

22. PYRUS Linnaeus, Sp. Pl. 1: 479. 1753.

梨属 li shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg

Trees or shrubs, deciduous, rarely semievergreen, sometimes armed. Leaves alternate, simple, petiolate, stipulate, involute in bud, venation camptodromous, margin serrate or entire, rarely lobed. Inflorescences corymbose-racemose. Flowers precocious or synanthrous. Hypanthium cupular. Sepals 5, reflexed or spreading. Petals 5, white, rarely pink, clawed. Stamens 15–30; anthers usually dark red or purple. Ovary inferior, 2–5-loculed, with 2 ovules per locule; styles 2–5, free. Pome with juicy pulp, rich in stone cells, 2–5-celled, with cartilaginous endocarp (core), with persistent or caducous sepals; seeds black or blackish brown, seed coat cartilaginous; cotyledons plano-convex.

About 25 species: N Africa, Asia, Europe; 15 species (nine endemic) in China.

Pyrus taihangshanensis S. Y. Wang & C. L. Chang (J. Henan Agric. Coll. 1980(2): 10. 1980), described from Henan, requires further study. We are unable to treat it in this account because we have seen no specimens. The same applies to *Pyrus aria* var. *silvestrii* Pampanini (Nuovo Giorn. Bot. Ital., n.s., 17: 290. 1910), described from Hubei, which may belong to *Sorbus*.

- 1a. Pome with few persistent sepals, most sepals caducous; styles 2–5.
 - 2a. Leaf margin spiny serrate; styles 4 or 5.
 - 3a. Pome yellow; leaf basally broadly cuneate 10. *P. bretschneideri*
 - 3b. Pome brown; leaf basally rounded or subcordate 11. *P. pyrifolia*
 - 2b. Leaf margin serrate or obtusely serrate, and without spines; styles 2–4(or 5).
 - 4a. Leaf margin serrate.
 - 5a. Pome subglobose, 0.5–1 cm in diam., 2- or 3-loculed; young branches, corymbs, and leaves abaxially tomentose 12. *P. betulifolia*
 - 5b. Pome globose or ovoid, 2–2.5 cm in diam., 3- or 4-loculed; young branches, corymbs, and leaves abaxially initially tomentose, glabrescent 13. *P. phaeocarpa*
 - 4b. Leaf margin obtusely serrate.
 - 6a. Stamens 20; styles 2 or 3; leaves and corymb glabrous 14. *P. calleryana*
 - 6b. Stamens 25–30; styles 3–5; leaves and corymb initially pubescent, glabrescent 15. *P. pashia*
- 1b. Pome with persistent sepals; styles 3–5.
 - 7a. Leaf margin spiny-serrate.
 - 8a. Leaf blade long spiny-serrate, 5–10 cm; styles 5; pome yellow; fruiting pedicel 1–2 cm 1. *P. ussuriensis*
 - 8b. Leaf blade shortly spiny-serrate, 4–7 cm; styles 4; pome brown; fruiting pedicel longer, (1.5–)3 cm 2. *P. hopeiensis*
 - 7b. Leaf margin serrulate or obtusely serrate, not spinulose.
 - 9a. Leaf margin serrulate.
 - 10a. Pome yellowish green, ovoid or obovoid, 5-loculed; fruiting pedicel 4–5 cm, thickened distally 3. *P. sinkiangensis*
 - 10b. Pome brown, subglobose or obovoid, 3- or 4-loculed; fruiting pedicel 3–4 cm, not thickened distally 4. *P. serrulata*
 - 9b. Leaf margin obtusely serrate.
 - 11a. Pome yellowish green; petals obovate; flowers 7–10.
 - 12a. Pome obovoid or subglobose; leaf blade elliptic to ovate; petiole thin, 1.5–5 cm 5. *P. communis*
 - 12b. Pome depressed-globose; leaf blade broadly ovate to suborbicular; petiole thick, 2–3 cm 6. *P. armeniacaefolia*
 - 11b. Pome brown; petals broadly ovate; flowers 3–6.
 - 13a. Stamens 25; pome 1.5–2.5 cm in diam. 7. *P. pseudopashia*
 - 13b. Stamens 20; pome 1–1.5 cm in diam.
 - 14a. Pome 4- or 5-loculed; flowers 3–6 in umbel-like racemes, petiole and leaves glabrous 8. *P. xerophila*
 - 14b. Pome 3-loculed; flowers 8–10 in corymbs, petiole and leaf blade abaxially sparsely pubescent 9. *P. trilocularis*

1. *Pyrus ussuriensis* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg, sér. 2, 15: 132. 1856. *sis* Makino.

