palea 1/2–2/3 length of lemma. Anthers 0.8–1.2 mm. Fl. and fr. Jul–Aug.

Riversides, lakesides, marshy meadows, often on saline soils; 500–1500 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Mongolia, Russia].

Agrostis mongolica, from Mongolia and Siberia, is very similar, but has a shorter panicle rarely exceeding 12 cm and smaller 1.5–2 mm spikelets. There is some overlap, and it is sometimes placed in synonymy under *A. divaricatissima*.

8. *Agrostis mackliniae* Bor, Kew Bull. [12] 1957: 417. 1958.

歧颖剪股颖 qí yǐng jiǎn gǔ yǐng

Agrostis inaequiglumis Grisebach var. *nana* Y. C. Yang.

Perennial; rootstock present, tough. Culms erect from an ascending base, up to 30 cm tall, 0.5–0.8 mm in diam., 2–3-noded. Leaf sheaths glabrous, lower scarious; leaf blades filiform, rolled, basal blades 8–10 cm × 0.4–0.8 mm, culm blades 2–4 cm, abaxial (outer) surface scabrid toward apex, otherwise smooth, adaxial (inner) surface closely ribbed, scabrid on ribs; ligule 0.7–1 mm, ca. 2 mm on culm leaves. Panicle linear, dense, spikelike, 5–8 cm; branches short, erect, bearing spikelets from base; pedicels scabrid. Spikelets ca. 2.5 mm, green tinged pale purple; glumes narrowly oblong-lanceolate, slightly unequal with lower longer, keel scabrid, apex acuminate; callus subglabrous; lemma 2/3 spikelet length, smooth, usually awnless, apex acute; palea 0.25 mm. Anthers ca. 1 mm. Fl. Aug.

Alpine grassy slopes; 3000–4000 m. SE Xizang, NW Yunnan [N Myanmar].

Agrostis mackliniae usually has awnless lemmas, but rarely a few lemmas have a short, straight awn from above the middle. *Agrostis inaequiglumis* Grisebach is a similar, small species, occurring in Bhutan, India (Sikkim), and Nepal. It also has a narrow, spikelike panicle and awnless spikelets, but is distinguished by its delicate, annual habit.

9. *Agrostis hugoniana* Rendle, J. Linn. Soc., Bot. 36: 389. 1904.

甘青剪股颖 gān qīng jiǎn gǔ yǐng

Agrostis shensiana Mez.

Perennial, densely tufted; old basal sheaths fibrous. Culms erect or geniculate at base, 8–30 cm tall, 1–2 mm in diam., 2-noded. Leaf sheaths lax, overlapping; leaf blades linear, 2–8 cm × 1–3 mm, scabrid on both surfaces; ligule ca. 2 mm, back scabrid, apex rounded. Panicle dense, spikelike, linear-oblong in outline, 3–9 cm; branches 3–6 at each node, short, erect, up to 4 cm, smooth or scabrid, bearing spikelets from base; pedicels 0.7–2 mm, scabrid. Spikelets 2.8–4 mm, green flushed dark purple; glumes lanceolate, unequal, lower glume ca. 0.2 mm longer than upper glume, keel scabrid, upper back and margins puberulous, apex acuminate; callus hairs ca. 0.2 mm; lemma ca. 2/3 spikelet length, awnless or with short awnlet below apex, apex obtuse or slightly toothed; palea 0.45–0.5 mm. Anthers 0.7–1 mm. Fl. and fr. Aug–Sep.

• Alpine grasslands, rocky slopes; 2500–4200 m. Gansu, Qinghai, W Shaanxi, NW Sichuan.

This species is similar in habit to *Agrostis mackliniae*, which has filiform leaf blades, shorter spikelets, a subglabrous callus, and a shorter palea.

10. *Agrostis brachiata* Munro ex J. D. Hooker, Fl. Brit. India 7: 256. 1896 [“1897”].

大锥剪股颖 dà zhūi jiǎn gǔ yǐng

Agrostis megathyrsa Keng ex P. C. Keng.

