

2. LUZULA de Candolle in Lamarck & de Candolle, Fl. Franç., ed. 3, 3: 158. 1805, nom. cons.

地杨梅属 di yang mei shu

Juncoides Séguier, nom. rej.

Herbs perennial, usually tufted. Rhizome short. Stems usually terete. Leaves mostly basal; leaf sheath closed, auricles absent; leaf blade lanceolate to linear, flat, usually channeled, margin long white ciliate. Inflorescences cymose, umbellate, umbel-like, corymbose, or paniculate, sometimes condensed into heads. Flowers often solitary, subtended by a scarious bract and enclosed at base by 2 short bracteoles; bracteoles usually lacerate or denticulate at margin. Perianth segments 6. Stamens 6, usually shorter than perianth; filaments thin; anthers oblong to linear. Ovary 1-loculed; ovules 3, erect from a basal, very short placenta. Style short. Capsule 3-valved. Seeds 3, oblong, indistinctly reticulate, often with a basal or apical appendage (caruncle).

About 75 species: mainly in cool regions of both hemispheres, in tropical regions restricted to high elevations; 16 species (six endemic) in China.

Luzula capitata (Miquel) Nakai (from Japan, Korea, and Russia) has been reported from NE China. However, the present authors could not find this species among the many Chinese specimens they examined. Further investigation is required.

- 1a. Flowers solitary or in pairs (rarely in clusters of 3 at apex of inflorescence in *L. wahlenbergii*).
 - 2a. Seed appendage slightly shorter than or equaling seed.
 - 3a. Perianth segments 2.5–3 mm; filaments 0.6–0.9 mm, anthers 1–1.3 mm 1. *L. rufescens*
 - 3b. Perianth segments 3–4 mm; filaments ca. 1 mm, anthers ca. 1 mm 2. *L. plumosa*
 - 2b. Seed appendage absent or inconspicuous.
 - 4a. Pedicels spreading, to 3 cm; anthers shorter than filaments 3. *L. effusa*
 - 4b. Pedicels present but very short; anthers mostly equaling filaments.
 - 5a. Bracteole ciliate at margin; basal bract 0.5–1.5 cm; flowers usually in clusters of 2 or 3 4. *L. wahlenbergii*
 - 5b. Bracteole entire, subentire, or lacerate at margin; basal bract 2.5–6 cm; flowers solitary.
 - 6a. Capsule ovoid, apex mucronate; inflorescences umbel-like, flowers crowded 5. *L. parviflora*
 - 6b. Capsule subglobose to broadly ellipsoid, apex not mucronate; inflorescences corymbose, flowers lax 6. *L. sichuanensis*
- 1b. Flowers several to many, congested in inflorescence.
 - 7a. Inflorescences spikelike, often interrupted.
 - 8a. Perianth segments 2.7–3.2 mm, unequal with inner ones usually shorter than outer, apex aristate; inflorescences nodding; capsule 2.2–3 mm 15. *L. spicata*
 - 8b. Perianth segments 2.1–2.8 mm, subequal or inner ones usually slightly longer than outer, apex acuminate; inflorescences upright; capsule 2–2.2 mm 16. *L. taiwaniana*
 - 7b. Inflorescences umbellate, subumbellate, subcorymbose, or cymose.
 - 9a. Perianth segments equal or subequal.
 - 10a. Perianth segments 1.8–2.1 mm 10. *L. oligantha*
 - 10b. Perianth segments 2.3–4 mm.
 - 11a. Basal involucre bract longer than inflorescence, rarely shorter; anthers shorter than filaments; style distinctly shorter than ovary 9. *L. jilongensis*
 - 11b. Basal involucre bract often shorter than inflorescence, sometimes equaling it, rarely longer; anthers longer than filaments; style equaling or longer than ovary.
 - 12a. Filaments 0.4–0.5 mm; anthers 1.8–2.2 mm; style longer than ovary; plants laxly tufted 7. *L. campestris*
 - 12b. Filaments 0.6–0.8 mm; anthers 1–1.5 mm; style subequaling ovary; plants densely tufted 8. *L. multiflora*
 - 9b. Perianth segments unequal.
 - 13a. Inflorescences with 5–15 headlike clusters.
 - 14a. Outer perianth segments with a 0.6–0.9 mm mucro at apex; style 0.5–0.7 mm; stigmas 1.8–2 mm 11. *L. inaequalis*
 - 14b. Outer perianth segments acute at apex; style ca. 0.5 mm; stigmas ca. 1.5 mm 12. *L. pallescens*
 - 13b. Inflorescences with 1–4 headlike clusters.
 - 15a. Plants 30–35 cm tall; basal leaf blade 8–14 cm; cauline leaves 2 or 3; anthers equaling filaments; seed appendage 0.2–0.3 mm 13. *L. badia*
 - 15b. Plants 9–13 cm tall; basal leaf blade 2–6 cm; cauline leaf 1; anthers shorter than filaments; seed appendage not more than 0.1 mm 14. *L. bomiensis*