秋子梨 qiu zi li

Pyrus simonii Carrière; *P. sinensis* Lindley var. *ussuriensis*

Trees to 15 m tall. Branchlets yellowish gray to purplish brown when young, yellowish gray or yellowish brown when old, glabrous or sparsely pubescent, sparsely lenticellate; buds

ovoid, apex obtuse; scales sparsely pubescent or subglabrous at margin. Stipules caducous, linear-lanceolate, 0.8–1.3 cm, membranous, margin glandular denticulate, apex acuminate; petiole 2–5 cm, tomentose when young, soon glabrescent; leaf blade ovate to broadly ovate 5–10 × 4–6 cm, glabrous or tomentose when young, soon glabrescent, base rounded or subcordate, margin long spinulose-serrate, apex shortly acuminate or caudate-acuminate. Corymb densely 5–7-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, membranous, linear-lanceolate, 1.2–1.8 cm, margin entire, apex acuminate. Pedicel 2–5 cm, tomentose, soon glabrescent. Flower 3–3.5 cm in diam. Hypanthium campanulate, abaxially glabrous or slightly tomentose. Sepals triangular-lanceolate, 5–8 mm, abaxially glabrous, adaxially tomentose, margin initially glandular denticulate, apex acuminate. Petals white, obovate or broadly ovate, ca. 1.8 × 1.2 cm, glabrous. Stamens 20, shorter than petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, nearly as long as stamens, sparsely pubescent near base. Pome yellow, subglobose, 2–6 cm in diam., 5-loculed; fruiting pedicel 1–3 cm, glabrous; sepals persistent. Fl. May, fr. Aug–Oct. $2n = 34^*$, 51^* .

Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi [Korea, Russia].

This species has many cultivated forms, the fruit of which are edible; it is commonly cultivated in N, NE, and NW China. It is often used as stock for grafting pear cultivars.

Pyrus ussuriensis var. *ovoidea* Rehder (J. Arnold Arbor. 2: 60. 1920) is, in fact, a cultivar of *P. ussuriensis*. It is characterized by its ovoid, subglobose, or ellipsoid fruit, longer fruiting pedicels (2–4 cm) and tomentose leaves and corymb.

Pyrus lindleyi Rehder (Proc. Amer. Acad. Arts 50: 230. 1915; *P. sinensis* Lindley, Trans. Hort. Soc. London 6: 396. 1826, not Dumont de Courset, 1811, nor Thouin, 1812, nor Poiret, 1816, nor *P. chinensis* Sprengel, 1825) might be similar to *P. ussuriensis*, but material was not available for study.

2. *Pyrus hopeiensis* T. T. Yu, Acta Phytotax. Sin 8: 232. 1963.

河北梨 he bei li

Pyrus hopeiensis var. *peninsula* D. K. Zang & W. D. Peng.

Trees to 6–8 m tall. Branchlets dark purple or purplish brown, sparsely white lenticellate, apices often becoming thorn-like; buds oblong-ovoid or triangular-ovoid, glabrous or scales slightly tomentose at margin and apex, apex acute. Stipules caducous, linear-lanceolate, 7–11 mm, herbaceous, margin sparsely serrate, apex acuminate; petiole 2–4.5 cm, sparsely pubescent or glabrous; leaf blade ovate, broadly ovate, or suborbicular, 4–7 × 4–5 cm, lateral veins 8–10 pairs, glabrous, base rounded or subcordate, margin shortly spinulose-serrate, apex long or shortly acuminate. Raceme umbel-like, 6–8-flowered; peduncle sparsely pubescent or subglabrous; bracts caducous, linear-lanceolate, 6–9 mm, membranous, villous, margin serrate, apex acuminate. Pedicel 1.2–1.5 cm, subglabrous. Flower 2.5–3 cm in diam. Hypanthium cupular, subglabrous. Sepals triangular-ovate, abaxially sparsely pubescent, adaxially densely pubescent, margin denticulate, apex acuminate. Petals white, elliptic-obovate, ca. 8 × 6 mm, shortly clawed at base. Stamens

20, less than 1/2 as long as petals. Ovary 4(or 5)-loculed, with 2 ovules per locule; styles 4, nearly as long as stamens, glabrous. Pome brown, spotted, globose or ovoid, 1.5–2.5 cm in diam., 4(or 5)-loculed; fruiting pedicel 1.5–3 cm, glabrous; sepals persistent. Fl. Apr, fr. Aug–Sep. $2n = 34^*$.

- Thicket margins on slopes; 100–800 m. Hebei, Shandong.

3. *Pyrus sinkiangensis* T. T. Yu, Acta Phytotax. Sin. 8: 233. 1963.