Perennial, tufted from a rootstock. Culms weak, scrambling, 1–1.3 m tall, 5–7-noded. Leaf sheaths smooth or scabrid, leaf blades linear, thin, 7–20 cm × 2–7 mm, both surfaces scabrid, base contracted, apex acuminate; ligule 2–4 mm, back scabrid, apex truncate. Panicle large, effuse, delicate, ovate in outline, 27–30 cm; branches 3–5 per node, branches, branchlets, and pedicels all divaricate, slightly flexuous, capillary, scabrid or smooth; pedicels 1.5–3 mm. Spikelets hyaline, 1.5–1.8 mm, green or greenish purple at maturity; glumes finally deciduous from pedicel, narrowly ovate, subequal, scarcely keeled, lower glume scabrid on vein below apex, upper glume smooth, apex acute; callus glabrous or almost so; lemma 3/4 spikelet length or more, midvein terminating at middle of back, awnless, apex narrowly truncate; palea ca. 0.5 mm. Anthers 0.5–0.7 mm. Fl. and fr. Jul–Sep.

Mountain tops, roadsides; 600–2500 m. Gansu, Guizhou, Hubei, Sichuan, Yunnan [Bhutan, Nepal].

This distinctive species is readily recognizable by its scrambling habit, very large, delicate panicle with divaricate branchlets, and thintextured spikelets with deciduous glumes. The panicle is remarkably reminiscent of *Sporobolus*.

11. *Agrostis nervosa* Nees ex Trinius, Mém. Acad. Imp. Sci. Saint-Pétersbourg, Sér. 6, Sci. Math., Seconde Pt. Sci. Nat. 6, 4(3–4): 328. 1841.

泸水剪股颖 lú shuǐ jiǎn gǔ yǐng

Agrostis clarkei J. D. Hooker; *A. limprichtii* Pilger; *A. lushuiensis* B. S. Sun & Y. Cai Wang; *A. schneideri* Pilger; *A. schneideri* var. *brevipes* Keng ex Y. C. Yang; *A. sikkimensis* Bor; *A. taliensis* Pilger.

Perennial, tufted. Culms very slender, erect, 20–30(–50) cm tall, 0.5–0.8 mm in diam., 1–4-noded. Leaf sheaths loose, smooth; leaf blades narrowly linear to setaceous, flat or involute, 3–13 cm × 0.8–3 mm, abaxial surface smooth, adaxial surface scabrid; ligule 0.5–3 mm, back smooth or scaberulous, apex obtuse. Panicle open to laxly contracted, narrowly lanceolate to ovate in outline, 3–15 cm; branches 2–5 per node, very fine, ascending to spreading, 1–6.5(–8) cm, smooth or almost so, bare below middle. Spikelets 1.7–3.2 mm, dark purple or purplish green; glumes lanceolate, unequal, lower glume 1.7–3.2(–3.5) mm, keel scabrid above middle, long acuminate, upper glume 1.6–2.9 mm, apex acute; callus glabrous; lemma 2/3–4/5 spikelet length, awnless or a fine awnlet up to 0.6 mm below apex, apex obtuse or emarginate; palea 0.2–0.5 mm, 0.2–0.4 lemma length. Anthers 0.5–0.75 mm. Fl. and fr. Aug–Sep.

Grassy or stony mountain slopes, meadows, broad-leaved woodlands, bamboo forests; 2000–4000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India (Darjeeling, Sikkim), N Myanmar, Nepal].

This is a variable species with a wide range of spikelet size, but usually with clearly unequal, purple glumes and awnless lemmas. The name *Agrostis sikkimensis* refers to slender, delicate variants with small spikelets and very fine leaf blades, often growing among moss on rocks. There is continuous variation to taller forms with larger spikelets growing in meadows and woodlands. Forms with a short, straight, subapical awnlet (*A. limprichtii*, *A. lushuiensis*) may have arisen by hybridization with *A. sinorupestris*.

Agrostis szechuanica (Y. C. Tong ex Y. C. Yang) L. Liu (Vasc. Pl. Hengduan Mts. 2: 2247. 1994; *A. clavata* Trinius var. *szechuanica* Y. C. Tong ex Y. C. Yang, Bull. Bot. Res., Harbin 4(4): 99. 1984) may belong here. The type, from Sichuan (Hanyuan), has not been seen. It is also reported from Yunnan.

12. *Agrostis micrantha* Steudel, Syn. Pl. Glumac. 1: 170. 1854.
多花剪股颖 duo hua jian gu ying

Agrostis clavata Trinius subsp. *micrantha* (Steudel) Y. C. Tong; *A. micrantha* Keng ex J. L. Yang; *A. milioides* Mez; *A. myriantha* J. D. Hooker; *A. myriantha* var. *yangbiensis* B. S. Sun & Y. Cai Wang.