1. *Luzula rufescens* Fischer in E. Meyer, Linnaea 22: 385. 火红地杨梅 huo hong di yang mei 1849.

Plants 10–40 cm tall. Stolons short. Stems ca. 0.5 mm in diam. Basal leaves several; leaf blade linear-lanceolate to linear, 5–12 cm × 2–5 mm, margin long pilose especially near juncture with leaf sheath, apex obtuse and with a thick callus. Cauline leaves 2 or 3, smaller than basal ones. Inflorescence an umbel-like or corymbose cyme, lax, 8–18-flowered; basal involucral bract ovate to lanceolate, 1–5 cm, margin ciliate. Flower solitary; pedicel thin, with a bract at base; bracteoles ovate, 1.5–2 × ca. 1.2 mm, margin ciliate or sometimes lacerate. Perianth segments ovate-lanceolate to lanceolate, 2.5–3 × 1–1.3 mm, subequal, center reddish brown, margin hyaline, apex acuminate or long acuminate. Filaments 0.6–0.9 mm; anthers 1–1.3 mm. Style ca. 0.9 mm; stigmas ca. 2 mm. Capsule straw-colored, trigonous ovoid, 2.8–5 mm, apex mucronate. Seeds dark reddish, ovoid to ellipsoid, ca. 1.1 mm; appendage yellowish, ca. 1 mm. Fl. May–Jun, fr. Jun–Jul.

Wet meadows at forest margins, trail sides on mountain slopes, marshes, beside water; ca. 800 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia (Siberia); North America].

- 1a. Plants 10–25 cm tall; leaf blade 2–4 mm wide; perianth segments acuminate at apex; capsule 2.8–3.2 mm 1a. var. *rufescens*
- 1b. Plants to 40 cm tall; leaf blade 4–5 mm wide; perianth segments long acuminate at apex; capsule 4–5 mm 1b. var. *macrocarpa*

1a. *Luzula rufescens* var. *rufescens*

火红地杨梅(原变种) *huo hong di yang mei* (*yuan bian zhong*)

Plants 10–25 cm tall. Leaf blade 2–4 mm wide. Perianth segments acuminate at apex. Capsule 2.8–3.2 mm.

Wet meadows at forest margins, trail sides on mountain slopes, marshes; ca. 800 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia (Siberia); North America].

1b. *Luzula rufescens* var. *macrocarpa* Buchenau in Engler, Pflanzenr. 25(IV. 36): 47. 1906.

大果地杨梅 *da guo di yang mei*

Luzula macrocarpa (Buchenau) Nakai.

Plants to 40 cm tall. Leaf blade 4–5 mm wide. Perianth segments long acuminate at apex. Capsule 4–5 mm, longer than perianth.

Trail sides on mountain slopes, beside water. Jilin [Japan, Korea].

2. *Luzula plumosa* E. Meyer, Linnaea 22: 387. 1849

羽毛地杨梅 *yu mao di yang mei*

Luzula formosana Ohwi; *L. pilosa* Willdenow var. *plumosa* (E. Meyer) Franchet.

Plants tufted, 8–25 cm tall. Stolons short. Stems terete, striate. Basal leaf blade linear-lanceolate, flat, 8–18 cm × 2–5 mm, margin sparsely pilose, apex acuminate and with a thick callus. Cauline leaves 1–3, smaller than basal ones; leaf sheaths densely long pilose. Inflorescence an umbel-like or corymbose cyme; basal involucral bract leaflike, 1–3 cm. Flower solitary; bracteoles 2, ovate, 1.5–2 × ca. 1.2 mm, margin sparsely ciliate or

lacerate, apex acute. Perianth segments pale brown, ovate-lanceolate to lanceolate, 3–4 × 1–1.2 mm, unequal with inner ones slightly longer than outer, apex aristate. Stamens 6; anthers ca. 1 mm, subequaling filaments. Style shorter than ovary; stigmas 1.5–2 mm. Capsule yellowish green, trigonous ovoid, 3.2–4 mm. Seeds reddish brown, ovoid to ellipsoid, 1–1.4 mm; appendage apical, curved, ca. 1 mm. Fl. Mar–Apr, fr. May–Jun.