新疆梨 xin jiang li

Trees to 6–9 m tall. Branchlets purplish brown or grayish brown, terete, glabrous, white lenticellate; buds ovoid, apex acute; scales white pubescent at margin. Stipules caducous, linear-lanceolate, 8–10 mm, membranous, white tomentose, margin sparsely glandular denticulate, apex acuminate; petiole 3–5 cm, white tomentose when young, soon glabrous; leaf blade ovate, elliptic, or broadly ovate, 6–8 × 3.5–5 cm, glabrous or white tomentose when young, base rounded, rarely broadly cuneate, margin crenate or subentire basally, serrulate apically, apex shortly acuminate. Raceme umbel-like, 4–7-flowered; peduncle tomentose when young, glabrescent; bracts caducous, linear-lanceolate, 1–1.3 cm, membranous, margin sparsely glandular denticulate and long tomentose, apex acuminate. Pedicel 1.5–4 cm, tomentose when young, glabrescent. Flowers 1.5–2.5 cm in diam. Hypanthium cupular, abaxially glabrous. Sepals triangular-ovate, 6–7 mm, abaxially brown tomentose, margin glandular denticulate, apex acuminate. Petals white, obovate, 1.2–1.5 × 0.8–1 cm, shortly clawed at base, apex obtusely rounded. Stamens 20, less than or ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, not exceeding stamens, pubescent basally. Pome yellowish green, ovoid or obovoid, 2.5–5 cm in diam., 5-loculed; fruiting pedicel 4–5 cm, thickened distally, glabrescent; sepals persistent. Fl. Apr, fr. Aug–Sep. $2n = 34^*$, 51^* .

- 200–1100 m. Native in Xinjiang; cultivated in Gansu, Qinghai, Shaanxi.

This species might be a natural hybrid between *Pyrus communis* and *P. bretschneideri*.

4. *Pyrus serrulata* Rehder, Proc. Amer. Acad. Arts 50: 234. 1915.

麻梨 ma li

Trees to 8–10 m tall. Branchlets purplish brown when old, terete, brown tomentose when young, glabrous when old, sparsely white lenticellate; buds ovoid, apex acute; scales adaxially tawny tomentose. Stipules caducous, linear-lanceolate, membranous, adaxially brown tomentose, margin sparsely glandular denticulate, apex acuminate; petiole 3.5–7.5 cm, brown tomentose when young, soon glabrescent; leaf blade ovate or narrowly ovate, 5–11 × 3.5–7.5 cm, lateral veins 7–13 pairs, abaxially brown tomentose when young, soon glabrescent, base broadly cuneate or rounded, margin serrulate, apex acuminate. Raceme umbel-like, 6–11-flowered; peduncle brown tomentose, soon glabrescent; bracts caducous, linear-lanceolate, 5–10 mm, membranous, adaxially brown lanate, margin glandular denticulate, apex acuminate. Pedicel 3–5 cm,

brown tomentose, soon glabrescent. Flowers 2–3 cm in diam. Hypanthium sparsely tomentose abaxially. Sepals persistent or caducous, triangular-ovate, ca. 3 mm, abaxially sparsely tomentose, adaxially tomentose, margin glandular denticulate, apex acuminate or acute. Petals white, broadly ovate, 1–1.2 cm, shortly clawed at base, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 3(or 4)-loculed, with 2 ovules per locule; styles 3(or 4), ca. as long as stamens, sparsely pubescent basally. Pome dark brown, subglobose or obovoid, 1.5–2.2 cm in diam., 3- or 4-loculed, with persistent sepals or sometimes a few caducous; fruiting pedicel 3–4 cm, subglabrous. Fl. Apr, fr. Jun–Aug. $2n = 34^*$.

• Among shrubs, forest margins, thickets; 100–1600 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Zhejiang.

This species is similar to *Pyrus pyrifolia*, which differs by its spinulose-serrate leaves, larger, 5-styled flowers, long acuminate sepals, and larger, brownish fruit.

5. *Pyrus communis* Linnaeus var. *sativa* (Candolle) Candolle, Prodr. 2: 643. 1825.

西洋梨 xi yang li

Pyrus sativa Candolle, Fl. France 4: 430. 1805.

