

**1. CORYLUS** Linnaeus, Sp. Pl. 2: 998. 1753.

榛属 zhen shu

Shrubs or trees deciduous. Leaves alternate, petiolate, margin doubly serrate or lobulate. Male inflorescence pendulous, subsessile, cylindrical, spicate-cymose, naked during winter, with numerous overlapping bracts; bracts each usually subtending 2 bracteoles and 1 male flower; stamens 2–8, inserted at middle part of bracts; anthers with 2 separate thecae, often pubescent at apex. Female inflorescence a compact cluster of several flowers; bracts campanulate or forming a tubular sheath, apex usually lobed; flowers paired, enclosed by a bract; calyx adnate to ovary, 4–8-lobed at apex; ovary with 1 or rarely 2 ovules in each cell; style 2-cleft to base. Fruit a subglobose or ovoid nut, enclosed or surrounded by enlarged bracts.

About 20 species: China, Japan, Korea, Mongolia, Russia; Europe, North America; seven species (four endemic) in China.

*Corylus formosana* Hayata (Gen. Ind. Pl. Form. 72. 1916) was described from Taiwan but no specimen is extant. It was treated as an uncertain species by J. C. Liao in Fl. Taiwan, ed. 2.

1a. Bracts forming a tubular sheath, constricted above nut; nut enclosed by bracts.

2a. Shrubs; leaf margin lobed distally ..... 7. *C. mandshurica*

2b. Trees; leaf margin irregularly and doubly serrate.

3a. Bracts pubescent, with prominent ribs, divided into linear lobes, usually forked at apex .... 5. *C. chinensis*

3b. Bracts tomentose, with faint ribs, divided into triangular-lanceolate lobes, usually not forked at

apex ..... 6. *C. fargesii*

1b. Bracts together campanulate, not constricted above nut; nut surrounded by bracts.

4a. Lobes of bracts forming dense, branching spines ..... 1. *C. ferox*

4b. Lobes of bracts not forming spines.

5a. Bract limb deeply divided into linear, lobulate lobes, lobes often reflexed ..... 2. *C. wangii*

5b. Bract limb shallowly divided into ovate or ovate-lanceolate lobes, lobes not reflexed.

6a. Branchlets yellow tomentose; petiole 0.7–2.2 cm, yellow tomentose; leaves suborbicular to broadly ovate or obovate, abaxially tomentose, margin irregularly and doubly serrate; bracts ca. as long

as or shorter than fruit ..... 3. *C. yunnanensis*

6b. Branchlets sparsely villous; petiole 1–3 cm, loosely villous or glabrescent; leaves ovate, oblong,

or elliptic, pilose along veins abaxially, margin lobulate or incised distally; bracts longer than fruit ..... 4. *C. heterophylla*

**1. *Corylus ferox*** Wallich, Pl. Asiat. Rar. 1: 77. 1830.

刺榛 ci zhen

Trees to 20 m tall; trunk to 30 cm d.b.h.; bark dark gray or gray, fissured. Branchlets purplish brown, pubescent, sometimes stipitate glandular, glabrescent, with scattered, minute lenticels. Petiole 1–3.5 cm, densely pilose when young, glabrescent; leaf blade ovate-oblong, obovate-oblong, obovate, or elliptic, 5–15 × 3–9 cm, papery, abaxially bearded in axils of lateral veins, pilose and sparsely glandular, adaxially sparsely pilose especially along impressed midvein when young, base very obliquely rounded or subcordate, margin sharply and doubly mucronate serrate, apex long acuminate to caudate-acuminate; lateral veins 8–14 on each side of midvein. Male inflorescence ca. 2 cm; bracts broadly ovate, tomentulose, apex acute to acuminate; anthers purple. Female flowers 4–6 in a cluster; bracts campanulate, densely pubescent, sometimes stipitate glandular, with lacinate segments forming branching, pungent spines. Nut ovoid-globose, subcompressed, 1–1.5 cm in diam., apex pubescent. Fl. May–Jul, fr. Jul–Sep.  $2n = 22$ .

Forests on mountain slopes; 1500–3800 m. SE Gansu, Guizhou, W Hubei, Ningxia, Shaanxi, E and SW Sichuan, Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal, Sikkim].

1a. Scales of buds white villous; leaves ovate-

oblong or obovate-oblong ..... 1a. var. *ferox*

1b. Scales of buds glabrous; leaves obovate

or elliptic ..... 1b. var. *thibetica*

**1a. *Corylus ferox* var. *ferox***

刺榛(原变种) ci zhen (yuan bian zhong)

Scales of buds white villous. Leaves ovate-oblong or obovate-oblong; lateral veins 10–14 on each side of midvein.

Forests on mountain slopes; 1700–3800 m. Guizhou (Fanjing Shan), SW Sichuan, NW and W Yunnan [Bhutan, ?NE India, ?N Myanmar, Nepal, Sikkim].

**1b. *Corylus ferox* var. *thibetica*** (Batalin) Franchet, J. Bot. (Morot) 13: 200. 1899.

藏刺榛 zang ci zhen

*Corylus thibetica* Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 13: 102. 1893.

Scales of buds glabrous. Leaves obovate or elliptic; lateral veins 8–12 on each side of midvein.

• Mixed forests; 1500–3600 m. SE Gansu, Guizhou, W Hubei, Ningxia, Shaanxi, E Sichuan, Xizang, Yunnan.

2. *Corylus wangii* Hu, Bull. Fan Mem. Inst. Biol., n.s., 8: 31. 1938.