Forest margins on slopes, trail sides, beside water; 1100–3000 m. Anhui, Gansu, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, Korea, Nepal, Sikkim].

3. *Luzula effusa* Buchenau, Krit. Verz. Juncac. 88. 1880.

散序地杨梅 *san xu di yang mei*

Plants 20–70 cm tall. Stolons short. Stems terete, 1–6 mm in diam. Basal leaves several, basal one smaller than others and usually withered and persistent at anthesis. Cauline leaves 3–5; leaf blade lanceolate to narrowly so, flat, 5–18 cm × 2–25 mm, margin sparsely long pilose especially near juncture with leaf sheath, apex chestnut brown, acuminate. Inflorescence borne in axils of 2 or 3 apical cauline leaves, a decomposed, corymbose cyme; bracts ovate-lanceolate to lanceolate, 1.5–3(–6) mm, margin sparsely ciliate. Flower solitary; pedicel divaricate, to 3 cm, unequal; bracteoles 2, ovate, 1–1.5 × 0.6–0.9 mm, margin lacerate or pilose. Perianth segments yellowish green to pale brown or reddish brown to dark brown, ovate-lanceolate, 2–2.5 × 0.8–1.2 mm, subequal or inner ones slightly longer than outer, apex mucronate. Filaments 0.8–1 mm; anthers 0.6–0.8 mm. Stigmas 0.8–1.6 mm. Capsule trigonous ovoid, slightly longer than perianth, apex mucronate. Seeds reddish brown to chestnut brown, ellipsoid, 1.3–1.6 mm; appendage absent. Fl. May–Jun, fr. Jun–Aug.

Forests on slopes, thickets, bamboo groves, wet riversides and trail sides; 1500–3600 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan [Bhutan, Malaysia, Myanmar, Nepal, Sikkim].

- 1a. Stems 1–3 mm in diam.; cauline leaf blade 2–10 mm wide; perianth segments yellowish green to pale brown; stigmas 0.8–1 mm 3a. var. *effusa*
- 1b. Stems 2.5–6 mm in diam.; cauline leaf blade 6–25 mm wide; perianth segments reddish brown to dark brown; stigmas 1–1.6 mm 3b. var. *chinensis*

3a. *Luzula effusa* var. *effusa*

散序地杨梅(原变种) *san xu di yang mei* (*yuan bian zhong*)

Stems 1–3 mm in diam. Leaf blade 2–10 mm wide. Perianth segments yellowish green to pale brown. Stigmas 0.8–1 mm. Fl. May–Jun, fr. Jun–Aug.

Forests on slopes, thickets, wet riversides and trail sides; 1700–3600 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan [Bhutan, Malaysia, Myanmar, Nepal, Sikkim].

3b. *Luzula effusa* var. *chinensis* (N. E. Brown) K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 92. 1992.

中国地杨梅 *zhong guo di yang mei*

Luzula chinensis N. E. Brown, J. Linn. Soc., Bot. 36: 161. 1903.

Stems 2.5–6 mm in diam. Leaf blade 6–25 mm wide. Inflorescences densely many flowered. Perianth segments reddish brown to dark brown. Stigmas 1–1.6 mm. Fl. May, fr. Jun.

• Bamboo groves, wet riversides and trail sides; 1500–3000 m. Guizhou, Sichuan, Yunnan.

4. *Luzula wahlenbergii* Ruprecht, Beitr. Pflanzenk. Russ. Reiches 2: 58. 1845.

