

**87. DEYEUXIA** Clarion ex P. Beauvois, Ess. Agrostogr. 43. 1812.

野青茅属 *ye qing mao shu*

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*Anisachne* Keng.

Perennials, tufted or also rhizomatous. Leaf blades linear, usually flat, sometimes inrolled; ligule membranous. Inflorescence a panicle, loosely contracted to spikelike, rarely open. Spikelets with 1 floret (very rarely 2), rachilla disarticulating above glumes, with penicillate extension lying against the palea; glumes subequal, usually slightly longer than the floret, rarely slightly shorter, membranous, 1–3-veined, apex acute or acuminate; floret callus bearded, hairs usually 1/3 as long up to about equaling floret; lemma thinly to firmly membranous, (3–)5-veined, dorsally awned or awnless, apex erose, denticulate or 2–4-toothed; awn geniculate or straight, its position varying from near base to near apex, usually inconspicuous, up to twice length of lemma but occasionally reduced to a subapical mucro or absent; palea 2/3 as long to subequaling lemma. Stamens usually 3, rarely 2 or 1.

About 200 species: temperate regions throughout the world, also on tropical mountains; 34 species (15 endemic) in China.

The genera *Agrostis*, *Calamagrostis*, and *Deyeuxia* form an intergrading complex of three incompletely separated entities. The majority of species can be placed without difficulty, but there is a number of troublesome intermediates, and no character combinations provide a definitive way of distinguishing the genera. *Agrostis*, with small spikelets and short callus hairs, has always been maintained separately, while *Deyeuxia* is sometimes maintained and sometimes sunk into *Calamagrostis*. However, the boundary between *Agrostis* and *Calamagrostis* is just as ill-defined as that between *Calamagrostis* and *Deyeuxia*. For this reason, three separate genera are maintained here, which complies with the usual practice in Chinese floras and avoids the need for many new combinations.

The taxonomy of this group is complicated by the presence of a number of apomictic complexes and frequent hybridization. Many infraspecific taxa have been described in an attempt to order this variation. However, intermediates are to be expected in an actively evolving group such as this, and most of these infraspecific taxa have not been enumerated separately here.

1a. Lemma awnless; panicle open.

2a. Callus hairs 2/3 as long as lemma or more; culms up to 120 cm; panicle 15–30 cm.

3a. Spikelets 2–3 mm; lemma 1.5–2.5 mm; callus hairs equaling or subequaling lemma ..... 1. *D. diffusa*

3b. Spikelets 3–4.2 mm; lemma 3–4 mm; callus hairs 2/3–4/5 as long as lemma ..... 2. *D. flaccida*

2b. Callus hairs not more than 1/2 as long as lemma; culms up to 60 cm; panicle 6–12 cm.

4a. Spikelets 3–3.7 mm; rachilla 1.5–2.5 mm; anthers ca. 2 mm ..... 3. *D. yanyuanensis*

4b. Spikelets 2–2.5 mm; rachilla ca. 0.6 mm; anthers ca. 0.5 mm.

5a. Spikelets 1.9–2.5(–3) mm; glumes slightly shorter than floret; callus hairs less than 1 mm, not visible between glumes; leaf sheaths smooth ..... 4. *D. petelotii*

5b. Spikelets 2.5–3.5 mm; glumes equaling or longer than floret; callus hairs 1.2–2 mm, visible between glumes; leaf sheaths scabrid ..... 5. *D. abnormis*

1b. Lemma awned; panicle open or contracted.

6a. Callus hairs less than 1/2 as long as lemma.

7a. Awn arising near or above middle of lemma.

8a. Spikelets with 2 florets ..... 6. *D. himalaica*

8b. Spikelets with 1 floret.

9a. Plant with slender, elongate, creeping rhizomes.

10a. Awn 1–2.5(–6) mm, arising from upper 1/3 of lemma or above; glumes scabrid ..... 7. *D. pulchella*

10b. Awn 5–6 mm, arising from middle of lemma; glumes smooth or scabrid only on keel ..... 8. *D. rosea*

9b. Plant tufted or shortly rhizomatous.

11a. Panicle contracted, branches straight, scabrid; lower glume ciliolate on margins; anthers 2–3 mm ..... 9. *D. scabrescens*

11b. Panicle open, branches capillary, curving, smooth; lower glume not ciliolate on margins; anthers ca. 1 mm ..... 10. *D. nyingchiensis*

7b. Awn arising from below middle of lemma.

12a. Panicle loosely contracted to dense, sometimes spikelike.

13a. Anthers 0.5–1.2 mm; culms 1–2-noded ..... 11. *D. nivicola*

13b. Anthers 2–3 mm; culms (2–)3–5-noded.

14a. Glumes membranous, shining ..... 25. *D. anthoxanthoides*

14b. Glumes not shining.

15a. Leaf blades involute, filiform; spikelets 4–5.5 mm ..... 12. *D. mazzettii*

15b. Leaf blades flat, stiff; spikelets 5–7 mm ..... 14. *D. korotkyi*

12b. Panicle open with spreading branches, (5–)15–35 cm wide.

- 16a. Callus hairs less than 1/5 length of lemma; ligule 0.5–2(–4) mm.  
 17a. Plant ca. 65 cm tall; panicle 5–9(–16) cm; spikelets with 1(–2) florets ..... 15. *D. suizanensis*  
 17b. Plant 80–120 cm tall; panicle 20–35 cm; spikelets with 1 floret ..... 16. *D. effusiflora*  
 16b. Callus hairs 1/5–2/5 length of lemma; ligule 2.5–20 mm.  
 18a. Lemma apex erose; anthers (1.3–)2–3 mm ..... 17. *D. pyramidalis*  
 18b. Lemma apex with 0.5–1.5 mm mucros; anthers 0.5–1.2 mm ..... 13. *D. flavens*
- 6b. Callus hairs 1/2 as long as lemma or longer.  
 19a. Panicle open or slightly contracted.  
 20a. Panicle branches usually paired; glumes smooth, scabrid on keel only; ligule 1–1.5 mm ..... 18. *D. hakonensis*  
 20b. Panicle branches fascicled; glumes scabrid; ligule 3–20 mm.  
 21a. Awn sub-basal ..... 19. *D. sinelator*  
 21b. Awn arising near or above middle of lemma.  
 22a. Culms (4–)6–8-noded, usually branched ..... 20. *D. purpurea*  
 22b. Culms 2–4-noded, unbranched.  
 23a. Lemma awned from near middle; awn ca. 1.2 mm, not exerted from spikelets ..... 21. *D. sichuanensis*  
 23b. Lemma awned from near apex; awn 3–6 mm, exerted from spikelet ..... 22. *D. nepalensis*
- 19b. Panicle dense, often spikelike.  
 24a. Awn geniculate with twisted column, conspicuously exceeding glumes.  
 25a. Culm densely pubescent below panicle; panicle branches pubescent ..... 26. *D. tibetica*  
 25b. Culms scabrid below panicle; panicle branches scabrid.  
 26a. Anthers 1.5–2 mm; spikelets 4–6 mm, purple ..... 27. *D. tianschanica*  
 26b. Anthers 2–4 mm; spikelets 5–9 mm, yellowish brown, purplish at base ..... 28. *D. holciformis*
- 24b. Awn slender, straight, slightly curved or indistinctly twisted in lower part, included within glumes (exserted in *D. moupinensis*).  
 27a. Lemma apex deeply 2-lobed; awn arising from between lobes; ligule ca. 0.5 mm ..... 29. *D. moupinensis*  
 27b. Lemma apex denticulate or minutely 4-toothed; ligule 1.5–7 mm.  
 28a. Anthers ca. 0.5 mm; culms 15–45 cm tall ..... 30. *D. debilis*  
 28b. Anthers 1.5–2.2 mm.  
 29a. Awn arising from lower 1/3 of lemma or slightly above.  
 30a. Awn poorly developed, 1–2 mm; spikelets 3–4 mm ..... 23. *D. neglecta*  
 30b. Awn 3–6 mm; spikelets 4–7 mm.  
 31a. Panicle 10–25 cm; glumes subequal ..... 24. *D. lapponica*  
 31b. Panicle 5–8 cm; glumes unequal ..... 31. *D. zangxiensis*
- 29b. Awn sub-basal.  
 32a. Callus hairs equal to or slightly longer than lemma ..... 32. *D. conferta*  
 32b. Callus hairs 1/2–4/5 as long as lemma.  
 33a. Leaf sheaths scabrid; spikelets purple with bronze at apex ..... 33. *D. kokonorica*  
 33b. Leaf sheaths smooth; spikelets yellowish green or pinkish ..... 34. *D. macilenta*

**1. *Deyeuxia diffusa* Keng, Sunyatsenia 6(2): 94. 1941.**

散穗野青茅 san sui ye qing mao

*Calamagrostis diffusa* (Keng) P. C. Keng, Bull. Bot. Res., Harbin 4(3): 195. 1984.