Perennial, tufted. Culms weak, erect to decumbent and rooting at lower nodes, 40–100 cm tall, 4(–8)-noded. Leaf sheaths smooth, loose; leaf blades linear to lanceolate, flat, thin, 5–14 cm × (2.5–)4–11 mm, both surfaces scaberulous, margins finely scabrid; ligule 2–3(–6) mm, back scabrid, apex truncate, lacerate. Panicle effuse, 10–15(–20) cm, usually narrowly oblong in outline when young, spreading at flowering, usually contracted in fruit; branches several at each node, capillary, up to 10 cm, bare in lower part. Spikelets 1.3–1.8(–2.2) mm, olive green, occasionally violet tinged; glumes narrowly lanceolate-oblong, lower glume usually slightly longer than upper, sometimes equal, keeled, keel scabrid to acuminate, apex subacute; callus glabrous or nearly so; lemma 3/4–9/10 spikelet length, awnless, apex obtuse; palea 0.3–0.6 mm, (1/4–)1/3(–1/2) lemma length. Anthers 0.3–0.5(–0.7) mm. Fl. and fr. Jul–Sep.

Roadsides, riversides, forests, swampy places; 1600–3500 m. Anhui, Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal].

This variable species is the most common *Agrostis* in the E Himalayas. It is a lush, leafy species, with a green panicle of small, awnless spikelets with subacute glumes, a relatively long floret, and short anthers. Habit is greatly influenced by environmental factors, from compact tufts to much laxer, almost stoloniferous growth in moister situations. Forms with short, lanceolate leaf blades differ in appearance from those with longer, narrower leaf blades, but the variation is continuous.

13. *Agrostis clavata* Trinius, Neue Entdeck. Pflanzenk. 2: 55. 1821.

华北剪股颖 hua bei jian gu ying

Agrostis clavata subsp. *matsumurae* (Hackel ex Honda) Tateoka; *A. clavata* var. *nukabo* Ohwi; *A. formosana* Ohwi; *A. matsumurae* Hackel ex Honda.

Annual or short-lived perennial, loosely tufted. Culms erect or geniculate at base, slender, 30–70 cm tall, 2–4-noded. Leaf sheaths smooth; leaf blades linear, flat, thin, 6–15 cm × 1–5 mm, both surfaces scabrid; ligule 1.5–3 mm, back scabrid, apex obtuse or lacerate. Panicle lax, lanceolate to narrowly oblong in outline, 8–25 cm; branches 2–7 at each node, ascending, capillary, 8–15 cm, scabrid, bare in lower 1/3–1/2 or sometimes with spikelets from base. Spikelets 1.5–2.5 mm, yellowish green; glumes lanceolate, subequal, lower slightly longer, keeled, keels acuminate-scabrid, apex acuminate; callus glabrous or nearly so; lemma 2/3–3/4 spikelet length, awnless, apex obtuse; palea 0.25 mm. Anthers 0.3–0.5 mm. Fl. and fr. summer and autumn.

Roadsides, riversides, forest margins, disturbed grassy places, often in moist situations; below 4000 m. Anhui, Fujian, Gansu, Guangdong, Guizhou, Hebei, Henan, Heilongjiang, Jilin, Nei Mongol, Shaanxi, Shandong, Sichuan, Taiwan, Xizang, Yunnan [Japan, Korea, Mongolia, Russia; SW Asia (Caucasus), N Europe, North America (Alaska)].

Agrostis clavata is distinguished by the combination of scabrid leaves and panicle branches, small, pale green spikelets, acuminate glumes, an awnless lemma, and very small palea and anthers.

Agrostis clavata subsp. *matsumurae* (*A. clavata* var. *nukabo*) is often recognized, mainly on the basis of a dense, narrow panicle bearing spikelets from the base of the primary branches. In contrast, subsp. *clavata* has panicle branches divergent at flowering and bare in the lower 1/3–1/2. However, short, densely spiculate branches are often present at the panicle nodes among the longer, bare-based branches in subsp. *clavata*, contributing to a denser panicle appearance when frequent. All the panicle branches become erect in the fruiting stage, further blurring the boundary with subsp. *matsumurae*. It has not been possible to distinguish two subspecies satisfactorily in herbarium material.

14. *Agrostis kunmingensis* B. S. Sun & Y. Cai Wang, Acta Phytotax. Sin. 30: 364, pl. 2. 1992.

昆明剪股颖 kun ming jian gu ying

Agrostis hookeriana (C. B. Clarke ex J. D. Hooker) var. *longiflora* Y. C. Tong ex Y. C. Yang; *A. poluninii* Bor var. *longiflora* (Y. C. Tong ex Y. C. Yang) B. S. Sun.