云间地杨梅 yun jian di yang mei

Plants tufted, 7–25 cm tall. Stems terete, striate. Basal leaf blade linear-lanceolate to linear, 4–12 cm × 2–4 mm, margin sparsely hairy. Cauline leaves 1–3; leaf blade 2–9 cm. Inflorescence terminal or occasionally axillary, a compound cyme, 10–30-flowered; basal bract 0.5–1.5 cm. Flowers solitary or in clusters of 2 or 3; pedicel short; bracteoles brown, broadly ovate, margin densely ciliate. Perianth segments lanceolate, 2–2.5 × 0.8–1 mm, subequal, apex acute. Stamens 6; anthers subequaling filaments. Style ca. 0.6 mm; stigmas ca. 1 mm. Capsule chestnut brown, trigonous ovoid, 2–2.5 mm. Seeds dark reddish brown, oblong, 1.2–1.4 mm; appendage basal, fibrous. Fl. Jun–Jul, fr. Jul–Aug. $2n = 24, 36$.

Disturbed areas on slopes; 2400–2700 m. Jilin [Japan, Korea; Europe, North America].

5. *Luzula parviflora* (Ehrhart) Desvaux, J. Bot. (Morot) 1: 144. 1808.

小花地杨梅 xiao hua di yang mei

Juncus parviflorus Ehrhart, Beitr. Naturk. 6: 139. 1791.

Plants usually laxly tufted, 16–60 cm tall. Stems terete, 1.2–3.5 mm in diam. Basal leaves grasslike; leaf blade 4–12 cm × 5–10 mm, glabrous, apex acuminate. Cauline leaves 2 or 3. Inflorescence terminal or occasionally axillary, umbel-like, more than 30-flowered; basal involucre bract leaflike, 2.5–4 cm. Flower solitary; pedicel slender; bracteoles ovate, margin subentire to lacerate. Perianth segments pale purplish red to brownish, lanceolate, 1.5–2.2 × ca. 0.8 mm, subequal, apex acute. Filaments ca. 0.5 mm; anthers ca. 0.5 mm. Style shorter than or subequaling ovary; stigmas ca. 1 mm. Capsule blackish brown at maturity, trigonous ovoid, ca. 2 mm, apex mucronate. Seeds reddish brown, ellipsoid, ca. 1.3 mm; appendage inconspicuous. Fl. Jun–Jul, fr. Aug–Sep. $2n = 24$.

Forested slopes; rock crevices; 2200–2400 m. Xinjiang [Mongolia; Europe, North America].

6. *Luzula sichuanensis* K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 92. 1992.

四川地杨梅 si chuan di yang mei

Plants 15–40 cm tall. Stolons short. Stems terete, striate. Basal leaf blade lanceolate, flat, 7–18 cm × 3–6 mm. Cauline leaves 1 or 2 (or 3); leaf blade 8–14 cm, pilose near juncture with leaf sheath. Inflorescence terminal or occasionally axillary, corymbose, many flowered; basal involucre bract linear, 3–6 cm. Flower solitary; pedicel slender; bracteoles broadly ovate, 1–1.5 mm, margin entire or lacerate. Perianth segments

chestnut brown, lanceolate, ca. 2 × 0.8 mm, equal or outer ones slightly longer than inner, apex acute. Filaments equaling or slightly longer than anthers; anthers 0.6–0.8 mm. Ovary ovoid to subglobose. Style shorter than ovary; stigmas ca. 1.7 mm. Capsule brownish red with reddish brown spots on inside of valves, shiny, broadly ellipsoid to subglobose, ca. 2.1 mm, apex obtuse, not mucronate. Seeds chestnut brown, oblong; appendage inconspicuous. Fl. Jul–Aug, fr. Aug–Sep.

• Forested slopes; 3700–4000 m. Sichuan.

7. *Luzula campestris* (Linnaeus) de Candolle in Lamarck & de Candolle, Fl. Franç., ed. 3, 3: 161. 1805.

地杨梅 di yang mei

Juncus campestris Linnaeus, Sp. Pl. 1: 329. 1753; *J. subpilosus* Gilibert; *Luzula subpilosa* (Gilibert) V. I. Kreczeto-wicz.

Plants laxly tufted, 9–28(–40) cm tall. Stolons short. Stems terete, 0.8–1.5 mm in diam. Basal leaf blade 3–8 cm × 2–4 mm, margin sparsely ciliate, apex obtuse and with a thick callus. Cauline leaves 1 or 2; leaf blade pilose near juncture with leaf sheath. Inflorescence a cyme, with 3–7 heads; basal bract 1.5–2.5 cm; heads globose to hemispheric, 5–10(–12)-flowered; peduncles unequal. Pedicels very short, with 2 bracts at base; bracteoles broadly ovate, ca. 2 × 1.4 mm. Perianth segments reddish brown to chestnut brown, lanceolate to oblong-lanceolate, 3–4 × 1–1.5 mm, subequal. Filaments 0.4–0.5 mm; anthers 1.8–2.2 mm. Style ca. 1.1 mm, longer than ovary; stigmas ca. 2 mm. Capsule chestnut brown, trigonous globose to trigonous obovoid, 2.5–3 mm. Seeds oblong, 1.1–1.3 mm; appendage basal, 0.4–0.6 mm. Fl. May–Jun, fr. Jun–Jul. $2n = 12$.