Perennial, very loosely tufted, stoloniferous; stolons long, slender. Culms slender, decumbent, 30–80 cm tall, 1–2 mm in diam., 4–6-noded. Leaf blades flat or inrolled, 10–20 cm, 1–3 mm wide; ligule 1.5–3 mm, toothed. Panicle loose, open, 15–30 × 5–15 cm; branches paired or in whorls, up to 15 cm, very slender, flexuous, bare below middle, di- or trichotomously branched above, smooth, branchlets and pedicels capillary, drooping. Spikelets 2–3 mm, brownish purple; glumes unequal, lower glume narrowly lanceolate, 2–2.5 mm, apex acuminate, upper glume broadly lanceolate, 1.5–2 mm, apex obtuse; callus hairs equal to or slightly shorter than lemma; lemma 1.5–2.5 mm, apex obtuse or emarginate, awnless; palea 1/2–2/3 as long

as lemma; rachilla ca. 0.5 mm, including hairs up to 1–1.5 mm. Anthers ca. 0.5 mm. Caryopsis oblong, ca. 1.5 mm. Fl. and fr. summer and autumn.  $2n = 28^*$ .

• Grassy slopes, among shrubs, on wasteland; 1900–3800 m. Guizhou, Sichuan, Yunnan.

The name "*Deyeuxia agrostioides* L. Liou" (Vasc. Pl. Hengduan Mts. 2: 2240. 1994) belongs here, but was not validly published because no Latin description was provided.

**2. *Deyeuxia flaccida* (P. C. Keng) Keng ex S. L. Lu, Fl. Reipubl. Popularis Sin. 9(3): 223. 1987.**

柔弱野青茅 rou ruo ye qing mao

*Calamagrostis flaccida* Keng ex P. C. Keng, Bull. Bot. Res., Harbin 4(3): 195. 1984.

Perennial, very loosely tufted. Culms slender, weakly as-

ending, 60–120 cm tall, 1–2 mm in diam., 4–6-noded. Leaf sheaths scabrid; leaf blades flat, thin, 5–20 cm, 1–4 mm wide, glabrous, apex acuminate; ligule 1–4 mm, usually tattered. Panicle loose, open, soft, 15–20 × 8–14 cm; branches in whorls of 2–5, up to 10 cm, slender, flexuous, bare below middle, di- or trichotomously branched above, smooth, branchlets and pedicels capillary, drooping. Spikelets 3–4.2 mm, gray-green or purplish at apex; glumes lanceolate, lower glume 3–4 mm, 1-veined, scabrid along vein, apex acute, upper glume 2.5–3.5 mm, 3-veined with lateral veins obsolete, midvein smooth, apex obtuse; callus hairs 2/3–3/4 length of lemma; lemma 3–4 mm, awnless; palea 1/2–2/3 as long as lemma; rachilla ca. 0.8 mm, including hairs up to 1.5–2 mm. Anthers 0.5–0.7 mm. Caryopsis brown, fusiform, ca. 2 mm. Fl. and fr. Jul–Aug.

- Bamboo forests, roadsides on moist ground; 2000–2600 m. Sichuan, Yunnan.

**3. *Deyeuxia yanyuanensis*** (J. L. Yang) L. Liu, Vasc. Pl. Hengduan Mts. 2: 2241. 1994.

盐源野青茅 *yan yuan ye qing mao*

*Calamagrostis yanyuanensis* J. L. Yang, Acta Bot. Yunnan. 5: 48. 1983.

Perennial, loosely tufted. Culms slender, erect, 40–60 cm, ca. 1 mm in diam., 2- or 3-noded. Leaf sheaths scabrid; leaf blades involute, 5–9.5 cm, ca. 1.5 mm wide, scabrid; ligule oblong, ca. 3 mm. Panicle lanceolate, rather loose, 6–11 × 2–3 cm; branches ascending, lowermost whorled, ca. 2.5 cm, capillary, smooth. Spikelets 3–3.7 mm, yellowish; glumes lanceolate, subequal, smooth, apex acute; callus hairs 1/7–1/5 length of lemma; lemma 2.7–3.5 mm, apex obtuse, awnless or with a very small apical mucro; palea 2/3–3/4 as long as lemma; rachilla 1.5–2.5 mm, including hairs 2–3 mm. Anthers ca. 2 mm.

- Woodlands; 2600 m. Sichuan.

This species is known only from the type.

**4. *Deyeuxia petelotii*** (Hitchcock) S. M. Phillips & Wen L. Chen, Novon 13: 319. 2003.

异颖草 *yi ying cao*

*Aulacolepis petelotii* Hitchcock, J. Wash. Acad. Sci. 24: 291. 1934; *Agrostis continentalis* Handel-Mazzetti; *A. petelotii* (Hitchcock) Noltie; *Anisachne gracilis* Keng; *A. gracilis* var. *multinodis* Y. Y. Qian; *Aniselytron gracilis* (Keng) N. X. Zhao; *A. petelotii* (Hitchcock) Soják; *Calamagrostis petelotii* (Hitchcock) Govaerts; *Deyeuxia continentalis* (Handel-Mazzetti) L. Liu; *Neoaulacolepis petelotii* (Hitchcock) Rauschert.

Perennial, densely tufted, old basal sheaths fibrous. Culms slender, erect or geniculate at base, 11–25 cm tall, 2–4-noded. Leaf sheaths smooth; leaf blades linear to filiform, flat or involute, 2–10 cm, 0.5–4 mm wide, scabrid, apex acute; ligule 0.5–2 mm, truncate to lacerate. Panicle narrowly pyramidal, lax, 6–16 cm; branches ascending, lowest in whorls of 2–6, 3–8 cm, capillary, scabrid, bare below middle, secondary branches usually short. Spikelets 2–3 mm, pale green or tinged purple;

glumes lanceolate, shorter than floret, 1.8–2.3 mm, lower glume 1-veined, upper glume 1–3-veined, keel scabrid, apex subacute; callus hairs ca. 0.5 mm; lemma as long as spikelet, apex acute or midvein exerted into ca. 0.2 mm mucro; palea 2/3–3/4 as long as lemma; rachilla penicillate, including hairs 0.9–2 mm. Anthers 0.5–0.8 mm. Fl. Jul.  $2n = 28^*$ .

Grassy places on sandy acid soils; 1400–3000 m. Guizhou, Yunnan [Bhutan, NE India, N Vietnam].

The type of *Anisachne gracilis* var. *multinodis* has not been seen.

**5. *Deyeuxia abnormis*** J. D. Hooker, Fl. Brit. India 7: 268. 1896 [“1897”].

不育野青茅 *bu yu ye qing mao*

*Agrostis nagensis* Bor; *Calamagrostis abnormis* (J. D. Hooker) U. Shukla; *Deyeuxia nagensis* (Bor) Veldkamp.

Perennial, loosely tufted. Culms laxly ascending from a decumbent base, often scrambling, 30–90 cm tall, 4–10-noded, sometimes branched. Leaf sheaths scabrid; leaf blades linear, flat, 9–12 cm, 2–5 mm wide, apex acute; ligule 1–2 mm, truncate. Panicle effuse, 8–30 cm; branches loosely spreading, secondary and tertiary branches well developed. Spikelets 2.5–3.5 mm, green or purplish; glumes lanceolate, equaling or slightly exceeding floret, lower glume 2.6–3.4 mm, upper glume 2.5–3.1 mm, keel scabrid above middle, apex acuminate; callus hairs 1/3–1/2 length of lemma; lemma slightly shorter than or subequaling glumes, apex narrowly obtuse, awnless; palea 2/3 as long as lemma; rachilla penicillate, including hairs 1.8–2.6 mm. Anthers ca. 0.5 mm. Fl. and fr. Nov.

Grassy and stony places in uplands; ca. 1900 m. Yunnan [Bhutan, NE India].

This grass lies on the boundary between *Agrostis* and *Deyeuxia*. It has an open panicle of small spikelets as in *Agrostis*, but a bearded callus and rachilla extension as in *Deyeuxia*. It is sometimes known as *A. zenkeri* Trinius (*Calamagrostis zenkeri* (Trinius) Davidse; *D. zenkeri* (Trinius) Veldkamp), a name which probably applies only to a grass from S India. *Deyeuxia abnormis* is very similar to *D. petelotii*, with which it is often confused, but is more robust with a laxer, spreading habit and a larger, more branched panicle. Other differences are given in the key.

**6. *Deyeuxia himalaica*** L. Liu ex Wen L. Chen, Acta Phytotax. Sin. 39: 447. 2001.

喜马拉雅野青茅 *xi ma la ya ye qing mao*

Perennial, subdensely tufted, rhizomatous; rhizomes elongate, slender. Culms erect, 15–60 cm tall, 2–3 mm in diam., smooth, (2–)3–4-noded. Leaf sheaths smooth or slightly scabrid; leaf blades flat or involute, 9–20 cm, 2–5 mm wide, cm, slightly scabrid, apex long-acuminate; ligule 2–4 mm, toothed. Panicle loosely contracted, lanceolate-oblong in outline, 6–17 × 3–6 cm; branches in whorls of 3–5, ascending, 3.5–8 cm, slightly scabrid. Spikelets 5–6.5 mm, dark purple, florets (1–)2, upper floret slightly smaller; glumes subequal, 1-veined, slightly scabrid, lower glume broadly lanceolate, apex acute or slightly obtuse, upper glume lanceolate, apex acuminate; callus hairs 1/4–1/3 length of lemma; lower lemma 4–5 mm, upper lemma 3–3.5 mm, upper part purplish and scabrid, margins white, membranous, apex 4-toothed; awn arising from upper 1/5–2/5 of

lemma, 8–10 mm, geniculate; palea 2/3 as long as lemma; rachilla internode between florets and extension above upper floret ca. 1 mm, pilose with hairs 0.8–1.5 mm. Anthers 2–2.5 mm. Fl. Sep.

- Alpine meadows, under alpine shrubs; 3900–4000 m. Xizang.