Trees to 15 m tall, rarely to 30 m tall, sometimes armed. Branchlets grayish brown or dark brownish red when old, glabrous or slightly pubescent when young; buds ovoid, apex obtuse, glabrous or subglabrous. Stipules caducous, linear-lanceolate, ca. 1 cm, membranous, slightly pubescent, margin sparsely glandular denticulate, apex acuminate; petiole 1.5–5 cm, slender, slightly pubescent when young, soon glabrescent; leaf blade ovate or subrounded to elliptic, 2–5(–7) × 1.5–2.5 cm, pubescent when young, soon only abaxially pubescent along midvein, base broadly cuneate to subrounded, margin obtusely serrate, rarely entire, apex acute or shortly acuminate. Raceme umbel-like, 6–9-flowered; peduncle pubescent or subglabrous; bracts caducous, linear-lanceolate, 1–1.5 cm, membranous, brown pubescent, margin sparsely glandular serrate, apex acute or acuminate. Pedicel 2–3.5 cm, pubescent or subglabrous. Flowers 2.5–3 cm in diam. Hypanthium campanulate, abaxially pubescent. Sepals triangular-lanceolate, 5–9 mm, both surfaces pubescent, margin sparsely glandular denticulate when young, apex acuminate. Petals white, obovate, 1.3–1.5 × 1–1.3 cm, base shortly clawed. Stamens ca. 20, ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, nearly as long as stamens, pubescent basally. Pome obovoid or subglobose, 3–5 × 1.5–2 cm, 5-loculed, green or yellow, rarely reddish, dotted; fruiting pedicel 2–3.5 cm, subglabrous; sepals persistent. Fl. Apr, fr. Jul–Sep. $2n = 34^*$.

Commonly cultivated in N, NE, and SW China [Bhutan, Russia, Sikkim, Vietnam; SW Asia, Europe].

This variety includes many important cultivated forms with excellent fruit.

6. *Pyrus armeniaca* T. T. Yu, Acta Phytotax. Sin. 8: 231. 1963.

杏叶梨 xing ye li

Trees to 8–12 m tall. Branchlets purplish brown when young, dark gray or reddish brown when old, terete, glabrous, sparsely lenticellate; buds narrowly ovoid, sparsely tomentose only at margin of scales, apex acuminate. Stipules caducous, linear-lanceolate, 5–8 mm, membranous, pilose, margin serrate, apex acuminate; petiole 2–3 cm, thick, glabrous; leaf blade broadly ovate or suborbicular, 4–5 × 4–5 cm, lateral veins 8–10 pairs, both surfaces glabrous, base rounded or truncate, margin obtusely serrate, apex acute or rounded-obtuse. Raceme umbel-like, 6–10-flowered; peduncle glabrous or subglabrous; bracts caducous, linear-lanceolate, 5–8 mm, membranous, margin sparsely glandular serrate when young, apex acuminate. Pedicel 2.3–3 cm, subglabrous. Flowers 2–3 cm. Hypanthium cupular, abaxially glabrous. Sepals ovate-lanceolate, ca. 6 mm, adaxially brown tomentose, margin entire, apex acuminate. Petals white, obovate or broadly obovate, 1–1.5 × 0.7–0.9 cm, base shortly clawed, apex rounded. Stamens 20–22, ca. 1/2 as long as petals. Ovary 3- or 4-loculed, with 2 ovules per locule; styles 4 or 5, nearly as long as stamens, glabrous. Pome yellowish green, with few dots, depressed-globose, 2.5–3 cm in diam., 4- or 5-loculed; fruiting pedicel 2.5–3 cm, glabrous; sepals persistent. Fl. Apr–May, fr. Aug–Sep. $2n = 51^*$.

• Cultivated in orchards. N Xinjiang (Tacheng Xian).

This species is characterized by its broadly ovate or suborbicular leaves, and might be allied to *Pyrus xerophila*, differing in its ovate or narrowly ovate leaf blade with serrate margin and acuminate apex, and ovoid or ellipsoid fruit.

7. *Pyrus pseudopashia* T. T. Yu, Acta Phytotax. Sin. 8: 232. 1963.

滇梨 dian li

Trees 5–10 m tall. Branchlets purplish brown when old, terete, sparsely yellow lanate when young, soon glabrescent, glabrous when old, sparsely pale lenticellate; buds ovoid, apex acuminate; scales pubescent at margin. Stipules caducous, not seen; petiole 1.5–3.5 cm, yellow lanate or subglabrous; leaf blade ovate or narrowly ovate, rarely lanceolate-ovate, 6–8 × 3.5–4.5 cm, lateral veins 7–12 conspicuous pairs, abaxially initially yellow lanate, glabrescent, adaxially glabrous, base rounded or broadly cuneate, margin obtusely serrate, apex acute or rounded-obtuse. Raceme umbel-like, 5–7-flowered; peduncle lanate when young, soon glabrescent; bracts caducous, not seen. Pedicel 2–3 cm, initially sparsely lanate. Flowers 9–12 in diam. Hypanthium campanulate, lanate when young, soon glabrescent. Sepals triangular-ovate, ca. 2–3 mm, abaxially sparsely lanate, adaxially densely, margin sparsely glandular denticulate, apex acute or obtuse. Petals white, broadly ovate, 5–8 mm, base shortly clawed, apex rounded. Stamens 25, ca. 1/2 as long as petals. Ovary 3- or 4-loculed, with 2 ovules per locule; styles 3 or 4, nearly as long as stamens, glabrous. Pome brown, with pale dots, subglobose, 1.5–2.5 cm in diam., 3- or 4-loculed; sepals persistent; fruiting pedicel 3–4.5 cm, thickened distally, glabrous. Fl. Apr, fr. Aug–Sep.