Forested slopes. Yunnan [India, Kashmir; SW Asia, Europe, North America].

8. *Luzula multiflora* (Ehrhart) Lejeune, Fl. Spa 1: 169. 1811.

多花地杨梅 duo hua di yang mei

Plants densely tufted, 16–35 cm tall. Stolons few or absent. Stems terete. Basal leaves several, cauline leaves 1–3; leaf blade linear-lanceolate, flat, 4–11 cm × 2–4 mm, usually pilose except for apical callus, apex obtuse. Inflorescence subumbel-late, with 5–9(–12) flower clusters; basal involucre bract 2–5 cm; clusters borne on erect branches, pedunculate, ovoid to narrowly so or subsessile and subglobose, 4–10-flowered. Pedicels with 1 or 2 bracts at base; bracteoles broadly ovate, ca. 2 mm. Perianth segments pale brown to reddish brown, all lanceolate or inner ones ovate to elliptic, 2.5–3 × ca. 0.9 mm, subequal, margin hyaline. Filaments 0.6–0.8 mm; anthers 1–1.5 mm. Style 0.7–0.9 mm, subequaling ovary; stigmas spirally turned, 1.4–1.8 mm. Capsule brown to reddish brown or blackish brown, obovoid or broadly ellipsoid to ovoid, shorter than or subequaling perianth, apex mucronulate. Seeds ellipsoid, ca. 1.2 mm; appendage basal, to 1/2 as long as seed. Fl. May–Jul, fr. Jul–Aug. $2n = 24, 36$.

Forest and ravine margins, mountain valleys, wet stream banks, grasslands on slopes and in high mountains; 1900–3600 m. Anhui, Fujian, Gansu, Guizhou, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Qinghai, Shaanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, Mongolia, Nepal,

Russia, Sikkim; Europe, North America, Oceania].

- 1a. Capsule brown to reddish brown, obovoid; perianth segments all lanceolate 8a. subsp. *multiflora*
1b. Capsule dark brown to blackish brown, broadly ellipsoid to ovoid; inner perianth segments ovate to elliptic 8b. subsp. *frigida*

8a. *Luzula multiflora* subsp. *multiflora*

多花地杨梅(原亚种) duo hua di yang mei (yuan ya zhong)

Juncus campestris Linnaeus var. *multiflorus* Ehrhart, Beitr. Naturk. 5: 14. 1790; *Luzula campestris* (Linnaeus) de Candolle var. *multiflora* (Ehrhart) Celakovsky; *L. campestris* subsp. *multiflora* (Ehrhart) Buchenau; *L. multiflora* subsp. *occidentalis* V. I. Kreczetowicz.

Perianth segments all lanceolate. Capsule brown to reddish brown, obovoid.

Forest and ravine margins, wet stream banks, grasslands on slopes; 2200–3600 m. Anhui, Fujian, Gansu, Guizhou, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Qinghai, Shaanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, Mongolia, Nepal, Russia, Sikkim; Europe, North America, Oceania].

8b. *Luzula multiflora* subsp. *frigida* (Buchenau) V. I. Kreczetowicz, Zhurn. Russk. Bot. Obshch. Akad. Nauk S.S.S.R. 12: 490. 1928.

硬杆地杨梅 ying gan di yang mei

Luzula campestris (Linnaeus) de Candolle var. *frigida* Buchenau, Oesterr. Bot. Z. 48: 284. 1898; *L. frigida* (Buchenau) Samuelsson ex Lindman.

Inner perianth segments ovate to elliptic, margin denticulate, apex mucronulate. Capsule dark brown to blackish brown, broadly ellipsoid to ovoid. $2n = 36$.

Mountain valleys, grasslands in high mountains; 1900–3000 m. Gansu, Shaanxi, Xinjiang [Mongolia; Europe].

9. *Luzula jilongensis* K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 95. 1992.