This species is unusual in *Deyeuxia* in that most spikelets have 2 florets. However, spikelets with 2 florets do occur sporadically in other normally 1-flowered species. The rachilla is also well developed, so possibly this species represents a primitive state within the genus. The spikelets are otherwise typical of *Deyeuxia*.

**7. *Deyeuxia pulchella*** J. D. Hooker, Fl. Brit. India 7: 268. 1896 [“1897”].

小丽茅 xiao li mao

*Calamagrostis pulchella* Grisebach, Nachr. Königl. Ges. Wiss. Georg-Augusts-Univ. 3: 78. 1868, not Reichenbach (1830); *C. lahulensis* Singh; *C. megalantha* (Keng ex P. C. Keng) P. C. Keng; *Deyeuxia gyirongensis* P. C. Kuo & S. L. Lu; *D. megalantha* Keng ex P. C. Keng; *D. pulchella* var. *laxa* P. C. Kuo & S. L. Lu.

Perennial, densely tufted, rhizomatous; rhizomes elongate, slender. Culms erect, 10–40 cm tall, 1–1.5 mm in diam., scabrid below panicle, 2–3-noded. Leaf sheaths scabrid; leaf blades flat or involute when dry, 2–13 cm, 1–4 mm wide, scabrid, apex acute; ligule 2–4 mm, lacerate. Panicle dense, spikelike, lanceolate-oblong in outline, or sometimes laxer, 3–7(–13) × 0.8–1.5(–5) cm; branches 1–5 cm, scabrid. Spikelets 3–5(–6) mm, dark purple; glumes lanceolate, subequal or lower glume slightly shorter than upper, lower glume 1-veined, upper glume 3-veined, scabrid, apex acuminate; callus hairs ca. 1/3 length of lemma; lemma 3–4.5 mm, papery, hyaline at margins and apex, sometimes scabrid; apex irregularly 4-toothed; awn arising from upper 1/3 of lemma back or above, 1–2.5(–6) mm, straight or slightly curved; palea ca. 2/3 as long as lemma; rachilla conspicuously penicillate, 1.5–2 mm, including hairs up to 5 mm. Anthers 1.4–2.3 mm. Fl. Jul–Aug.

Alpine meadows, in woodlands, among bushes; 2700–5200 m. Sichuan, Xizang, Yunnan [Bhutan, N India, Kashmir, Nepal].

This is a polymorphic species, varying especially in the compactness of the panicle and the length and position of the awn on the lemma back. Looser-panicled forms (var. *laxa*) are somewhat intermediate with *Deyeuxia scabrescens*. These two species are closely related, and hybridization is possibly occurring.

The spikelets in the type of *Deyeuxia megalantha* are enlarged due to nematode infection.

**8. *Deyeuxia rosea*** Bor, Kew Bull. [9] 1954: 498. 1954.

玫红野青茅 mei hong ye qing mao

*Calamagrostis borii* Tzvelev.

Perennial, tufted, rhizomatous; rhizomes elongate, slender. Culms erect, 25–35 cm tall, smooth, 2–3-noded. Leaf sheaths smooth or scabrid at base; leaf blades flat, 4–8 cm, 3–4.5 mm wide, scabrid; ligule 3–7 mm. Panicle dense, spikelike, narrowly oblong in outline, 6–9 × 1.5–2 cm; branches erect, appressed,

scabrid. Spikelets 4.5–6(–7) mm, rose or purplish red; glumes lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, smooth or scabrid only along keel, apex sharply acuminate; callus hairs 1/3–1/2 length of lemma; lemma 4–5 mm, membranous, upper part scabrid, apex obtuse or denticulate; awn arising from or a little below middle of lemma, straight or slightly geniculate, 5–6 mm; palea ca. 3/4 as long as lemma; rachilla conspicuously penicillate, 1.5–2 mm, including hairs 4–5 mm. Anthers 2–2.5 mm. Fl. and fr. Jul–Sep.

- Alpine meadows, grassy mountainsides; 3500–5000 m. W Sichuan, Xizang.

This species is very close to *Deyeuxia pulchella*, but has a more compact panicle and an awn arising lower down the lemma back.

**9. *Deyeuxia scabrescens*** (Grisebach) Munro ex Duthie in E. T. Atkinson, Himalayan Districts N.W. Prov. India, 628. 1882.

糙野青茅 cao ye qing mao

*Calamagrostis scabrescens* Grisebach, Nachr. Königl. Ges. Wiss. Georg-Augusts-Univ. 3: 79. 1868; *C. scabrescens* var. *humilis* Grisebach; *Deyeuxia scabrescens* var. *humilis* (Grisebach) J. D. Hooker; *D. sikangensis* Keng.

Perennial, tufted, shortly rhizomatous. Culms erect, 60–150 cm tall, 1–4 mm in diam., scabrid or almost smooth below panicle, 2–4-noded. Leaf sheaths smooth or scabrid; leaf blades erect, convolute or flat, stiff, 10–45 cm, 2–8 mm wide, scabrid; ligule 2–6 mm, obtuse. Panicle loosely contracted, narrowly lanceolate in outline, 6–25 × 1.5–4 cm; branches several per node, erect or ascending, scabrid; pedicels very scabrid. Spikelets 4–6 mm, yellowish green or purple; glumes oblong-lanceolate, subequal or lower glume slightly longer than upper, densely scabrid, lower glume ciliolate along margin, 1-veined, upper glume 3-veined at base, apex sharply acuminate; callus hairs ca. 1/3 lemma length; lemma 3.5–5 mm, scabrid, apex denticulate; awn arising from or above middle of lemma, 5–9 mm, weakly geniculate; palea 2/3–3/4 as long as lemma; rachilla conspicuously penicillate, 1.5–2 mm, including hairs 3–4 mm. Anthers 2–3 mm. Fl. and fr. Jul–Oct.

Grassy slopes, among shrubs, in woods; 2000–4600 m. Gansu, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal, Pakistan].

This is one of the more common species of *Deyeuxia* in China, occurring mainly at higher altitudes in the southwest. *Deyeuxia pyramidalis* is a closely related species with a similarly robust habit, but this occurs mainly at lower altitudes in eastern and northern areas. *Deyeuxia scabrescens* is very variable, but recognizable by its very scabrid panicle and spikelets, conspicuously penicillate rachilla, but short callus hairs, and awn arising from the upper part of the lemma back.

*Deyeuxia scabrescens* intergrades with *D. pulchella*, and intermediates occur causing problems for identification. *Deyeuxia scabrescens* var. *humilis* is based on a short plant with an almost straight awn, which is probably an introgression product of these two species.

The name “*Deyeuxia dispar* L. Liou” (Vasc. Pl. Hengduan Mts. 2: 2237. 1994) belongs here, but was not validly published because no Latin description was provided. The specimen indicated as the holotype has some enlarged spikelets, typical of nematode infection.

**10. *Deyeuxia nyngchiensis*** P. C. Kuo & S. L. Lu, Fl. Xizang.

5: 221. 1987.

林芝野青茅 *lin zhi ye qing mao*

Perennial, tufted. Culms erect, 50–80 cm tall, 2–3-noded. Leaf sheaths smooth or scabrid; leaf blades flat or involute, 10–15 cm, 1–3 mm wide, scabrid; ligule 4–5 mm. Panicle open, ovate in outline, 7–12 × 5–8 cm; branches in whorls of 3–6, curving, spreading or ascending, 2–8 cm, smooth or scabrid, lower 1/2–2/3 bare; pedicels curved, slightly scabrid. Spikelets 5–7 mm, purple; glumes narrowly lanceolate, subequal or lower glume slightly longer than upper, lower glume 1-veined, upper glume 3-veined, scabrid, apex acuminate; callus hairs ca. 1/3 length of lemma; lemma ca. 3 mm, apex 4-toothed; awn arising from upper 1/4–1/3 of lemma, straight, ca. 4 mm; palea ca. 2/3 as long as lemma; rachilla 1–1.5 mm, including hairs 3.5–4 mm. Anthers ca. 1 mm. Fl. Aug.

• Grassy mountainsides, among alpine shrubs; 3500–4700 m. Sichuan, Xizang.

Specimens from Xizang are sometimes confused with *Deyeuxia pulchella* or *D. scabrescens*, but can be distinguished by the laxer panicle with curving branches and by the narrower glumes.

**11. *Deyeuxia nivicola*** J. D. Hooker, Fl. Brit. India 7: 267. 1896 [“1897”].

微药野青茅 *wei yao ye qing mao*

*Calamagrostis nivicola* (J. D. Hooker) Handel-Mazzetti; *Deyeuxia levipes* Keng.

Perennial, tufted, rhizomatous; rhizomes slender, spreading. Culms erect or ascending, very slender, up to 20 cm tall, 0.5–1 mm in diam., smooth, 1–2-noded. Leaf sheaths tight, smooth; leaf blades flat or involute, 1–10 cm, 1–3 mm wide, adaxial surface scabrid, apex acute; ligule 1–3 mm, entire or irregularly denticulate. Panicle contracted, spikelike, linear to narrowly oblong in outline, 1.5–8 × 0.3–1 cm; branches 1–2 cm, erect, smooth. Spikelets 4–7 mm, purple or green tinged purple; glumes narrowly lanceolate, lower glume slightly longer than upper, both 1-veined, smooth or slightly scabrid along vein, apex acuminate; callus hairs 1/5–1/4 length of lemma; lemma 3–4.5 mm, herbaceous, scabrid above middle, apex distinctly 4-toothed, lateral veins shortly excurrent; awn sub-basal, 5–7 mm, geniculate; palea 2/3–3/4 as long as lemma; rachilla 2–3.5 mm, including hairs 3–4 mm. Anthers 0.5–1.2 mm. Fl. and fr. Aug–Sep.  $2n = 28^*$ .