Perennial, rhizomatous. Culms erect from geniculate base, up to 70(–100) cm tall, 1–2.5 mm in diam., 3–7-noded. Leaf sheaths smooth; leaf blades linear, flat or rolled when dry, 10–16 cm × 2.5–4 mm, both surfaces scabrid, apex acuminate; ligule 2–4.5 mm, back scabrid, apex obtuse. Panicle open or laxly

contracted, narrowly lanceolate to narrowly ovate in outline, 15–20(–25) cm; branches 2–6 per node in well-spaced whorls, ascending to laxly spreading, slender, 7–12 cm, scabrid, bare below middle. Spikelets 2.5–3.2 mm, green tinged purplish gray or purple; glumes narrowly lanceolate, subequal, keel scabrid, upper indistinctly keeled, almost smooth, acute; callus hairs ca. 0.3 mm; lemma ca. 2/3 spikelet length, awnless or with up to 1 mm awnlet from middle or above, lateral veins slightly keeled and scaberulous above middle, apex truncate; palea 0.2–0.5 mm, 0.15–0.3 lemma length. Anthers 1–1.5 mm. Fl. and fr. Jun–Aug.

• Moist grassy slopes, riversides; 2000–3600 m. Sichuan, Yunnan.

Agrostis kunmingensis closely resembles awnless forms of *A. canina* in spikelet size and anther length, but appears to lack the spreading stolons typical of that species. It is also close to *A. infirma*, a predominantly SE Asian species.

15. *Agrostis infirma* Buse, Pl. Jungh., Gramineae, preprint, 2. 1854.

玉山剪股颖 yu shan jian gu ying

Agrostis flaccida Hackel var. *morrisonensis* (Hayata) Honda; *A. macilenta* Keng; *A. morrisonensis* Hayata; *A. rigidula* Steudel; *A. shandongensis* F. Z. Li; *A. sozanensis* Hayata var. *exaristata* Handel-Mazzetti; *A. wulingensis* Honda.

Perennial, densely tufted. Culms slender, erect or geniculate at base, 20–100 cm tall, 0.5–2.5 mm in diam., 2–3-noded. Leaves mainly basal, leaf sheaths smooth; leaf blades often involute and acicular or narrowly linear and flat, 4–14 cm × 0.3–5 mm, smooth or slightly scaberulous; ligule of culm blades 2.25–2.75 mm, apex rounded. Panicle open or slightly contracted, elliptic in outline, 8–14(–25) cm; branches 4–6 per node, laxly ascending, 3–8(–10) cm, smooth, lower part bare. Spikelets 2–2.8 mm, purplish green; glumes lanceolate, unequal with lower longer, keel scabrid, apex acute; callus glabrous or almost so; lemma 3/4 spikelet length, awnless or rarely mucronate above middle, apex obtuse; palea 0.15–0.35 mm, less than 0.2 lemma length. Anthers 0.5–1 mm. Fr. Nov.

Mountains; 2600–4000 m. Heilongjiang, Hunan, Shandong, Taiwan, Yunnan [Indonesia, New Guinea, Philippines].

Agrostis infirma is a variable species widespread in SE Asia. *Agrostis sozanensis* is very similar, but has awned spikelets.

16. *Agrostis arisan-montana* Ohwi, Acta Phytotax. Geobot. 2: 161. 1933.

阿里山剪股颖 a li shan jian gu ying

Agrostis arisan-montana var. *megalandra* Y. C. Yang; *A. megathyrsa* Keng ex P. C. Keng var. *angustispicata* D. Z. Ma & J. N. Li; *A. perarta* Keng.

Perennial, loosely tufted. Culms geniculate at base, rooting at lower nodes, 40–100 cm tall, 1–1.7 mm in diam., 3–6-noded. Leaf sheaths smooth; leaf blades linear, soft, 5–14 cm × 2–6 mm, both surfaces scabrid, abaxial surface densely so, apex acuminate; ligule 2–3.5 mm, back scabrid, apex obtuse. Panicle contracted, narrowly lanceolate-oblong in outline, 10–20 cm,

much branched; branches 3 per node or rebranched at base, narrowly ascending, longest 5–8 cm, scabrid, bearing spikelets from base. Spikelets 1.9–2.3 mm, yellowish green often with purplish tinge; glumes narrowly ovate-oblong, subequal, keel scabrid, apex subacute or acute; callus glabrous; lemma ca. 3/4 spikelet length, midvein terminating from slightly below middle to apex, awnless, apex broadly rounded, minutely denticulate; palea 0.35–0.75 mm, 0.2–0.4 lemma length. Anthers 0.5–0.8 mm. Fr. Jul.