西藏地杨梅 xi zang di yang mei

Plants 15–30 cm tall. Basal leaves several, cauline leaves 2 or 3; leaf sheath pilose; leaf blade linear-lanceolate, flat, 6–12 cm × 3–4 mm, margin pilose, apex obtuse. Inflorescence subcorymbose, with 9–18 heads; basal involucre bract 5.5–8.5 cm; heads subglobose, 3–9-flowered; peduncles unequal. Pedicels inconspicuous, with 2 bracts at base; bracteoles broadly ovate to ovate-deltoid, margin sparsely denticulate or sometimes ciliate. Perianth segments brown to reddish brown, lanceolate, 2.3–3 × 0.8–1.3 mm, equal or outer ones slightly longer than inner, apex acute. Filaments 1.3–1.5 mm; anthers 0.7–1 mm. Style ca. 0.4 mm, shorter than ovary; stigmas ca. 1.4 mm. Capsule trigonous obovoid to trigonous broadly ellipsoid, 2–2.5 mm, apex obtuse and mucronulate. Seeds ellipsoid, 1–1.2 mm; appendage basal, ca. 1/3 as long as seed. Fl. May–Jun, fr. Jun–Jul.

• Forested slopes, open areas in forests; 3400–3800 m. Xizang, Yunnan.

10. *Luzula oligantha* Samuelsson in Hultén, Fl. Kamtchatka 1: 227. 1927.

华北地杨梅 hua bei di yang mei

Plants tufted, 8–20 cm tall. Stolons short. Stems terete, ca. 1 mm in diam. Basal leaves several; leaf sheath sparsely pilose; leaf blade linear-lanceolate, flat, 4–8 cm × 2–4 mm, margin sparsely pilose except for apical callus, apex blunt. Cauline leaves 1 or 2. Inflorescence umbellate; basal involucre bract 1.4–3 cm, shorter than inflorescence; heads 4–12, 3–7-flowered; peduncles unequal or heads subsessile. Bracteoles broadly ovate, margin subentire. Perianth segments dark brown, lanceolate, 1.8–2.1 × 0.8–1 mm, subequal, apex acute. Filaments usually longer than anthers; anthers ca. 0.8 mm. Style shorter than ovary; stigmas 1.5–1.8 mm. Capsule trigonous ellipsoid, 1.8–2 mm, apex mucronate. Seeds ellipsoid, ca. 1.2 mm; appendage inconspicuous. Fl. Jun–Jul, fr. Jul–Aug.

Forested slopes, disturbed meadows; 1900–3700 m. Hebei, Heilongjiang, Henan, Shaanxi, Shanxi, Xizang [Japan, Korea, Nepal, Russia, Sikkim].

11. *Luzula inaequalis* K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 97. 1992.

异被地杨梅 yi bei di yang mei

Plants 30–35 cm tall. Stems terete, striate. Basal leaves several; leaf blade linear, 7–12 cm × 3–4 mm. Cauline leaves 2 or 3; leaf sheath pilose; leaf blade pilose at margin, apex obtuse. Inflorescence with (5 or) 6–9 flower clusters; basal involucre bract 3–9 cm; clusters globose-oblong, 6–10-flowered; peduncles unequal. Pedicels inconspicuous, with 1 or 2 bracts at base; bracteoles 2 subtending each flower, whitish, 1.8–2.1 × 1.1–1.5 mm, margin apically denticulate to lacerate. Perianth segments distinctly unequal; outer segments broadly ovate, boatlike, 2.7–3.1 × 1–1.3 mm, center reddish brown, margin scarious, apex with a sharp point 0.6–0.9 mm; inner segments 2.2–2.6 mm, apex usually denticulate and cuspidate. Filaments ca. 0.7 mm; anthers ca. 1 mm. Ovary 1.3–1.5 mm. Style 0.5–0.7 mm; stigmas 1.8–2 mm. Capsule trigonous obovoid, shorter than outer perianth segments, apex mucronate. Seeds (immature) ca. 1.1 mm; appendage basal, 0.4–0.5 mm. Fl. Apr–May, fr. May–Jun.

• Wet places on trail sides; ca. 1000 m. Jiangxi.

12. *Luzula pallescens* Swartz, Summa Veg. Scand. 13. 1814.