Grassy and stony mountain slopes; 3000–5000 m. Qinghai, Sichuan, Xizang, Yunnan [Bhutan, India (Sikkim), Nepal].

See the comment on dimorphic anthers under *Deyeuxia flavens* (species no. 13).

**12. *Deyeuxia mazzettii*** Veldkamp, Gard. Bull. Singapore 37: 222. 1985 [“1984,” as “*mazzettii*”].

会理野青茅 *hui li ye qing mao*

*Calamagrostis stenophylla* Handel-Mazzetti, Symb. Sin. 7: 1298. 1936; *Deyeuxia grata* Keng; *D. stenophylla* (Handel-Mazzetti) P. C. Kuo & S. L. Lu (1987), not Jansen (1952).

Perennial, tufted. Culms erect, 20–60 cm tall, ca. 1 mm in diam., 3–5-noded. Leaf sheaths smooth; leaf blades filiform, involute, 10–20 cm, ca. 0.5 mm wide, both surfaces smooth, margins scabrid, apex subacute; ligule 1–3 mm, truncate or lacerate. Panicle loosely contracted, broadly lanceolate, 6–14 × 2–5 cm; branches whorled, 2–4 cm, smooth, lower 1/3–1/2 bare. Spikelets 4–5.5 mm, greenish or purple; glumes lanceolate, subequal or lower glume slightly longer than upper, margins broadly membranous, smooth, lower glume 1-veined, upper glume 3-veined, apex acuminate; callus hairs 1/5–1/4 length of lemma; lemma 3.8–4.8 mm, scabrid, apex minutely 2-toothed or erose; awn sub-basal, long exerted, 8–10 mm, geniculate; palea 2/3–3/4 length of lemma; rachilla 1.5–2 mm, including hairs up to 3.5 mm. Anthers 2–2.5 mm. Fl. Jul–Aug.

• Alpine meadows, shrubby and grassy mountainsides, montane woodlands, sometimes dominant; 2200–3800 m. Sichuan, Yunnan.

The name “*Deyeuxia stenophylla* var. *muliensis* L. Liou” (Vasc. Pl. Hengduan Mts. 2: 2236. 1994) belongs here, but was not validly published because no Latin description was provided.

The name *Deyeuxia grata* was applied to specimens of this species with some spikelets with 2 florets.

*Deyeuxia filipes* Keng (*Calamagrostis filipes* (Keng) P. C. Kuo & S. L. Lu ex J. L. Yang) may be based on a hybrid between *D. mazzettii* and *D. flavens*.

**13. *Deyeuxia flavens*** Keng, Sunyatsenia 6: 67. 1941.

黄花野青茅 *huang hua ye qing mao*

*Calamagrostis longiflora* P. C. Keng; *C. venusta* (Keng) Tzvelev; *Deyeuxia longiflora* (P. C. Keng) B. S. Sun & Y. H. Wang; *D. venusta* Keng.

Perennial, loosely tufted. Culms erect or geniculate at base, slender, (12–)30–60 cm tall, 1–2 mm in diam., glabrous, 2–3-noded. Leaf sheaths smooth; leaf blades flat, 3–12 cm, 2–5 mm wide, scabrid; ligule 2.5–6 mm, toothed. Panicle open, very loose, 4–15 × 2–12 cm; branches usually paired, rarely in whorls of 3–4, distant, ascending or widely spreading, scabrid, lower 1/2 bare. Spikelets 3–7 mm, yellowish brown or purple; glumes ovate-lanceolate, lower glume slightly longer than upper, 1-veined or obscurely 3-veined, scabrid, apex acuminate; callus hairs 1/4–1/3 length of lemma; lemma 3.5–5 mm, equaling or slightly shorter or longer than glumes, lateral and intermediate veins prolonged into 0.5–1.5 mm mucros with the outermost mucros longest; awn sub-basal, 5–6 mm, geniculate with twisted column; palea ca. 2/3 as long as lemma; rachilla 0.5–1 mm, including hairs up to ca. 2.5 mm. Anthers dimorphic, 0.5–0.6 mm when ovary sterile, 1–1.2 mm when ovary fertile. Fl. and fr. Aug–Sep.  $2n = 28^*$ .

• Alpine meadows, grassy slopes, open woodlands or shrublands, especially along river banks; 2700–4500 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan.

*Deyeuxia flavens* is close to *Agrostis triaristata* (J. D. Hooker) Bor (*D. triaristata* J. D. Hooker; *Calamagrostis tripilifera* J. D. Hooker) from Bhutan and India (Sikkim), but that species has smooth panicle branches, a smaller floret, more pronounced mucros at the lemma apex,

and a minute rachilla extension. *Deyeuxia flavens* lies on the boundary between *Agrostis* and *Deyeuxia* because of the short callus hairs but penicillate rachilla extension. Dimorphic anthers are also known in other species from the Himalayas, e.g., *D. mazzettii*, *D. nivicola*, and *D. nyingchiensis*.

**14. *Deyeuxia korotkyi*** (Litvinov) S. M. Phillips & Wen L. Chen, *Novon* 13: 321. 2003.

兴安野青茅 xing an ye qing mao

*Calamagrostis korotkyi* Litvinov, *Schedae Herb. Fl. Ross.* 55: no. 2750. 1918; *C. korotkyi* subsp. *turczaninowii* (Litvinov) Tzvelev; *C. turczaninowii* Litvinov; *Deyeuxia turczaninowii* (Litvinov) Y. L. Chang ex S. L. Lu.

Perennial, tufted. Culms erect, 30–80 cm tall, 1.5–3 mm in diam., 2–3-noded. Leaf sheaths smooth, rarely puberulous; leaf blades grayish green, flat, stiff, (4–)10–20 cm, 4–11 mm wide, both surfaces smooth, margins scabrid, apex finely acuminate; ligule 3–5 mm, truncate. Panicle dense, spikelet, 3–15 × 1–1.5 cm; branches in whorls of 3–5, appressed to rachis, 1–2 cm, scabrid. Spikelets 5–7 mm, yellowish green or purplish; glumes lanceolate, subequal or lower glume ca. 1 mm longer than upper, lower glume 1-veined, upper glume 3-veined, smooth or scabrid only along midvein, apex acuminate; callus hairs ca. 1/3 length of lemma, sparse, unequal; lemma 4–5 mm, firmly membranous, apex denticulate; awn sub-basal, 7–11 mm, well exerted from spikelet, geniculate with twisted column; palea subequal to or slightly shorter than lemma; rachilla 1.5–2 mm, including hairs 2.5–4 mm. Anthers ca. 3 mm. Fl. Aug.

Grassy slopes, dry woodlands; 300–2500 m. N Heilongjiang, N Nei Mongol, NW Xinjiang [Mongolia, E Russia].

*Deyeuxia turczaninowii* var. *nenjiangensis* S. L. Lu (*Acta Biol. Plateau Sin.* 2: 19. 1984) has been described from N Heilongjiang and Nei Mongol. It may be the hybrid *D. korotkyi* × *Calamagrostis epigeios*. It differs from typical *D. korotkyi* by its looser panicle, narrower glumes, and longer callus hairs ca. 3/4 as long as the lemma. It is intermediate between the putative parents in these characters.

**15. *Deyeuxia suizanensis*** (Hayata) Ohwi, *J. Jap. Bot.* 33: 211. 1958.

水山野青茅 shui shan ye qing mao

*Agrostis suizanensis* Hayata, *Icon. Pl. Formosan.* 7: 83. 1918; *Calamagrostis filifolia* Merrill; *C. suizanensis* (Hayata) Honda; *Deyeuxia biflora* Keng; *D. chaseana* Bor; *D. stenophylla* Jansen (1952), not (Handel-Mazzetti) P. C. Kuo & S. L. Lu (1987).

Perennial, densely tufted. Culms slender, erect, up to 65 cm tall, 2–3-noded, retrorsely puberulent below nodes. Leaf sheaths glabrous or retrorsely puberulent toward base; leaf blades filiform, stiff, strongly involute, 6–8(–15) cm, 3–5 mm wide, apex acute; ligule 0.75–2.5 mm, minutely erose. Panicle contracted, narrowly oblong in outline, 5–16 × 0.6–1 cm, axis scaberulous; lowest branches in groups of 2–3(–4), 2.5–5 cm. Spikelets 4–5.5(–6) mm, florets (1–)2, upper floret slightly smaller and bisexual or sometimes rudimentary; glumes lanceolate, slightly unequal with upper glume as long as spikelet, lower glume 1-veined, upper glume 1–3-veined, midvein scabrid,

apex acuminate; callus hairs 1/8–1/5 length of lemma; lemma 3.5–4.6(–5.5) mm, scaberulous, apex usually erose; awn arising from lower 1/4–1/3 of lemma, 5–8 mm, geniculate; palea 3/4–7/8 as long as lemma; rachilla 1.6–3 mm including hairs. Anthers 1–2 mm.

Montane grasslands; ca. 3000 m. Taiwan [New Guinea, Philippines].