• In mixed forests, thickets; 500–3000 m. Guizhou, Yunnan.

This species is similar to *Pyrus pashia* var. *pashia*, which differs by its smaller leaves, tomentose pedicels, caducous sepals, and smaller fruit.

8. *Pyrus xerophila* T. T. Yu, Acta Phytotax. Sin. 8: 233. 1963.

木梨 mu li

Trees to 8–10 m tall. Branchlets slightly curved, robust, glabrous or sparsely pubescent, brownish gray when old, sparsely white lenticellate; buds ovoid, small, glabrous or scales pubescent at margin and apex, apex acute. Stipules caducous, linear-lanceolate, 6–10 mm, membranous, adaxially white lanate, soon glabrescent, margin glandular denticulate, apex acuminate; petiole 2.5–5 cm, glabrous; leaf blade ovate or narrowly ovate, rarely narrowly elliptic, 4–7 × 2.5–4 cm, glabrous or those of branchlets pubescent, base rounded, margin obtusely serrate, rarely sparsely serrulate toward apex, apex acuminate, rarely acute. Raceme umbel-like, 3–6-flowered; peduncle sparsely pubescent, soon glabrescent; bracts caducous, linear-lanceolate, 6–10 mm, membranous, adaxially white lanate, soon glabrescent, margin glandular denticulate, apex acuminate. Pedicel 2–3 cm, sparsely hairy, soon glabrescent. Flowers 2–2.5 cm in diam. Hypanthium cupular, abaxially glabrous or subglabrous. Sepals triangular-ovate, 2–3 mm, abaxially glabrous, adaxially tomentose, margin glandular denticulate, apex acuminate. Petals white, broadly ovate, 9–10 mm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary (4- or 5-)loculed, with 2 ovules per locule; styles (4 or)5, nearly as long as stamens, sparsely pubescent basally. Pome brown with few pale dots, ovoid or ellipsoid, 1–1.5 cm in diam., 4- or 5-loculed; fruiting pedicel 2–3.5 cm; sepals persistent. Fl. Apr, fr. Aug–Sep. $2n = 34^*$, 51^* .

• Slopes, among shrubs, forests; 500–2000 m. Gansu, Henan, Shaanxi, Shanxi, Xinjiang, Xizang.

In NW China, this species is often used as stock for grafting pear cultivars.

9. *Pyrus trilocularis* D. K. Zang & P. C. Huang, Bull. Bot. Res., Harbin 12: 321. 1992.

崂山梨 lao shan li

Trees small, 4–6 m tall. Branchlets grayish brown to purplish brown, glabrous. Stipules not seen; petiole slender, slightly villous; leaf blade ovate-lanceolate, 10–15 × 3–5 cm, abaxially sparsely villous, adaxially glabrous, base broadly cuneate or rounded, margin obtusely serrate, apex acute or shortly acuminate. Flowers not seen. Inflorescence a corymb, 8–10-fruited. Pome purplish brown at maturity, subglobose, 1–1.5 cm in diam., 3-loculed; sepals persistent, revolute, abaxially glabrous, adaxially densely tomentose.

• 200–300 m. E Shandong (Lao Shan).

The present authors have seen no specimens of this species; the above description is based on the protologue.

10. *Pyrus bretschneideri* Rehder, Proc. Amer. Acad. Arts 50: 231. 1915.

白梨 bai li

Trees to 5–8 m tall. Branchlets purplish brown when old, terete, robust, densely pubescent when young, glabrous when old, sparsely lenticellate; buds dark purple, ovoid, apex obtuse; scales pubescent at margin and apex. Stipules caducous, linear or linear-lanceolate, 1–1.3 cm, membranous, pubescent, margin glandular denticulate, apex acuminate; petiole 2.5–7 cm, densely tomentose when young, soon glabrescent; leaf blade ovate or elliptic-ovate, 5–11 × 3.5–6 cm, both surfaces tomentose when young, soon glabrescent, base broadly cuneate, rarely subrounded, margin spinulose-serrate, apex acuminate, rarely acute. Raceme umbel-like, 7–10-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, linear, 1–1.5 cm, membranous, adaxially brown tomentose, margin entire, apex acuminate. Pedicel 1.5–3 cm, pubescent when young. Flowers 2–3.5 cm in diam. Hypanthium cupular, slightly pubescent when young. Sepals triangular, 3.5–5 mm, abaxially glabrous, adaxially brown tomentose, margin glandular denticulate, apex acuminate. Petals white, ovate, 1.2–1.4 × 1–1.2 cm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 5- or 4-loculed, with 2 ovules per locule; styles 5 or 4, ca. as long as stamens, glabrous. Pome yellow, with fine dots, ovoid or subglobose, 2–2.5 cm in diam., 4- or 5-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. $2n = 34^*$, 51^* , 68^* .