淡花地杨梅 dan hua di yang mei

Plants tufted, 10–35 cm tall. Stems terete. Basal leaf blade flat, 4–15 cm × 2–5 mm, margin pilose, apex with a thick callus. Cauline leaves 2 or 3. Inflorescence subumbellate; basal involucre bract usually longer than inflorescence; flower clusters 5–15, globose-oblong, 7–12-flowered, central one subsessile, others borne on erect, straight branches. Pedicels inconspicuous, with 1 or 2 bracts at base; bracteoles broadly ovate to ovate-deltoid, margin sparsely ciliate or denticulate, apex sharply pointed. Perianth segments chestnut brown to yellowish white, lanceolate; outer segments 2–3 × 1–1.3 mm; inner segments 1.6–2.5 × 0.8–1 mm. Filaments slightly shorter to slightly longer than anthers; anthers ca. 0.8 mm. Style ca. 0.5 mm,

shorter than ovary; stigmas ca. 1.5 mm. Capsule trigonous obovoid to ellipsoid, 1.8–2.1 mm. Seeds ovoid, ca. 1 mm; appendage basal, ca. 0.4 mm. Fl. May–Jul, fr. Jun–Aug. $2n = 12$.

Forested slopes, forest margins, disturbed grasslands, trail sides; 1100–3600 m. Heilongjiang, Jilin, Liaoning, Shanxi, Sichuan, Taiwan, Xinjiang [Japan, Korea, Russia; Europe, North America].

- 1a. Perianth segments pale chestnut brown to yellowish white, outer segments 2–2.6 × ca. 1 mm, inner segments 1.6–2 × ca. 0.8 mm; filaments subequaling to slightly longer than anthers 12a. var. *pallescens*
1b. Perianth segments chestnut brown, outer segments 2.6–3 × 1–1.3 mm, inner segments 2.3–2.5 × ca. 1 mm; filaments usually slightly shorter than anthers 12b. var. *castanescens*

12a. *Luzula pallescens* var. *pallescens*

淡花地杨梅(原变种) dan hua di yang mei (yuan bian zhong)

Luzula campestris de Candolle var. *pallescens* Wahlenberg.

Perianth segments pale chestnut brown to yellowish white; outer segments 2–2.6 × ca. 1 mm; inner segments 1.6–2 × ca. 0.8 mm. Filaments subequaling to slightly longer than anthers. Fl. May–Jun, fr. Jun–Aug.

Forested slopes, disturbed grasslands, trail sides; 1100–3600 m. Heilongjiang, Jilin, Liaoning, Shanxi, Sichuan, Taiwan, Xinjiang [Japan, Korea, Russia; Europe, North America].

12b. *Luzula pallescens* var. *castanescens* K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 99. 1992.

安图地杨梅 an tu di yang mei

Perianth segments chestnut brown; outer segments 2.6–3 × 1–1.3 mm; inner segments 2.3–2.5 × ca. 1 mm. Filaments usually slightly shorter than anthers. Fl. Jun–Jul.

- Forest margins. Jilin.

13. *Luzula badia* K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 99. 1992.

栗花地杨梅 li hua di yang mei

Plants 30–35 cm tall. Stems terete. Basal leaves several; leaf blade linear, 8–14 cm × ca. 3 mm. Cauline leaves 2 or 3; leaf sheath white pilose; leaf blade white pilose at margin, apex obtuse. Inflorescence of (3 or) 4 flower clusters; basal involucre bract narrowly linear, 1–2.6 cm, distinctly shorter than inflorescence; clusters globose, 6–17-flowered; peduncles unequal. Pedicels very short, with 1(or 2) bracts at base; bracteoles 2 subtending each flower, pale reddish brown, broadly ovate to ovate-deltoid, 1–1.5(–1.8) × 1–1.2 mm. Perianth segments reddish brown, oblong-lanceolate, apex acuminate; outer segments 2.3–2.8 × ca. 1 mm, ± boatlike; inner segments slightly shorter than outer ones. Filaments 0.7–0.9 mm; anthers 0.7–0.9 mm. Style 0.6 mm; stigmas 1–1.2 mm. Capsule trigonous ellipsoid, ca. 2 mm, apex mucronate. Seeds (immature) chestnut brown, ellipsoid, ca. 1 mm; appendage

0.2–0.3 mm. Fl. Jun, fr. Jul.

- Forests; ca. 2700 m. Xinjiang.

14. *Luzula bomiensis* K. F. Wu, J. E. China Norm. Univ., Nat. Sci. Ed. 3: 100. 1992.