Specimens from Malesia tend to have longer leaf blades and ligules and a shorter rachilla extension. They have been referred to different varieties from the typical variety in Taiwan: var. *stenophylla* (Jansen) Veldkamp in the Philippines and var. *chaseana* (Bor) Veldkamp in New Guinea. Cleistogamous forms with anthers ca. 0.5 mm are known from the Philippines. The name *Deyeuxia biflora* applies to an aberrant form with a well-developed second floret.

**16. *Deyeuxia effusiflora*** Rendle, *J. Linn. Soc., Bot.* 36: 392. 1904.

疏穗野青茅 shu sui ye qing mao

*Calamagrostis effusiflora* (Rendle) P. C. Kuo & S. L. Lu ex J. L. Yang; *Deyeuxia arundinacea* P. Beauvois var. *laxiflora* (Rendle) P. C. Kuo & S. L. Lu; *D. sylvatica* (Schrader) Kunth var. *laxiflora* Rendle.

Perennial, densely tufted. Culms erect, 80–120 cm tall, 3–5 mm in diam., pubescent just below panicle and on nodes, 2–4-noded. Leaf sheaths with minute retrorse hairs between veins; leaf blades flat or slightly involute, 30–70 cm, 5–10 mm wide, adaxial surface densely pubescent, abaxial surface scabrid; ligule 1–2(–4) mm, truncate or obtuse. Panicle large, open, 20–35 × 15–23 cm; branches in whorls of 3–5, spreading, scabrid, lower part bare. Spikelets 3–4.5 mm, grayish green or purple at base; glumes lanceolate, equal, lower glume 1-veined, upper glume 3-veined, scabrid; callus hairs 1/7–1/5 length of lemma; lemma slightly shorter than glumes, apex 4-toothed; awn sub-basal, 4–5.5 mm, weakly geniculate, column slightly twisted; palea subequal to lemma; rachilla 0.5–0.7 mm, including hairs 2–3 mm. Anthers 1.5–2 mm. Fl. and fr. Jul–Oct.

• Wet places, especially river banks; 600–2900 m. Gansu, Guizhou, Henan, Ningxia, Shaanxi, Sichuan, Yunnan, Zhejiang.

*Deyeuxia arundinacea* var. *laxiflora* is not taxonomically a variety of *D. arundinacea*, which is a different grass; see the comment under *D. pyramidalis* below.

**17. *Deyeuxia pyramidalis*** (Host) Veldkamp, *Blumea* 37: 230. 1992.

野青茅 ye qing mao

*Calamagrostis pyramidalis* Host, *Icon. Descr. Gram. Austriac.* 4: 28, 1809; *Agrostis arundinacea* Linnaeus; *Arundo sylvatica* Schrader, nom. illeg. superfl.; *C. arisanensis* Honda; *C. arundinacea* (Linnaeus) Roth; *C. arundinacea* var. *brachytricha* (Steudel) Hackel; *C. arundinacea* var. *ciliata* Honda; *C. arundinacea* var. *hirsuta* Hackel; *C. arundinacea* var. *latifolia* (Rendle) Kitagawa; *C. arundinacea* var. *robusta* (Franchet & Savatier) Honda; *C. arundinacea* var. *sciuroides* (Franchet & Savatier) Hackel; *C. austrojeholensis* Honda; *C. brachytricha* Steudel; *C. brachytricha* var. *ciliata* (Honda) Y. Ibaragi & H. Ohashi; *C. collina* Franchet; *C. formosana* Hayata; *C. matsuii*

*dana* Honda; *C. morrisonensis* Hayata; *C. niitakayamensis* Honda; *C. nipponica* Franchet & Savatier; *C. robusta* Franchet & Savatier; *C. sciuroides* Franchet & Savatier, nom. hom. illeg.; *Deyeuxia ampla* Keng; *D. brachytricha* (Steudel) Chang; *D. collina* (Franchet) Pilger; *D. formosana* (Hayata) C. C. Hsu; *D. henryi* Rendle; *D. hupehensis* Rendle; *D. matsudana* (Honda) Keng; *D. sylvatica* Kunth, nom. illeg. superfl.

Perennial, tufted, sometimes shortly rhizomatous. Culms erect, slender or robust, (40–)100–150 cm tall, 2.5–5 mm in diam., 2–3-noded. Leaf sheaths glabrous to densely pubescent, or sheath-collars pilose; leaf blades flat or involute, 5–60 cm, 2–12 mm wide, smooth, scabrid or pubescent; ligule 4–13 mm, obtuse or lacerate. Panicle contracted to slightly open, lanceolate-ovate in outline, 6–35 × 1–10 cm; branches in whorls, ascending, erect or appressed, 1–2 cm; pedicels scabrid. Spikelets 3–5(–6.5) mm, yellowish green or purplish green; glumes lanceolate, subequal or lower glume slightly longer than upper, 1–3-veined, scabrid, apex acute; callus hairs 1/5–2/5 length of lemma; lemma 3.8–6.5 mm, subequal to glumes, scabrid, apex erose; awn arising from ca. lower 1/5 of lemma, 7–12 mm, geniculate with twisted column; palea as long as or slightly shorter than lemma; rachilla (0.5–)1.5–2 mm, including hairs 2.5–4 mm. Anthers (1.3–)2–3 mm. Fl. and fr. Jun–Oct.

Grassy slopes, open woods; 100–4200 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Heilongjiang, Hubei, Hunan, Jilin, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Japan, Kashmir, Korea, Pakistan, Russia; Europe].

This is a highly polymorphic complex, with many local variants.

The name *Deyeuxia sylvatica* Kunth, based on *Arundo sylvatica* Schrader (1806), is illegitimate because Schrader cited *Agrostis arundinacea* Linnaeus (1753) in synonymy. Varietal combinations under *D. sylvatica* should be transferred to *D. pyramidalis* if it is wished to maintain them (*D. sylvatica* var. *borealis* Rendle, var. *brachytricha* (Steudel) Rendle, var. *hirsuta* (Hackel) Rendle, var. *latifolia* Rendle, var. *ligulata* Rendle, and var. *sciuroides* (Franchet & Savatier) Rendle).

The name *Deyeuxia arundinacea* P. Beauvois is often presumed to be based on *Agrostis arundinacea* Linnaeus, but this is not the case. In fact, *D. arundinacea* is a synonym of the Mediterranean grass *Ampelodesmos mauritanicus* (Poir.) T. Durand & Schinz. Varietal combinations under *D. arundinacea* should be transferred to *D. pyramidalis* if it is wished to maintain them (*D. arundinacea* var. *borealis* (Rendle) P. C. Kuo & S. L. Lu, var. *brachytricha* (Steudel) P. C. Kuo & S. L. Lu, var. *ciliata* (Honda) P. C. Kuo & S. L. Lu, var. *hirsuta* (Hackel) P. C. Kuo & S. L. Lu, var. *latifolia* (Rendle) P. C. Kuo & S. L. Lu, var. *ligulata* (Rendle) P. C. Kuo & S. L. Lu, var. *robusta* (Franchet & Savatier) P. C. Kuo & S. L. Lu, and var. *sciuroides* (Franchet & Savatier) P. C. Kuo & S. L. Lu).

The name "*Calamagrostis zhongdianensis* L. Liou" (Vasc. Pl. Hengduan Mts. 2: 2235. 1994) belongs here, but was not validly published because no Latin description was provided.

**18. *Deyeuxia hakonensis*** (Franchet & Savatier) Keng, Sinen-sia 11: 411. 1940.

箱根野青茅 xiang gen ye qing mao

*Calamagrostis hakonensis* Franchet & Savatier, Enum. Pl. Jap. 2: 599. 1879.

Perennial, subloosely tufted from a short, knotty rhizome. Culms slender, erect or base geniculate, 30–70 cm tall, 0.5–1 mm in diam., 2–4-noded. Leaf sheaths glabrous or with caducous retrorse hairs between veins, margins ciliate, mouth auriculate, auricles shortly pilose; leaf blades flat or involute, 10–25 cm, 2–8 mm wide, adaxial surface pubescent, abaxial surface glabrous, apex acute; ligule 1–1.5 mm, obtuse or truncate. Panicle open or slightly contracted, 6–15 × 1–4 cm; branches 2(–3) per node, scabrid, usually bare below middle. Spikelets 3.5–6 mm, yellowish green or purplish; glumes lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, flanks smooth, slightly glossy, midvein scabrid, apex subacute; callus hairs 3/4–4/5 length of lemma; lemma 3–4 mm, conspicuously scabrid-hirtellous, apex obtuse or denticulate; awn sub-basal, 2–4 mm, straight, included within spikelet; palea subequal to lemma; rachilla 1–1.5 mm, including hairs 2.5–3 mm. Anthers 1.5–2 mm. Fl. Jul–Aug.

Forests, streamsides, shady valleys; 600–2500 m. Anhui, Guangdong, Guizhou, Hebei, Hubei, Jiangxi, Sichuan, Zhejiang [Japan, Russia (Kamchatka, Kuril Islands, Sakhalin)].

**19. *Deyeuxia sinelatio*** Keng, Fl. Tsinling. 1(1): 441. 1976.

华高野青茅 hua gao ye qing mao

*Calamagrostis sinelatio* (Keng) P. C. Kuo & S. L. Lu ex J. L. Yang.