• Slopes, dry cold regions; 100–2000 m. Gansu, Hebei, Henan, Shaanxi, Shandong, Shanxi, Xinjiang.

This species is commonly cultivated in N China, preferring sunny, dry, loamy soils. It includes many important forms with excellent fruit.

11. *Pyrus pyrifolia* (N. L. Burman) Nakai, Bot. Mag. (Tokyo) 40: 564. 1926.

沙梨 sha li

Ficus pyrifolia N. L. Burman, Fl. Ind. 226. 1768; *Pyrus serotina* Rehder.

Trees to 7–15 m tall. Branchlets purplish brown or dark brown when old, terete, tawny villous or tawny tomentose when young, soon glabrescent, glabrous when old, sparsely lenticellate; buds narrowly ovoid, apex obtuse; scales tomentose at margin and apex. Stipules caducous, linear-lanceolate, 1–1.5 cm, membranous, margin villous and entire, apex acuminate; petiole 3–4.5 cm, initially tomentose, glabrescent; leaf blade ovate-elliptic or ovate, 7–12 × 4–6.5 cm, glabrous or brown lanate when young, base rounded or subcordate, rarely broadly cuneate, margin spinulose-serrate, apex acute. Raceme umbel-like, 6–9-flowered; peduncle sparsely pubescent when young; bracts caducous, linear, 1–1.4 cm, membranous, villous at margin, apex acuminate. Pedicel 3.5–5 cm, sparsely pubescent when young. Flowers 2.5–3.5 cm in diam. Hypanthium cupular, abaxially glabrous. Sepals triangular-ovate, ca. 5 mm, abaxially glabrous, adaxially brown tomentose, margin glandular denticulate, apex acuminate. Petals white, ovate, 1.5–1.7 cm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 5- or 4-loculed, with 2 ovules per locule; styles 5, rarely 4, nearly as long as stamens, glabrous. Pome brownish, with pale dots, subglobose, 2–2.5 cm in diam., (4- or)5-loculed; sepals caducous; fruiting pedicel 3.5–5.5 cm, subglabrous. Fl. Apr, fr. Aug. $2n = 34^*$, 51^* .

Warm rainy regions; 100–1400 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [Laos, Vietnam].

Many varieties of pear cultivated in the regions of the Chang Jiang and Zhu Jiang rivers belong to this species.

12. *Pyrus betulifolia* Bunge, Mem. Acad. Imp. Sci. St.-Petersbourg Divers Savans 20: 101. 1835.

杜梨 du li

Trees to 10 m tall, often spinescent. Branchlets purplish brown when old, terete, gray tomentose when young, sparsely tomentose or glabrous when old, sparsely lenticellate; buds ovoid, abaxially gray tomentose, apex acuminate. Stipules caducous, linear-lanceolate, ca. 2 mm, membranous, both surfaces tomentose, margin initially glandular serrate, apex acuminate; petiole 2–3 cm, gray tomentose; leaf blade rhomboidal-ovate or oblong-ovate, 4–8 × 2.5–3.5 cm, abaxially sparsely tomentose or subglabrous, adaxially gray tomentose when young, glabrous and shiny when old, base broadly cuneate, rarely subrounded, margin serrate, apex acuminate. Raceme umbel-like, 10–15-flowered; peduncle gray tomentose; bracts caducous, linear, 5–8 mm, membranous, both surfaces slightly tomentose, margin entire, apex acuminate. Pedicel 2–2.5 cm, densely gray tomentose when young. Flowers 1.5–2 cm in diam. Hypanthium cupular, abaxially gray tomentose. Sepals triangular-ovate, ca. 3 mm, both surfaces tomentose, margin entire, apex acute. Petals white, broadly ovate, 5–8 × 3–4 mm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3, nearly as long as stamens, sparsely pubescent basally. Pome brown, with pale dots, subglobose, 5–10 mm in diam., 2- or 3-loculed; sepals caducous; fruiting pedicels 1–2.5 cm, gray tomentose when young, glabrescent. Fl. Apr, fr. Aug–Sep. $2n = 34^*$.

Open slopes, plains; sea level to 1800 m. Anhui, Gansu, Guizhou, Hebei, Henan, Hubei, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Xizang, Zhejiang [Laos].

This species is a common tree in N China, and is often planted in gardens and parks for ornamental purposes, preferring sunny, dry, sandy, loamy soils. It is usually used as stock to graft various pear cultivars.

13. *Pyrus phaeocarpa* Rehder, Proc. Amer. Acad. Arts. 50: 235. 1915.