• Grassy mountain slopes; 900–3200 m. Guangxi, Henan, Ningxia, Shaanxi, Sichuan, Taiwan, Yunnan.

In this species the lemma is awnless, with the midvein terminating anywhere from slightly below the middle up to the apex, varying even within the same panicle. The length of the palea is also rather variable, sometimes almost reaching the middle of the lemma.

Agrostis arisan-montana is close to *A. micrantha*, but tends to have a narrower panicle and more sharply acute glumes. It is also close to *A. infirma*, but with a more open panicle. The relationship between these three taxa, extending from the Himalayas through China into SE Asia, requires further investigation. *Agrostis fukuyamae* and *A. sozanensis* also belong to this group.

17. *Agrostis fukuyamae* Ohwi, Repert. Spec. Nov. Regni Veg. 36: 39. 1934.

舟颖剪股颖 zhou ying jian gu ying

Agrostis infirma Buse var. *fukuyamae* (Ohwi) Veldkamp; *A. rigidula* Steudel subsp. *fukuyamae* (Ohwi) T. Koyama; *A. rigidula* var. *fukuyamae* (Ohwi) Veldkamp.

Perennial, tufted. Culms erect, 15–20 cm tall, 0.5–1 mm in diam., 2-noded. Leaf sheaths longer than internodes, smooth; leaf blades narrowly linear to setaceous, folded, 5–10 cm × 0.6–1 mm (when folded), abaxial surface smooth or scaberulous, adaxial surface scabrid; ligule 0.8–1.5 mm, apex rounded or truncate. Panicle contracted when young, later open, narrowly ovate in outline, 7–10 cm; branches 3–4 per node, ascending to spreading, longest 3.5–6 cm, almost smooth, bearing spikelets from near base. Spikelets 1.5–2 mm, purplish green; glumes lanceolate-oblong, equal, keel scaberulous toward apex, apex acute; callus hairs 0.2–0.3 mm; lemma more than 3/4 spikelet length, awnless, midvein terminating near middle of back, apex broadly obtuse; palea 0.6–0.8 mm, slightly less to slightly more than 1/2 lemma length. Anthers 0.7–1 mm. Fl. Jul.

• Exposed rocks near mountain summits. Taiwan.

This species is perhaps no more than a local, high-altitude variant of *Agrostis infirma*, differing by its smaller spikelets with a relatively longer lemma and longer palea.

18. *Agrostis sozanensis* Hayata, Icon. Pl. Formosan. 7: 85. 1918.

台湾剪股颖 tai wan jian gu ying

Agrostis canina Linnaeus var. *formosana* Hackel; *A. transmorrisonensis* Hayata; *A. transmorrisonensis* var. *opienensis* Keng ex Y. C. Yang.

Perennial, loosely tufted, shortly rhizomatous. Culms erect or ascending, up to 90 cm tall, 1–1.2(–2.5) mm in diam., 3–5–

noded. Leaf sheaths smooth; leaf blades narrowly linear, flat or weakly involute toward apex, 7–20 cm × 2–5 mm, both surfaces scabrid; ligule 2–6 mm, apex obtuse or truncate. Panicle open, lax, broadly elliptic to narrowly ovate in outline, 15–30 cm; branches 2–4(–10) per node, capillary, widely ascending, flexuous, up to 10 cm, scabrid, lower 1/2–2/3 bare. Spikelets 1.8–2.7(–3) mm, green or tinged purplish red; glumes subequal or lower glume slightly longer than upper glume, keel scabrid, apex acute or acuminate; callus hairs 0.1–0.2 mm; lemma 2/3–3/4 spikelet length, awned from middle or above, apex obtuse or truncate; awn variable, up to 2(–3) mm, straight or slightly bent; palea 0.25–0.5 mm, 1/4–1/3 lemma length. Anthers 0.7–1.2 mm. Fl. and fr. summer and autumn.

• Moist ground, near roads, on slopes; below 2700 m. Anhui, Fujian, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang.

The development and position of the awn are variable in this species. It is usually bent and exerted from the spikelet, but may be shorter and straight. It may arise from the middle to the upper quarter of the lemma back. Occasionally, awnless spikelets may occur in a panicle where most spikelets are awned. The distinction from *Agrostis infirma* is based mainly on the presence of awns, coupled with slightly longer paleas and anthers.

Agrostis sozanensis is very close to *A. canina* Linnaeus. *Agrostis canina* is distinguished by the presence of creeping surface stolons, an awn arising from the lower part of the lemma back, and anthers 1–1.5 mm.

