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

*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 bear ded, 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 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. petelottii*

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. yingchieniensis*

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. anthenoxanthoides*

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
19a. Callus hairs 1/2 as long as lemma or longer.
 20a. Panicle open or slightly contracted.
   21a. Lemma awned from near middle; awn ca. 1.2 mm, not exserted from spikelets .................. 19. D. suezianensis
   21b. Lemma awned from near apex; awn 3–6 mm, exserted 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.
    可穗野青茅 san sui ye qing mao


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*.

- Grassly slopes, among shrubs, on wasteland; 1900–3800 m. Guizhou, Sichuan, Yunnan.

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


柔弱野青茅 rou ruo ye qing mao


Perennial, very loosely tufted. Culms slender, weakly as-
cending, 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, dior trichotomously branched above, smooth, branchedlets 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.


盐源野青茅  yan yuan ye qing mao


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.


异颖草  yi ying cao

Aulacoglossis petelotii Hitchcock, J. Wash. Acad. Sci. 24: 291. 1934; Agrostis continentalis Handel-Mazzetti; A. petelotii (Hitchcock) Noitie; Anisachne gracilis (Keng) A. gracilis var. multinodis Y. Y. Qian; Aniselytron gracilis (Keng) N. X. Zhao; A. petelotii (Hitchcock) Sojak; Calamagrostis petelotii (Hitchcock) Govaerts; Deyeuxia continentalis (Handel-Mazzetti) L. Liu; Neoaulacoglossis 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 exserted 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 var. multinodis (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 story 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.


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 3–5 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*.


小丽茅 xiao li mao


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 in outline, 6–25 × 1.5–4 cm; branches several per 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 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 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.


玫红野青茅 mei hong ye qing mao

*Calamagrostis bori* 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, under alpine shrubs; 3900–4000 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.


糙野青茅 cao ye qing mao


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 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 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. Liu”* (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.

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 exserted, 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. multicensis” 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.


*Calamagrostis longiflora* C. Keng; *C. venesta* (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.

*Calamagrostis longiflora* is close to *Agrostis triaristata* (J. D. Hooker) Bor (*D. triaristata* J. D. Hooker; *Calamagrostis tripliflora* 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 callos hairs but penicillate rachilla extension. Dimorphic anthers are also known in other species from the Himalayas, e.g., *D. mazzetti*, *D. nivicola*, and *D. nyingechniensis*.


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, (4–1)10–20 cm, 4–11 mm wide, both surfaces smooth, margins scabrid, apex finely acuminate; ligule 3–5 mm, truncate. Panicle dense, spikelet, geniculate with twisted column; palea subequal to lemma; rachilla 4–5.5 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; callos hairs ca. 1/3 length of lemma, sparse, unequal; lemma 4–5 mm, firmly membranous, apex denticulate; awn sub-basal, 4–5.5 mm, weakly geniculate, column slightly twisted; palea subequal to or slightly longer 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.


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; callos 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.


疏種野青茅  shu sui ye qing mao

_Calamagrostis effusiflora_ (Rendle) P. C. Kuo & S. L. Lu ex J. L. Yang; _Deyeuxia arundinacea_ P. Beauv. var. _laxiflora_ (Rendle) P. C. Kuo & S. L. Lu; _D. sylvestra_ (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; leaves 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; callos hairs 1/7–1/5 length of lemma; rachilla 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 different grass; see the comment under _D. pyramidalis_ below.


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. _robusa_ (Franchet & Savatier) Honda; _C. arundinacea_ var. _scirroides_ (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. matsu-
Deyeuxia arundinacea Honda; C. morrisonensis Hayata; C. niitakayamensis Honda; C. nipponica Franchet & Savatier; C. robusta Franchet & Savatier; C. scirroides Franchet & Savatier, nom. illeg.; Deyeuxia ampla Keng; D. brachytricha (Steudel) Chang; D. collina (Franchet) Pilger; D. formosana (Hayata) C. C. Hsu; D. henryi Rendle; D. hupenhensis Rendle; D. matsuana (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-collar 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) mm, yellowish green or purplish green; glumes lanceolate, subequal or lower glume slightly longer than upper, 1–3-veined, scabrid along lower part of veins, apex obtuse; 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–)1.5–2.5 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, Guizhou, Hebei, Henan, Heilongjiang, Hubei, Hunan, Jilin, Jiangsu, Jiangxi, Liaoqing, 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. scirroides (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 Annelodesmos mauritianus (Poiret) 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. robusta (Franchet & Savatier) P. C. Kuo & S. L. Lu, and var. scirroides (Franchet & Savatier) P. C. Kuo & S. L. Lu).