波密地杨梅 bo mi di yang mei

Plants 9–13 cm tall. Stems terete. Basal leaves several; leaf blade linear, 2–6 cm × 2–4 mm. Cauline leaf 1; leaf sheath white pilose; leaf blade white pilose at margin, apex obtuse. Inflorescence of 1–4 flower clusters; basal involucre bract 1–3 cm; clusters ovoid-globose, (5–)8–24(–26)-flowered; peduncles unequal. Pedicels very short, with 1 bract at base; bracteoles 2 subtending each flower, broadly ovate, 1.2–1.5 × ca. 1 mm, margin basally entire, apically lobate-dentate. Perianth segments dark reddish brown to chestnut brown, ovate to ovate-lanceolate, 2.7–3.2 × 0.9–1.2 mm, unequal with outer ones slightly longer than inner, apex acute to cuspidate. Filaments ca. 1 mm; anthers 0.5–0.7 mm. Capsule trigonous ellipsoid, ca. 2 mm. Seeds ellipsoid, ca. 1 mm, reticulate; appendage basal, not more than 0.1 mm. Fl. and fr. Jul–Aug.

- Forest margins; ca. 4000 m. Xizang.

15. *Luzula spicata* (Linnaeus) de Candolle in Lamarck & de Candolle, Fl. Franç., ed. 3, 3: 161. 1805.

穗花地杨梅 sui hua di yang mei

Juncus spicatus Linnaeus, Sp. Pl. 1: 330. 1753.

Plants tufted, 7–30 cm tall. Stems terete. Basal leaves several; leaf blade linear-lanceolate, flat, 3–9 cm × 1–3(–4) mm, apex with a thick callus. Cauline leaves 1 or 2; leaf sheath usually pilose; leaf blade usually pilose at margin. Inflorescences drooping, spike-like, oblong-ovoid, often interrupted, sometimes lobed, densely many flowered; basal bract leaf-like, shorter or longer than inflorescence. Pedicels short; bracteoles 2 subtending each flower, ovate, ca. 2 × 1 mm, margin sparingly lacerate. Perianth segments reddish brown to chestnut brown, lanceolate, 2.7–3.2 × 0.9–1.1 mm, unequal with outer ones slightly longer than inner, margin hyaline, apex aristate. Stamens 6; anthers subequaling filaments. Style slightly shorter than ovary; stigmas ca. 1.8 mm. Capsule chestnut brown to blackish, trigonous ovoid to trigonous broadly ellipsoid, 2.2–3 mm. Seeds ca. 1.2 mm; appendage ca. 0.2 mm, base sparsely pilose. Fl. Jun–Jul, fr. Jul–Aug.

Forests, grasslands, slopes, stony areas; 2400–3400 m. Sichuan, Xinjiang, Yunnan [India, Kashmir, Pakistan, Russia; Europe, North America].

Luzula spicata subsp. *mongolica* Novikov has been reported from Mongolia (Gubanov, Konsp. Fl. Vyesh. Mongol. (Sosud. Rast.) 30. 1996).

16. *Luzula taiwaniana* Satake, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 4: 202. 1933.

台湾地杨梅 tai wan di yang mei

Plants tufted, 9–25 cm tall. Stems terete. Basal leaves several; leaf blade lanceolate, flat, 3–10 cm × 2–4 mm, margin

pubescent, apex obtuse and with a callus. Cauline leaf usually 1, long pubescent especially near juncture with leaf sheath. Inflorescences clustered, erect, spikelike, elliptic-oblong, simple or rarely lobed, 1–2 cm, densely many flowered; basal bract leaf-like, 2–4 cm. Pedicels short; bracteoles ovate, ca. 2×1 mm, hyaline, margin sparsely pubescent. Perianth segments pale brown to blackish brown with white margin, ovate-lanceolate, 2.1–2.8 \times 0.8–1 mm, apex acuminate. Filaments ca. 1 mm; anthers ca. 0.7 mm. Style ca. 0.5 mm; stigmas 1.5–2 mm. Capsule trigonous globose, 2–2.2 mm. Seeds ellipsoid-obovoid, ca. 1 mm; appendage basal, white, ca. 0.3 mm. Fl. May–Jun, fr. Jun–Jul.

- Alpine areas. Taiwan.

Flora of China 24: 64–69. 2000.