The name *Agrostis perennans* (Walter) Tuckerman has been misapplied to *A. sozanensis*. *Agrostis sozanensis* and *A. transmorrisonensis* were published simultaneously, but *A. sozanensis* has priority when they are regarded as synonyms, since *A. sozanensis* was chosen first, by Koyama (Grasses Japan Neighboring Regions, 485. 1987). The identity of the taxon named *A. transmorrisonensis* var. *kunyushanensis* F. Z. Li (Bull. Bot. Res., Harbin 11(2): 28. 1991), described from Shandong (Kunyu Shan), is uncertain. The type has not been seen.

19. *Agrostis hookeriana* C. B. Clarke ex J. D. Hooker, Fl. Brit. India 7: 256. 1896 [“1897”].

疏花剪股颖 shu hua jian gu ying

Agrostis perluxa Pilger; *A. poluninii* Bor; *A. pubicallis* Keng ex Y. C. Yang.

Perennial, tufted. Culms erect or slightly geniculate at base, up to 50 cm tall, 0.5–1.2 mm in diam., 2–4-noded. Leaf sheaths smooth; leaf blades very narrowly linear, flat, 5–10 cm × 0.5–2 mm, smooth except toward apex; ligule 2–3 mm, apex lacerate. Panicle very lax, ovate in outline, 7–20 cm, open at and after anthesis; branches 2–3 per node, whorls distant, widely ascending to divaricate, capillary, slightly flexuous, longest up to 9 cm, smooth or slightly scabrid, lower half bare. Spikelets 2.6–3.5 mm, usually violet tinged; glumes unequal, lower glume narrowly lanceolate, longer than upper, upper glume oblong-lanceolate, keel scabrid, apex acuminate; callus hairs ca. 0.2 mm; lemma 2/3 spikelet length, back smooth or scaberulous, awned from just above middle, apex truncate-denticulate; awn weakly geniculate, 2–4 mm; palea ca. 0.3 mm. Anthers 0.6–1 mm. Fl. and fr. Aug–Sep.

Montane forests, among bushes, ditches, damp places; 1900–3600

m. Qinghai, W Sichuan, Xizang, Yunnan [Bhutan, India (Sikkim), Nepal].

The spikelets of *Agrostis hookeriana* are similar to those of *A. sozanensis*, but in the former species the panicle is very open and broad, with divaricate branches, and the geographic distribution is more westerly.

20. *Agrostis sinorupestris* L. Liu ex S. M. Phillips & S. L. Lu, sp. nov.

岩生剪股颖 yan sheng jian gu ying

Type: China. Yunnan: E slopes of Lijiang Snow Range, Yangtze watershed, 1923–1924, *J. F. Rock 10774* (holotype, US-1214302).

Haec species A. rupestri Allioni *affinis*, *sed ab ea arista ex medio (non prope basim) lemmatis exorienti atque antheris brevioribus (0.6–0.8 mm, non 1–2 mm) differt.*

Agrostis hugoniana Rendle var. *aristata* Keng ex Y. C. Yang.

Perennial, densely tufted. Culms erect, slender, 12–20(–30) cm tall, ca. 0.5 mm in diam., 2–3-noded. Leaf sheaths longer or shorter than internodes; leaf blades linear, flat or involute, 3–15 cm × 1–2 mm, scabrid; ligule very short, apex round or truncate. Panicle slightly contracted, lanceolate in outline, 3–8 cm; branches 2–6 per node, up to 4 cm, smooth or sparsely scabrid. Spikelets 2.8–3.5 mm, dark purple; glumes lanceolate, unequal, lower glume ca. 0.3 mm longer than upper glume, keel scabrid, apex acute; callus hairs ca. 0.2 mm; lemma ca. 2 mm, awned from middle of back, apex slightly toothed; awn weakly geniculate, 3.5–5 mm; palea 0.4–0.6 mm. Anthers 0.6–0.8 mm. Fl. and fr. summer and autumn.

• Stony mountain slopes; 3500–4000 m. Sichuan, Xizang, Yunnan.

There is a good illustration of *Agrostis sinorupestris* in Keng (Fl. Ill. Pl. Prim. Sin. Gram. 545. 1959, as “*Agrostis rupestris*”). The species is very similar to delicate forms of *A. nervosa*, but differs by the presence of awns.