Perennial, densely tufted. Culms erect, 1.3–1.8 m tall, 2–5 mm in diam., scabrid below panicle, otherwise smooth, 3–5-noded. Leaf sheaths smooth or rarely scabrid; leaf blades linear, 10–60 cm, 8–12 mm wide, adaxial surface puberulous, abaxial surface scabrid; ligule oblong-elliptic, 4–20 mm, apex lacerate. Panicle open, 22–35 × 6–18 cm; branches in whorls of 3–5, spreading or ascending, scabrid, lower 1/4–1/2 bare. Spikelets 4–6 mm, yellowish or purplish green; glumes subequal or upper glume shorter than lower, lower glume 1-veined, scabrid along vein, apex acuminate, upper glume 3-veined, scabrid along upper part of veins, apex obtuse; callus hairs 2/3–3/4 length of lemma; lemma 3.5–4 mm, apex obtuse, denticulate; awn sub-basal, ca. 5 mm, geniculate with twisted column; palea subequal to or slightly shorter than lemma; rachilla ca. 1 mm, including hairs up to 4 mm. Anthers ca. 2 mm. Fl. Aug–Sep.

• Forests, forest margins; 1000–3200 m. Henan, Shaanxi, Sichuan.

**20. *Deyeuxia purpurea*** (Trinius) Kunth, Révis. Gramin. 1: 77. 1829.

大叶章 da ye zhang

*Arundo purpurea* Trinius in Sprengel, Neue Entdeck. Pflanzenk. 2: 52. 1820 ["1821"]; *A. langsdorfii* Link; *Calamagrostis angustifolia* Komarov; *C. langsdorfii* (Link) Trinius; *C. langsdorfii* var. *angustifolia* (Komarov) Jaroschenko; *C. langsdorfii* subsp. *angustifolia* (Komarov) Voroshilov; *C. langsdorfii* var. *manshurica* (Baranov & Skvortzov) Kitagawa; *C. manshurica* Baranov & Skvortzov; *C. purpurea* (Trinius) Trinius; *C. purpurea* subsp. *langsdorfii* (Link) Tzvelev; *Deyeuxia angustifolia* (Komarov) Y. L. Chang (1959), not Vickery (1940); *D.*

*langsorfii* (Link) Kunth.

Perennial, tussocky, rhizomatous; rhizomes short or elongate. Culms erect, slender to stout, up to 1.5 m tall, 1–4 mm in diam., usually branched, (4–)6–8-noded. Leaf sheaths smooth, glabrous; leaf blades linear, flat, 10–30 cm, 4–20(–40) mm wide, scabrid; ligule oblong-elliptic, 3–10 mm, obtuse or lacerate. Panicle loosely contracted, narrowly elliptic in outline, 5–20 × 2.5–8 cm; branches slender, ascending or spreading, 2–8 cm, scabrid, bare below middle. Spikelets 3.5–5 mm, yellowish green, purplish, or yellowish brown; glumes lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, scabrid, ciliolate along midvein, apex acute or acuminate; callus hairs equaling or slightly longer than lemma; lemma 3–4 mm, membranous, apex 2-denticulate; awn arising near or above middle of lemma, 1–4 mm, slender, straight; palea 1/2–2/3 as long as lemma; rachilla 0.5–1 mm, including hairs 2–4 mm. Anthers 2–2.5 mm. Fl. Jul–Sep.

Moist meadows, grassy slopes, woodlands; below 100–3600 m. Hebei, Heilongjiang, Hubei, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi, Sichuan, Xinjiang [Japan, Korea, Mongolia, Russia; North America, Europe].

*Deyeuxia purpurea* encompasses a widespread, apomictic complex of morphologically very variable and intergrading forms. These have been treated by different authors either as separate species, or at subspecific or varietal rank within *D. purpurea*. Most are based on types from outside China, and no attempt is made here to relate these names to variation in the complex within China.

The name *Calamagrostis angustifolia* refers to a particularly narrow-leaved form (blades 1.5–3.5 mm wide) from NE China.

**21. *Deyeuxia sichuanensis*** (J. L. Yang) S. M. Phillips & Wen L. Chen, *Novon* 13: 320. 2003.

四川野青茅 si chuan ye qing mao

*Calamagrostis sichuanensis* J. L. Yang, *Acta Bot. Yunnan.* 5: 47. 1983.

Perennial, rhizomatous; rhizomes slender. Culms up to 80 cm tall, 2–3 mm in diam., unbranched, 2–3-noded. Leaf sheaths smooth; leaf blades flat, 11–25 cm, 4–5 mm wide, adaxial surface smooth, abaxial surface scabrid; ligule 3–4 mm, truncate. Panicle open or lightly contracted, 11–22 × 1–6 cm; branches in whorls of 3–4, slender, flexuous, almost smooth, often bare below middle; pedicels scabrid. Spikelets 3.5–4 mm, yellowish green, tinged purple; glumes lanceolate, the upper slightly shorter than the lower, scabrid, apex acute; callus hairs about as long as lemma; lemma 2.5–2.8 mm, scabrid, apex 2-denticulate; awn arising from near middle of lemma, not exerted from spikelet, ca. 1.2 mm, straight; palea ca. 2/3 as long as lemma; rachilla ca. 0.8 mm, including hairs ca. 2.3 mm. Anthers ca. 1 mm.

• Woodland margins, among shrubs; 2800–4300 m. Gansu, Sichuan.

**22. *Deyeuxia nepalensis*** Bor, *Kew Bull.* [12] 1957: 411. 1958.

顶芒野青茅 ding mang ye qing mao

*Calamagrostis staintonii* G. Singh.

Perennial, loosely tufted, shortly rhizomatous. Culms 50–90 cm tall, 2–3 mm in diam., smooth, unbranched, 3–4-noded. Leaf sheaths smooth; leaf blades usually involute, ca. 25 cm, 2–5 mm wide, both surfaces glabrous, smooth or sometimes scabrid on margin; ligule 3–5(–7) mm, obtuse or subacute. Panicle open, 10–18 × ca. 12 cm; branches ascending or spreading, lowermost whorled, 4–8 cm, smooth, bare below middle. Spikelets 3.5–4.5 mm, greenish or yellowish green tipped with purple; glumes lanceolate, lower glume 1-veined, upper glume 3-veined, scabrid, apex acute or abruptly acuminate; callus hairs about as long as lemma; lemma 2.5–3 mm, scabrid, apex 4-toothed; awn arising from upper 1/5–1/4 of lemma, well exerted from spikelet, 3–6 mm, very slightly bent; palea ca. 2/3 as long as lemma; rachilla 1–1.5 mm, including hairs 2.5–3 mm. Anthers ca. 2 mm. Fl. Jul–Aug.

Dry slopes; 3100–3500 m. Sichuan, Yunnan [Nepal].

*Calamagrostis staintonii* is the correct name for this species in *Calamagrostis* because the heterotypic name *C. nepalensis* Nees ex Steudel already exists.

**23. *Deyeuxia neglecta*** (Ehrhart) Kunth, Révis. *Gramin.* 1: 76. 1829.

小花野青茅 xiao hua ye qing mao

*Arundo neglecta* Ehrhart, *Beitr. Naturk.* 6: 137. 1791; *Calamagrostis micrantha* Kearney; *C. neglecta* (Ehrhart) Gaertner; *Deyeuxia micrantha* (Kearney) L. Liu.

Perennial, tufted. Culms erect, 60–100 cm tall, 1–3 mm in diam., smooth or slightly scabrid below panicle, usually 2–3-noded. Leaf sheaths smooth, glabrous; leaf blades flat or involute, 10–30(–60) cm, 1–5 mm wide, adaxial surface scabrid with obvious veins, abaxial surface smooth; ligule 1.5–4 mm, obtuse or truncate, denticulate. Panicle dense, interrupted, lanceolate to narrowly ovate in outline, 5–20 × 2–4 cm, axis smooth or scabrid; branches short, fascicled, scabrid. Spikelets 3–4(–4.5) mm, pale green to purplish brown; glumes narrowly ovate, subequal, lower glume 1-veined, upper glume 3-veined, prominently scabrid throughout, apex acute; callus hairs 2/3–3/4 length of lemma; lemma 2.5–3.5 mm, apex obtuse, denticulate; awn arising near or below middle of lemma, poorly developed, 1–2 mm, straight; palea 2/3 as long as lemma; rachilla ca. 2 mm, including hairs up to 3.5 mm. Anthers ca. 2 mm. Fl. and fr. Aug–Sep.  $2n = 42^*$ .

Grassy places in forests, damp ground near ditches; 1200–4300 m. Gansu, Hebei, Heilongjiang, Liaoning, Nei Mongol, Shanxi, Sichuan, Xinjiang [Japan, Kyrgyzstan, Russia, Mongolia, Tajikistan; Europe, North America].

This is a widespread, highly polymorphic species, to which the name *Deyeuxia kashmeriana* Bor has been misapplied (by Liou, *Vasc. Pl. Hengduan Mts.* 2: 2241. 1994). *Deyeuxia kashmeriana* is a synonym of *Calamagrostis decora* J. D. Hooker from Kashmir, which has slightly larger spikelets and a longer, sub-basal awn.

**24. *Deyeuxia lapponica*** (Wahlenberg) Kunth, Révis. *Gramin.* 1: 76. 1829.

欧野青茅 ou ye qing mao

*Arundo lapponica* Wahlenberg, *Fl. Lapp.* 27. 1812; *Cala-*



*magrostis lapponica* (Wahlenberg) Hartman.