褐梨 he li

Trees to 5–8 m tall. Branchlets purplish red when young, purplish brown when old, terete, white tomentose when young, glabrous when old, sparsely pale lenticellate; buds narrowly ovoid, apex obtuse; scales tomentose at margin. Stipules caducous, linear-lanceolate, 1–2 mm, membranous, adaxially sparsely tomentose, margin sparsely glandular denticulate, apex acuminate; petiole 2–6 cm, sparsely pubescent or subglabrous; leaf blade elliptic-ovate or narrowly ovate, 6–10 × 3.5–5 cm, sparsely tomentose when young, soon glabrescent, base broadly cuneate, margin serrate, apex long acuminate. Raceme umbel-like, 5–8-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, linear-lanceolate, 8–11 mm, membranous, adaxially villous, margin entire, apex acuminate. Pedicel 2–2.5 cm, subglabrous. Flowers ca. 3 cm in diam. Hy-

panthium campanulate, abaxially white tomentose. Sepals triangular-lanceolate, 2–3 mm, adaxially tomentose, margin entire, apex acuminate. Petals white, ovate, 1–1.5 cm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary (2- or)3- or 4-loculed, with 2 ovules per locule; styles (2 or)3 or 4, nearly as long as stamens, glabrous basally. Pome brown with pale dots, globose or ovoid, 2–2.5 cm in diam., 3- or 4-loculed; sepals caducous; fruiting pedicel 2–4 cm, glabrous. Fl. Apr, fr. Aug–Sep. $2n = 34^*$.

• Slopes, mixed hillside forests of the Loess Plateau; 100–1200 m Gansu, Hebei, Shaanxi, Shandong, Shanxi, Xinjiang.

This species is often used as stock to graft pear cultivars.

14. *Pyrus calleryana* Decaisne, Jard. Fruit. 1: 329. 1871–72.

豆梨 dou li

Trees 5–8 m tall. Branchlets reddish brown when young, grayish brown when old, terete, initially tomentose, soon glabrescent, glabrous when old; buds triangular-ovoid, sparsely tomentose, apex shortly acuminate. Stipules caducous, linear-lanceolate, 4–7 cm, herbaceous, glabrous, margin entire, apex acuminate; petiole 2–4 cm, glabrous; leaf blade broadly ovate or ovate, rarely narrowly elliptic, 4–8 × 3.5–6 cm, glabrous, base rounded or broadly cuneate, margin obtusely serrate, apex acuminate, rarely acute. Raceme umbel-like, 6–12-flowered; peduncle glabrous; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin initially glandular serrate, apex acuminate. Pedicel 1.5–3 cm, glabrous. Flowers 2–2.5 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminate. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or 3), nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. $2n = 34^*$.

Slopes, plains, mixed valley forests, thickets; 100–1800 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi (Qin Ling), Shandong, Taiwan, Zhejiang [Japan, Vietnam].

The wood of this species is hard and close-grained, and is sometimes used for making furniture and stools. It is often used as stock to graft *Pyrus pyrifolia*.

Pyrus taiwanensis Iketani & H. Ohashi (J. Jap. Bot. 68: 40. 1993), described from Taiwan, might be an allied species or an ecotype of *P. calleryana*.

- 1a. Leaf basally cuneate; ovary 3- or 4-loculed 14d. var. *koehnei*
- 1b. Leaf basally rounded to broadly cuneate; ovary 2(or 3)-loculed.
 - 2a. Leaf margin entire, blade usually ovate 14c. var. *integrifolia*
 - 2b. Leaf margin serrate, blade ovate-lanceolate or broadly ovate.
 - 3a. Leaf blade ovate-lanceolate or oblong-lanceolate 14b. var. *lanceata*
 - 3b. Leaf blade broadly ovate, rarely narrowly elliptic-ovate 14a. var. *calleryana*

14a. *Pyrus calleryana* var. *calleryana*

豆梨(原变种) dou li (yuan bian zhong)

Pyrus calleryana var. *calleryana* f. *tomentella* Rehder; *P. kawakamii* Hayata.

Leaf blade ovate to broadly ovate, rarely narrowly elliptic-ovate, glabrous or rusty tomentose, soon glabrescent, margin obtusely serrate, base rounded or broadly cuneate. Fruiting pedicel and hypanthium abaxially glabrous or sparsely tomentose.

Slopes, plains, mixed valley forests; 100–1800 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shandong, Taiwan, Zhejiang [Japan, Vietnam].

14b. *Pyrus calleryana* var. *lanceata* Rehder, J. Arnold Arbor. 7: 28. 1926.

柳叶豆梨 liu ye dou li

Leaf blade ovate-lanceolate or oblong-lanceolate, margin shallowly serrate or nearly entire.