The name “*Agrostis sinorupestris* L. Liou” (Vasc. Pl. Hengduan Mts. 2: 2252. 1994) belongs here, but was not validly published because no Latin description was provided. The name *Agrostis rupestris* Allioni has been misapplied to this species in the Chinese literature. That species is confined to mountains in Europe and differs by its lower awn insertion on the lemma back (near the base to the lower 1/3) and longer anthers 1–2 mm.

21. *Agrostis sinocontracta* S. M. Phillips & S. L. Lu, nom. nov.

紧序剪股颖 jin xu jian gu ying

Replaced synonym: *Agrostis contracta* Y. C. Tong ex Y. C. Yang, Bull. Bot. Res., Harbin 4(4): 100. 1984, not *Agrostis contracta* F. Mueller ex J. D. Hooker, Fl. Tasman. 2: 116. 1858.

Perennial, tufted. Culms erect, 30–50 cm tall, 1–2 mm in diam., 3–4-noded. Leaf sheaths loose, smooth; leaf blades linear, soft, culm blades 10–14 cm × 3–5 mm, blades of tillers ca. 1 mm wide, abaxial surface scabrid or almost smooth, adax-

ial surface scabrid; ligule 1–2.5 mm, apex truncate. Panicle laxly contracted, lanceolate in outline, 10–15 cm; branches 1–3 at each node or sometimes secondary branching from base, narrowly ascending, 2.5–3.5 cm, almost smooth, a few widely scattered scabridities, bearing spikelets for most of length. Spikelets 2.5–3 mm, green tinged purplish gray; glumes narrowly lanceolate, lower glume slightly longer than upper glume, keel scabrid, apex acuminate; callus hairs 0.1–0.2 mm; lemma ca. 1/2 spikelet length, awned from upper 1/4–1/3, apex emarginate-denticulate; awn recurved in right angle from lower 1/3, slightly twisted below bend, 3–3.3 mm; palea ca. 0.25 mm. Anthers 0.5–0.7 mm. Fl. and fr. Aug–Oct.

• Alpine meadows; ca. 4000 m. NW Yunnan (Bijiang, Gongshan).

Agrostis filipes J. D. Hooker, from Kashmir and the Khasi Hills of NE India, also has awns arising from above the middle of the lemma back and a small palea. It differs in having narrower culm leaf blades 1–2.5 mm wide, a densely contracted panicle, and a fine awn 1–2 mm.

22. *Agrostis canina* Linnaeus, Sp. Pl. 1: 62. 1753.

普通剪股颖 pu tong jian gu ying

Perennial, loosely tufted, stoloniferous, turf-forming. Culms erect or geniculate at base, 20–60 cm tall, 1–1.2 mm in diam., 3–5-noded. Leaf sheaths smooth; leaf blades linear, flat or involute toward apex, 3–20 cm × 1–3 mm, scaberulous; ligule 1.5–4 mm, back scaberulous, apex obtuse or acute. Panicle lax, lanceolate to ovate in outline, 5–12(–20) cm; branches 3–6 per node, spreading at anthesis, usually erect in fruit, capillary, up to 8 cm, scabrid, bare in lower half. Spikelets 1.5–3 mm, purplish brown; glumes lanceolate, subequal, keel scabrid, apex acute; callus hairs ca. 0.2 mm; lemma 2/3 spikelet length, awned from near base to slightly below middle of back, lateral veins minutely exserted, apex obtuse-denticulate; awn weakly geniculate, up to 4.5 mm; palea ca. 0.5 mm. Anthers 1–1.5 mm. Fl. Jul.

Damp grasslands; 1400–3800 m. Xinjiang, Xizang, Yunnan [Japan, Kashmir, Mongolia, Russia; Europe, NE America].

This is a European species, introduced as a lawn grass or adventive in some other temperate countries. Some variants are awnless or have poorly developed awns. It is distinguished from *Agrostis vinealis* and other awned species with short paleas by the combination of leafy stolons and long anthers.

23. *Agrostis flaccida* Hackel, Bull. Herb. Boissier 7: 649. 1899.

柔软剪股颖 rou ruan jian gu ying

Perennial, tufted, shortly rhizomatous. Culms erect or geniculate at base, slender, 15–30(–50) cm tall, ca. 1 mm in diam., 3-noded. Leaf sheaths smooth; leaf blades narrowly linear, weakly rolled or infrequently flat, soft, 5–10 cm × 0.5–2 mm, smooth, uppermost culm blade elongate, widely divergent from culm; ligule 1–2 mm, apex obtuse. Panicle open, diffuse, narrowly ovate in outline, 4–8 cm; branches 2–5 per node, spreading, capillary, 5–7 cm, smooth or almost so, bare in lower half. Spikelets 2.5–3 mm, purple or purplish green; glumes

lanceolate, slightly unequal, keel scabrid, apex acuminate; callus hairs 0.2–0.5 mm; lemma 2/3–3/4 spikelet length, indistinctly granular-scaberulous, awned from lower 1/4–1/3 of back, lateral veins sometimes minutely exserted, apex truncate-denticulate; awn weakly geniculate, 3–5 mm; palea ca. 0.25 mm. Anthers 1–1.6 mm. Fl. and fr. Jul–Aug. $2n = 14$.