Perennial, loosely tufted, shortly rhizomatous. Culms erect from a geniculate base, 60–130 cm tall, 2–3 mm in diam., smooth, 3-noded. Leaf sheaths smooth; leaf blades flat or involute, 10–30 cm, 2–6 mm wide, adaxial surface loosely pubescent, abaxial surface scabrid; ligule 2–4(–6) mm, lacerate. Panicle loosely contracted, (5–)10–25 × 2–3(–8) cm; branches erect or ascending, 1–3(–4) cm, scabrid, lower 1/3 bare. Spikelets 4–6 mm, purplish brown or yellowish green; glumes ovate-lanceolate, subequal, 4–5 mm, lower glume 1-veined, upper glume 3-veined, scabrid on upper back and veins, apex acuminate; callus hairs 3/4–4/5 length of lemma; lemma 3–4(–5) mm, apex denticulate; awn arising from lower 1/3 of lemma, ca. 3 mm, weakly geniculate, slightly twisted; palea 2/3 as long as lemma; rachilla 1–1.5 mm, including hairs 3–4 mm. Anthers ca. 2 mm. Fl. Jul–Aug.

Grassy slopes, forests, among shrubs, especially along river banks; 400–4100 m. Gansu, Heilongjiang, Nei Mongol, Sichuan, Xinjiang, Xizang [Mongolia, Korea, Russia; Europe, North America].

**25. Deyeuxia anthoxanthoides** Munro ex J. D. Hooker in Henderson & Hume, Lahore to Farkand, 339–340, pl. opp. p. 340. 1873.

短毛野青茅 duan mao ye qing mao

*Calamagrostis anthoxanthoides* (Munro) Regel; *Stilpno-phleum anthoxanthoides* (Munro) Nevski.

Perennial, subloosely tufted, shortly rhizomatous. Culms erect, 10–35 cm, 2–3-noded. Leaf sheaths smooth or slightly scabrid; leaf blades flat, 3–8(–15) cm, 2–5 mm wide, scabrid or almost smooth, apex acuminate; ligule 4–6 mm. Panicle very dense, spikeletlike, broadly oblong to ovate in outline, 2–6 × 1.2–2 cm, light brownish purple becoming golden; branches abbreviated, spikelets crowded close to main axis. Spikelets narrowly lanceolate, 5–7 mm, shining; glumes lanceolate, subequal, ca. 1/3 longer than lemma, membranous, smooth, 1-veined, apex finely acuminate; callus hairs 1/6–1/3 length of lemma; lemma 4–6 mm, ca. 2/3 length of glumes, hyaline, apex 4-denticulate; awn sub-basal, 6–9 mm, geniculate; palea as long as lemma; rachilla 1–1.5 mm, including hairs 2–2.5 mm. Anthers 2–2.5 mm. Fl. and fr. Jun–Jul.

Rocky hillsides, screes, moraines; 3100–4500 m. Xinjiang, Xizang [NE Afghanistan, Tajikistan, Uzbekistan].

The typical subspecies is described above. A second subspecies, *Calamagrostis anthoxanthoides* subsp. *laguroides* (Regel) Tzvelev (which name has never been transferred to *Deyeuxia*), occurs in Tajikistan. It is distinguished by a somewhat laxer, paler panicle and a lemma less than 2/3 as long as the glumes.

**26. Deyeuxia tibetica** Bor, Kew Bull. [4] 1949: 66. 1949.

藏野青茅 zang ye qing mao

Perennial, loosely tufted, rhizomatous; rhizomes elongate, slender. Culms erect or decumbent, (5–)10–20 cm tall, ca. 1 mm in diam., densely pubescent below panicle, 1–2-noded. Leaf sheaths scabrid, tight on tillers, inflated on culm; leaf blades involute, rarely flat, 0.5–8 cm, 1.5–2.5 mm wide, scabrid, apex

obtuse; ligule 2–4 mm, hirtellous, lacerate. Panicle very dense, spikeletlike, broadly oblong to ovate in outline, 1–2.5 × 1–1.5 cm, axis densely pubescent; branches abbreviated. Spikelets 4.5–6 mm, purple or brownish purple; glumes lanceolate, subequal, thin, margins subhyaline, dorsally densely villous to scabrid-hirtellous or subglabrous, lower glume 1-veined, upper glume 3-veined, apex acute to apiculate; callus hairs ca. 3/4 length of lemma; lemma ca. 4 mm, apex 4-denticulate; awn sub-basal, 5–8 mm, geniculate with twisted column; palea subequal to lemma; rachilla 2–3 mm, including hairs 4–5 mm. Anthers 2–2.5 mm. Fl and fr. Jul–Aug.

Alpine meadows, grassy slopes, wet sandy or gravelly places in montane regions; 3000–5500 m. Qinghai, Xizang [India].

This species occurs at higher altitudes than any other species of *Deyeuxia* in China.

- 1a. Glumes densely villous ..... 26a. var. *tibetica*
- 1b. Glumes scabrid-hirtellous to subglabrous ..... 26b. var. *przevalskyi*

**26a. Deyeuxia tibetica** var. *tibetica*

藏野青茅(原变种) zang ye qing mao (yuan bian zhong)

*Calamagrostis tibetica* (Bor) Tzvelev.

Glumes densely villous.

Alpine meadows, grassy slopes, wet sandy or gravelly places; 3000–5500 m. Qinghai, Xizang [India].

**26b. Deyeuxia tibetica** var. *przevalskyi* (Tzvelev) P. C. Kuo & S. L. Lu, Fl. Reipubl. Popularis Sin. 9(3): 212. 1987.

矮野青茅 ai ye qing mao

*Calamagrostis przevalskyi* Tzvelev, Rast. Tsentr. Azii 4: 85. 1968.

Glumes scabrid-hirtellous to subglabrous.

• Alpine meadows, wet sandy places; 3000–5000 m. Qinghai, Xizang.

**27. Deyeuxia tianschanica** (Ruprecht) Bor, Kew Bull. [4] 1949: 66. 1949.

天山野青茅 tian shan ye qing mao

*Calamagrostis tianschanica* Ruprecht, Sert. Tianschan. 34. 1869.

Perennial, loosely tufted, rhizomatous; rhizomes slender, spreading. Culms erect, 15–50 cm tall, 1–2 mm in diam., scabrid below panicle, 2–3-noded. Leaf sheaths smooth or scabrid, slightly inflated; leaf blades flat with involute margins, 4–10 cm, 2–3 mm wide, adaxial surface scabrid with numerous short spinules, apex acute; ligule 3–4 mm, lacerate. Panicle contracted, spikeletlike, dense or branches distinct, 3–8 × 1–1.5 cm; branches 1–2 cm, scabrid. Spikelets 4–6 mm, purple; callus hairs 1/3–1/2 length of lemma; glumes narrowly lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, scabrid, apex acuminate; lemma 3–4.5 mm, apex 4-denticulate; awn arising from lower 1/4 of lemma, 5–6 mm, geniculate with

twisted column; palea slightly shorter than lemma; rachilla ca. 2 mm, including hairs up to 3.5 mm. Anthers 1.5–2 mm. Fl. Jul–Sep.

Stony mountain slopes and alpine meadows, especially along river-sides; 1000–5200 m. Gansu, Qinghai, Xinjiang [Kyrgyzstan, Tajikistan (Pamirs)].

This species is close to the variable *Deyeuxia holciformis*, but the different upper leaf surface provides a definite distinguishing character.

**28. *Deyeuxia holciformis*** (Jaubert & Spach) Bor, Grasses Burma, Ceylon, India, Pakistan, 398. 1960.

青藏野青茅 qing zang ye qing mao

*Calamagrostis holciformis* Jaubert & Spach, Ill. Pl. Orient. 4: 61. 1851; *C. compacta* (Munro ex J. D. Hooker) Hackel ex Paulsen; *Deyeuxia compacta* Munro ex J. D. Hooker.

Perennial, loosely tufted, rhizomatous; rhizomes slender, spreading. Culms erect, 15–30 cm tall, 1–3 mm in diam., scabrid below panicle, 2–3-noded. Leaf sheaths scabrid, culm sheaths loose, subinflated; leaf blades involute, rarely flat, stiff, glaucous, 2–5(–12) cm, 2–7 mm wide, adaxial surface scabrid with fairly long setiform spinules, apex acute; ligule 1–4 mm, lacerate. Panicle spike-like, oblong-ovate in outline, dense, sometimes lobed, 1.5–6(–10) × 1–1.5 cm; branches 1–2 cm, scabrid. Spikelets 5–9 mm, yellowish brown, purplish at base; glumes narrowly to broadly lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, scaberulous, apex acute to acuminate; callus hairs ca. 1/2 length of lemma; lemma 4–6 mm, scabrid, apex 4-denticulate; awn sub-basal, 5–7 mm, weakly geniculate, lower part slightly twisted; palea 2/3 as long to equaling lemma; rachilla 1.5–2.5 mm, including hairs 3–4.5 mm. Anthers 2–4 mm. Fl. and fr. Aug–Sep.

Grassy slopes and wet sandy places in montane regions; 3800–4500 m. Gansu, Qinghai (Yushu), Xizang [Kashmir, Kyrgyzstan (W Tien Shan), Tajikistan (Pamirs)].

*Deyeuxia compacta*, with a small panicle and unusually broad glumes, represents an extreme form of this variable species.

**29. *Deyeuxia moupinensis*** (Franchet) Pilger, Bot. Jahrb. Syst. 29: 225. 1901 [“1900”].

宝兴野青茅 bao xing ye qing mao

*Calamagrostis moupinensis* Franchet, Nouv. Arch. Mus. Hist. Nat., ser. 2, 2: 106. 1888.