The name “Calamagrostis zhongdianensis L. Liu” (Vasc. Pl. Hengduan Mt. 2: 2235. 1994) belongs here, but was not validly published because no Latin description was provided.

18. Deyeuxia hakonensis (Franchet & Savatier) Keng, Sinenia 11: 411. 1940.

箱根野青茅 xiang gen ye qing mao


Perennial, subulously 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 caduous retorse 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, stream-sides, shady valleys; 600–2500 m. Anhui, Guangdong, Guizhou, Hebei, Hubei, Jiangxi, Sichuan, Zhejiang [Japan, Russia (Kamchatka, Kuril Islands, Sakhalin)].


华野野青茅 hua gao ye qing mao

Calamagrostis sinelatior (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.


大叶草 da ye zheng

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

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. 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 2–3 mm, including hairs 2–3 mm. Anthers 2–3 mm. Fl. Jul–Sep.

Moist meadows, grassy slopes, woodlands; 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.


四川野青茅  si chuan ye qing mao


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 exserted from spikelet, ca. 1.2 mm, straight; palea 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.


頂芒野青茅  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 acuminata; 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 exserted 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.


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.


欧野青茅  ou ye qing mao

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

藏野青茅 zang ye qing mao

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, 2–3 mm wide, scabrid, apex obtuse; ligule 2–4 mm, hirtellous, lacerate. Panicle very dense, spike-like, 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].


矮野青茅 ai ye qing mao


Glumes scabrid-hirtellous to subglabrous.

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


天山野青茅 tian shan ye qing mao

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

Perennial, loosely tufted, rhizomatous; rhizomes slender, elongate, spreading. 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 involute; ligule 2–4 mm, lacerate. Panicle very dense, spike-like, 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. 1/3 length of lemma; 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.

藏西野青茅 qing zang ye qing mao

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.,
sabrand below panicle, 2–3-noded. Leaf sheaths scabrid, culm
sheaths loose, subinvolute; leaf blades involute, rarely flat, stiff,
glaucescent, 2.5–(12) cm, 2–7 mm wide, adaxial surface scabrid
with fairly long setiform spines, apex acute; ligule 1–4 mm,
lacerate. Panicle spike-like, oblong-ovate in outline, dense, some-
times 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 acu-
minate; callus hairs ca. 1/2 length of lemma; lemma 4–6 mm,
sabrid, apex 4-denticulate; awn arising from lower 1/3 of lemma back,
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

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: 225. 1901 [“1900”].

宝兴野青茅 bao xing ye qing mao

Calamagrostis moupinensis Franchet, Nouv. Arch. Mus.

Perennial, loosely tufted, shortly rhizomatous. Culms erect,
40–70 cm tall, 2–3 mm in diam., 3–4-noded. Leaf sheaths
retrosely 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.

Singapore 37: 220. 1985 [“1894”].

细弱野青茅 xi nuo 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. neo debilis Bennet & Raizada.

Perennial, rhizomatous; rhizome very slender. Culms loose-
ly tufted, very slender, ascending, 15–45 cm, ca. 1 mm in
 diam., 2–3-noded, sparingly leafy. Leaf sheaths scaberalurus near
base, otherwise smooth; leaf blades narrowly linear, thin, 2–5
mm, 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, lan-
ceolate, 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 ex-
tension) and Calamagrostis (long callicus hairs, hyaline lemma). It is re-
tained 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
mm 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 lan-
ceolate, 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 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)].
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, spike-like, 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.


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. summer.

- Alpine meadows, especially lakeside banks; 2700–3400 m. Nei Mongol, Qinghai, Xinjiang [Mongolia, E Russia].


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 spike-like, 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].