Rocky slopes, open forest; 1500–2300 m. E Jilin, Liaoning [Japan, Korea, Russia (Kamchatka, Kuril Islands, Sakhalin)].

Agrostis flaccida is distinguished from other members of the *A. vinealis* complex mainly by its smooth leaf blades and panicle branches (see the comment under the next species).

24. *Agrostis vinealis* Schreber, Spic. Fl. Lips. 47. 1771.

芒剪股颖 mang jian gu ying

Agrostis canina subsp. *montana* (Hartman) Hartman; *A. canina* subsp. *trinii* (Turczaninow) Hultén; *A. canina* var. *montana* Hartman; *A. coarctata* subsp. *trinii* (Turczaninow) H. Scholz; *A. flaccida* subsp. *trinii* (Turczaninow) T. Koyama; *A. flaccida* var. *trinii* (Turczaninow) Ohwi; *A. trinii* Turczaninow; *A. vinealis* subsp. *trinii* (Turczaninow) Tzvelev.

Perennial, tufted, shortly rhizomatous. Culms erect from a geniculate base, 30–60 cm tall, ca. 1 mm in diam., 3-noded. Leaf sheaths smooth; leaf blades narrowly linear, flat or weakly rolled, grayish green, 5–8 cm × 0.5–2 mm, scabrid; ligule 1.5–3 mm, apex obtuse. Panicle lanceolate to narrowly ovate, 7–12 cm; branches 2–5 per node, laxly ascending, slender, moderately scabrid. Spikelets 2–2.5 mm, purple; glumes oblong-lanceolate, subequal, lower slightly longer, keel scabrid or almost smooth on upper glume, apex acuminate; callus hairs ca. 0.2 mm; lemma 2/3 spikelet length, awned from slightly below middle to lower 1/3, or awnless, apex obtuse; awn geniculate, 3–3.5 mm; palea very small. Anthers 1–1.5 mm. Fl. and fr. summer and autumn.

Damp grassy places; 1500–1700 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Pakistan, Russia; America, Europe].

Agrostis vinealis lies at the center of a complex of closely related taxa, including in China *A. flaccida* and *A. turkestanica*. Characters separating the taxa are very slight, which has led to differences in opinion as to their taxonomic status. *Agrostis vinealis* itself is widespread in Eurasia, but other members are usually of more restricted distribution. *Agrostis trinii*, based on an E Asian element with very scabrid leaf blades, has been reported from NE China. Other characters used to

distinguish it are conflicting in the literature, and it seems impossible to maintain it as distinct.

25. *Agrostis turkestanica* Drobow, Fl. Uzbekistan. 1: 537. 1941.

北疆剪股颖 bei jiang jian gu ying

Agrostis vinealis subsp. *turkestanica* (Drobow) Tzvelev.

Perennial, densely tufted. Culms slender, slightly geniculate at base, 20–35 cm tall, ca. 1 mm in diam., 2-noded. Leaves mainly crowded in basal tuft; leaf sheaths lax, smooth, longer than internodes; leaf blades setaceous, involute or flat, 3–4 cm × 0.8–1 mm; ligule 1.5–3 mm, apex rounded. Panicle contracted, linear-oblong, 4–9 cm; branches 1–3 per node, ca. 2 cm, smooth or scabrid. Spikelets 2–2.2 mm, dull purple; glumes lanceolate, subequal or lower glume slightly longer, lower glume aculeolate along keel, apex acute; lemma ca. 1.9 mm, distinctly 5-veined, awned from upper 2/3–4/5, apex obtuse or subrounded; awn weakly geniculate, 2.5–3 mm; palea ca. 0.2 mm. Anthers ca. 1.2 mm. Fl. and fr. Aug–Sep.

River valleys, roadsides; 2300 m. Xinjiang [Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan; SW Asia (NE Iran)].

This is a regional variant from the *Agrostis vinealis* complex, with a densely tufted habit, fine leaf blades, and a contracted panicle.