Perennial, loosely tufted, shortly rhizomatous. Culms erect, 40–70 cm tall, 2–3 mm in diam., 3–4-noded. Leaf sheaths retrorsely pubescent or glabrous; leaf blades flat or involute, 10–25 cm, 2–6 mm wide, both surfaces scabrid; ligule ca. 0.5 mm, truncate. Panicle contracted or slightly loose, base usually included in terminal leaf sheath, 8–14 × 1.5–3 cm; branches in whorls of 2–5, very slender, densely spiculate, erect or narrowly ascending. Spikelets 3.5–4 mm, yellowish green or purplish; glumes narrowly lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, scabrid, apex acute; callus hairs as long as lemma; lemma ca. 3 mm, apex bidentate or 2-lobed to awn insertion; awn arising below apex or between lobes, 5–6 mm,

slender, almost straight, much exceeding spikelet; palea 2/3 as long as lemma; rachilla ca. 0.5 mm, sparsely penicillate, 2.5–3.5 mm including hairs. Anthers ca. 1.2 mm. Fl. Aug–Sep.  $2n = 28^*$ .

• Grassy places in montane forests; 1300–2600 m. Sichuan.

**30. *Deyeuxia debilis*** (J. D. Hooker) Veldkamp, Gard. Bull. Singapore 37: 220. 1985 [“1984”].

细弱野青茅 xi ruo ye qing mao

*Calamagrostis debilis* J. D. Hooker, Fl. Brit. India 7: 262. 1896 [“1897”]; *Agrostis debilis* (J. D. Hooker) Bor (1960), not Poiret (1810); *A. neodebilis* Bennet & Raizada.

Perennial, rhizomatous; rhizome very slender. Culms loosely tufted, very slender, ascending, 15–45 cm, ca. 1 mm in diam., 2–3-noded, sparsely leafy. Leaf sheaths scaberulous near blade, otherwise smooth; leaf blades narrowly linear, thin, 2–5 cm, 1.5–2 mm wide, smooth, apex acute; ligule 1.5–2 mm, truncate-lacerate. Panicle narrow, loosely contracted, 2.5–12.5 × 1–2 cm; branches in whorls of 2–5, narrowly ascending to suberect, up to 3 cm, smooth; pedicels capillary. Spikelets 3–4 mm, light brownish purple to grayish; glumes subequal, lanceolate, 1-veined, smooth on keel, apex acuminate; callus hairs equal to or exceeding lemma; lemma 2.2–2.8 mm, hyaline, smooth, apex minutely toothed; awn arising from upper 1/4–1/3 of lemma back, weakly geniculate, 4.5–5 mm; palea slightly shorter than lemma; rachilla extension absent. Anthers ca. 0.5 mm.

Alpine meadows; 3300–3400 m. Xizang [India (Sikkim)].

This is a very seldom collected species with a delicate habit and exceptionally small anthers. Its generic position is anomalous, as it lies on the boundaries with both *Agrostis* (small spikelets, no rachilla extension) and *Calamagrostis* (long callus hairs, hyaline lemma). It is retained here in *Deyeuxia* because of its relatively long floret in relation to the glumes and its general similarity to other slender montane species of *Deyeuxia*.

**31. *Deyeuxia zangxiensis*** P. C. Kuo & S. L. Lu, Fl. Xizang. 5: 228. 1987.

藏西野青茅 zang xi ye qing mao

Perennial, tufted, shortly rhizomatous. Culms erect, 15–30 cm tall, ca. 1.5 mm in diam., 2-noded. Leaf sheaths glabrous; leaf blades usually involute, stiff, 4–10 cm, 1–3 mm wide, both surfaces scabrid; ligule 5–7 mm, lanceolate, acute or lacerate. Panicle dense, spike-like, 5–8 × ca. 1 cm; branches fascicled, short, scabrid. Spikelets 6–7 mm, purple; glumes narrowly lanceolate, lower glume 6–7 mm, 1-veined, upper glume 5–6 mm, 3-veined, keel scabrid, apex acuminate; callus hairs equal to or slightly shorter than lemma; lemma 4–5 mm, awned, apex shortly toothed; awn arising from lower 1/3 of lemma back, 5–6 mm, slender, straight or slightly curved; palea 3/4 as long as lemma; rachilla ca. 0.5 mm, loosely penicillate, up to 4 mm including hairs. Anthers ca. 2 mm. Fl. Jul–Aug.

• Alpine meadows, especially along river banks; 3200–4600 m. Gansu, W Xizang.

**32. *Deyeuxia conferta*** Keng, Sunyatsenia 6: 68. 1941.

密穗野青茅 mi sui ye qing mao

*Calamagrostis conferta* (Keng) P. C. Kuo & S. L. Lu.

Perennial, loosely tufted. Culms erect, 60–120 cm tall, 2–3 mm in diam., 2–3-noded. Leaf sheaths smooth or scabrid at base; leaf blades involute or flat, 10–45 cm, 3–6 mm wide, both surfaces scabrid or abaxial surface smooth; ligule 4–6 mm, lacerate. Panicle dense, spikelike, rarely interrupted at base, 9–20 × 1–3 cm; branches 1–3 cm, scabrid. Spikelets 4–6(–7) mm, yellowish green or purplish; glumes narrowly lanceolate, subequal or upper glume slightly shorter than lower, lower glume 1-veined, upper glume 3-veined, scabrid along veins, apex acuminate; callus hairs equal to or slightly longer than lemma; lemma 3.5–4(–5) mm, apex 2-lobed or denticulate; awn sub-basal, 2.5–4 mm, straight; palea ca. 2/3 as long as lemma; rachilla ca. 0.5 mm, including hairs up to 3 mm. Anthers 1.5–2.2 mm. Fl. and fr. Jul–Sep.

• Light shade in woodlands, forming colonies, wet sandy places along rivers; 3000–3500 m. Gansu, Nei Mongol, Qinghai, Shaanxi.

*Deyeuxia conferta* var. *guoxuniana* N. X. Zhao & M. F. Li (Acta Bot. Yunnan. 16: 230. 1994), described from Xizang, does not agree well with this species, and is perhaps of hybrid origin. It has not been possible to see the type specimen.

**33. *Deyeuxia kokonorica*** (Keng ex Tzvelev) S. L. Lu, Fl. Reipubl. Popularis Sin. 9(3): 216. 1987.

*Calamagrostis kokonorica* Keng ex Tzvelev, Rast. Tsentr. Azii 4: 84. 1968.

青海野青茅 qing hai ye qing mao

Perennial, loosely tufted. Culms erect, 10–40 cm tall, 1–1.5 mm in diam., usually 2–3-noded. Leaf sheaths scabrid; leaf blades flat or involute, 3–10(–12) cm, (0.5–)1.5–4 mm wide, adaxial surface and margins scabrid, abaxial surface smooth; ligule 1–3 mm, obtuse, denticulate. Panicle contracted, spike-like, narrowly oblong in outline, 2–6.5 × 0.6–1 cm; branches short, erect, scabrid. Spikelets 3–5 mm, purple, bronze at apex; glumes broadly lanceolate, subequal, lower glume 1-veined, upper glume 3-veined, scabrid or minutely hispid, apex acute; callus hairs laterally 2/3–4/5 length of lemma, much shorter at lemma back; lemma 2.5–3.5 mm, scabrid or minutely hispid above middle, apex denticulate; awn sub-basal, 2–3 mm, erect or slightly curved, lower part slightly twisted; palea slightly shorter than lemma, purple along keels; rachilla ca. 1.5 mm, including hairs 2.5–3.5 mm. Anthers ca. 2 mm. Fl. Aug–Sep.

• Alpine meadows, especially lakeside banks; 3000–4500 m. Gansu, Qinghai.

**34. *Deyeuxia macilenta*** (Grisebach) Keng ex S. L. Lu, Fl. Reipubl. Popularis Sin. 9(3): 215. 1987.

瘦野青茅 shou ye qing mao

*Calamagrostis varia* P. Beauvois var. *macilenta* Grisebach in Ledebour, Fl. Ross. 4: 427. 1852; *C. macilenta* (Grisebach) Litvinov.

Perennial, shortly rhizomatous, mat-forming. Culms erect, 15–60 cm tall, ca. 1.5 mm in diam., usually 3-noded. Leaf sheaths smooth, usually purplish at base; leaf blades flat or involute, stiff, 5–15 cm, 2–4(–7) mm wide, adaxial surface very scabrid; ligule 1.5–3 mm, triangular or irregularly dentate. Panicle narrowly spikelike, dense, 6–9 × 0.8–1.5 cm; branches short, fascicled, scabrid. Spikelets 4–5 mm, usually yellowish green or pinkish; glumes lanceolate, subequal, scabrid, lower glume 1-veined, upper glume 3-veined, apex acute; callus hairs 1/2 length of lemma; lemma 3–4 mm, upper part scabrid, apex obtuse or denticulate; awn sub-basal, about as long as lemma, 2.5–3 mm, weakly geniculate; palea slightly shorter than lemma; rachilla 1.5–2.2 mm, including hairs 3.5–4 mm. Anthers 2–2.2 mm. Fl. summer.

Meadows, damp sand-pebble ground; 2700–3400 m. Nei Mongol, Qinghai, Xinjiang [Mongolia, E Russia].