- Anhui, Fujian, Zhejiang.

14c. *Pyrus calleryana* var. *integrifolia* T. T. Yu, Acta Phytotax. Sin. 8: 232. 1963.

全缘叶豆梨 quan yuan ye dou li

Leaf blade ovate, margin entire, base obtusely rounded.

- Jiangsu, Zhejiang.

14d. *Pyrus calleryana* var. *koehnei* (C. K. Schneider) T. T. Yu, Fl. Reipubl. Popularis Sin. 36: 370. 1974.

楔叶豆梨 qi ye dou li

Pyrus koehnei C. K. Schneider, Ill. Handb. Laubholz. 1: 665. 1906.

Leaf blade cuneate at base. Ovary 3- or 4-loculed.

- Fujian, Guangdong, Guangxi, Zhejiang.

15. *Pyrus pashia* Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 236. 1825.

川梨 chuan li

Trees to 12 m tall, with branches often armed. Branchlets purplish brown or dark brown when old, terete, lanate when young, glabrous when old; buds ovoid, apex obtuse; scales puberulous along margin. Stipules caducous, linear-lanceolate, 4–8 mm, membranous, adaxially pubescent, margin entire, apex acuminate; petiole 1.5–3 cm, initially pilose, soon glabrescent; leaf blade ovate or narrowly ovate, rarely elliptic, 4–7 × 2–5 cm, tomentose when young, glabrescent, base rounded, rarely broadly cuneate, margin obtusely serrate, apex acuminate or acute. Raceme umbel-like, 7–13-flowered; peduncle initially tomentose, glabrescent; bracts caducous, linear, 8–10 mm, membranous, both surfaces tomentose, margin entire, apex acuminate. Pedicel 2–3 cm, initially tomentose, glabrescent. Flowers 2–5 cm in diam. Hypanthium cupular, abaxially tomentose. Sepals triangular, 3–6 mm, both surfaces tomentose, margin entire, apex acute, acuminate, or obtuse. Petals white, obovate, 8–

10 × 4–6 mm, base shortly clawed, apex rounded. Stamens 25–30, slightly shorter than petals. Ovary 3–5-loculed, with 2 ovules per locule; styles 3–5, nearly as long as stamens, glabrous. Pome brown, with pale dots, subglobose, 1–1.5 cm in diam.; sepals caducous; fruiting pedicel 2–3 cm, subglabrous. Fl. Mar–Apr, fr. Aug–Sep. $2n = 34^*$.

Valleys, among shrubs; 600–3000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Laos, Myanmar, Nepal, W Pakistan, Sikkim, Thailand, Vietnam].

This tree is cultivated in Yunnan, and is often used as stock for grafting pear cultivars.

1a. Leaves and inflorescence glabrous 15c. var. *kumaoni*

1b. Leaves and inflorescence pubescent at least when young.

2a. Flowers large, ca. 3 cm in diam., young leaves, petiole, pedicel, and sepals adaxially rusty tomentose

..... 15d. var. *grandiflora*

2b. Flowers smaller, 2–2.5 cm in diam., sepals on both surfaces and leaves initially tomentose.

3a. Sepals apically acute; branchlets and inflorescence lanose 15a. var. *pashia*

3b. Sepals apically obtuse, rarely acute or acuminate; branchlets and inflorescence tomentose 15b. var. *obtusata*

15a. *Pyrus pashia* var. *pashia*

川梨(原变种) chuan li (yuan bian zhong)

Pyrus nepalensis Hortorum ex Decaisne; *P. variolosa* Wallich ex G. Don.

Branchlets and inflorescences lanose.

Valleys, among shrubs; 600–3000 m. Guizhou, Sichuan, Yunnan [Bhutan, India, Kashmir, Laos, Myanmar, Nepal, W Pakistan, Sikkim, Thailand, Vietnam].

15b. *Pyrus pashia* var. *obtusata* Cardot, Notul. Syst. (Paris) 3: 346. 1918.

钝叶川梨 dun ye chuan li

Branchlets and inflorescences tomentose. Sepals obtuse, rarely acute or acuminate at apex.

• Sichuan, Yunnan.

15c. *Pyrus pashia* var. *kumaoni* Stapf, Bot. Mag. 135: t. 8256. 1909.

无毛川梨 wu mao chuan li

Leaf blades and inflorescences glabrous. Sepals ovate, apex obtuse.

Yunnan [N India].

15d. *Pyrus pashia* var. *grandiflora* Cardot, Notul. Syst. (Paris) 3: 346. 1918.

大花川梨 da hua chuan li

Flowers large, ca. 3 cm in diam., leaf blade initially, petiole, pedicel, and sepals adaxially rusty tomentose.

• Guizhou, Yunnan.

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