维西榛 wei xi zhen

Trees small, to 7 m tall. Branchlets purplish brown, pilose and stipitate glandular when young, soon glabrous, with scattered, white lenticels. Petiole 7–20 cm, slender, pilose and stipitate glandular; leaf blade oblong or ovate-oblong, rarely obovate-oblong, 5–10 × 2.5–7 cm, papery, abaxially pubescent along veins, adaxially glabrous or sparsely pilose, base subcordate or obliquely subcordate, margin sharply and doubly serrate, apex acuminate to caudate-acuminate; lateral veins 9–13 on each side of midvein. Female flowers 4–8 in a cluster; peduncle ca. 1 cm, villous; bracts campanulate, 3–3.5 cm, striate, yellow tomentose when young, glabrescent, densely stipitate glandular, apex deeply divided into linear lobes, lobes often reflexed, ca. 2 cm × 2 mm, forked and pinnately lobulate. Nut ovoid-globose, ca. 1.5 cm in diam., glabrous. Fl. Jun–Aug, fr. Aug–Sep.

• Temperate broad-leaved forests; ca. 3000 m. NW Yunnan (Weixi Xian).

An endangered species. The similar *Corylus jacquemontii* Decaisne, from the Himalayas, differs in having bract lobes ovate-lanceolate, usually not reflexed, without lobules.

3. *Corylus yunnanensis* (Franchet) A. Camus, Bull. Mus. Hist. Nat., sér. 2, 1: 438. 1929.

滇榛 dian zhen

*Corylus heterophylla* Fischer var. *yunnanensis* Franchet, J. Bot. (Morot) 13: 198. 1899.

Shrubs or small trees to 7 m tall; trunk to 10 cm d.b.h.; bark dark gray, fissured. Branchlets purplish brown or brown, densely tawny tomentose, stipitate glandular, glabrescent, with scattered, white lenticels. Petiole 7–12(–22) mm, densely tomentose, sparsely stipitate glandular; leaf blade ovate-orbicular to broadly ovate or obovate, 4–12 × 3–9 cm, papery, abaxially stipitate glandular when young, densely tomentose, adaxially sparsely pubescent especially along veins, base cordate, margin irregularly and doubly serrate, apex abruptly acuminate from suborbicular, apical portion of leaf; lateral veins 5–7 on each side of midvein. Male inflorescences 2 or 3 in a cluster, pendulous, cylindrical, 2.5–3 cm; bracts ovate, densely gray tomentose. Female flowers 2 or 3 in a cluster; peduncle ca. 1 cm, tomentose; bracts campanulate, 1.3–2 cm, striate, densely yellow or gray tomentose, stipitate glandular, with triangular lobes. Nut ovoid-globose, 1.5–2 cm in diam., densely tomentose. Fl. May–Jul, fr. Jul–Sep.

• Thickets on mountain slopes; 1600–3700 m. W Guizhou, Hubei, SW and W Sichuan, W Yunnan (Dali Xian).

The nuts are edible.

4. *Corylus heterophylla* Fischer ex Trautvetter, Pl. Imag. Descr. 10. 1844.

榛 zhen

Shrubs or small trees, to 7 m tall; bark gray. Branchlets pubescent and stipitate glandular, with white lenticels. Petiole slender, 1–2(–3) cm, sparsely pubescent; leaf blade oblong, elliptic, elliptic-obovate, broadly ovate, or obovate to suborbicular, 4–13 × 2.5–10 cm, papery, abaxially pilose along veins, adaxially glabrous, base cordate, margin irregularly and doubly serrate, usually lobed, apex mucronate to caudate; lateral veins 3–7 on each side of midvein. Male inflorescences 2–5 in a cluster, pendulous, slender, ca. 4 cm; bracts reddish brown, obovate, densely pubescent, apex acuminate from nearly truncate, apical portion of leaf. Female flowers 2–6 in a cluster; bracts campanulate, 1.5–2.5 cm, striate, densely pubescent and stipitate glandular near base, with triangular-ovate, entire or dentate lobes. Nut ovoid-globose, ca. as long as bracts, 0.7–1.5 cm in diam., apex villous. Fl. May–Jul, fr. Jul–Aug. 2n = 22.

Temperate broad-leaved forests, thickets on mountain slopes; 400–2500 m. Anhui, E and S Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, E Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, NE Sichuan, Zhejiang [Japan, Korea, Russia (E Siberia)].

The hazelnut of commerce.

- 1a. Leaves oblong or obovate, apex mucronate or caudate to nearly truncate; lobes of bracts usually entire ..... 4a. var. *heterophylla*
- 1b. Leaves elliptic-obovate, broadly ovate, or suborbicular, apex subrounded, mucronate; lobes of bracts usually dentate ..... 4b. var. *sutchuanensis*

4a. *Corylus heterophylla* var. *heterophylla*

榛(原变种) zhen (yuan bian zhong)

*Corylus avellana* Linnaeus var. *davurica* Ledebour; *C. heterophylla* var. *thunbergii* Blume.

Leaves oblong or obovate, apex mucronate to caudate, nearly truncate. Lobes of bracts entire, rarely sparsely dentate.

Temperate broad-leaved forests; 400–2400 m. E Gansu, Hebei, Heilongjiang (Dailing, Daxinganling), Henan, Jilin (Changbai Shan), Liaoning, E Nei Mongol, Ningxia (Liupan Shan), Shanxi [Japan, ?Korea, Russia (E Siberia)].

4b. *Corylus heterophylla* var. *sutchuanensis* Franchet, J. Bot. (Morot) 13: 199. 1899.

川榛 chuan zhen

*Corylus heterophylla* var. *crisagallii* Burkill; *C. kweichowensis* Hu.

Leaves elliptic-obovate, broadly ovate, or suborbicular, apex subrounded, mucronate. Lobes of bracts usually dentate.

• Thickets on mountain slopes; 500–2500 m. Anhui, S Gansu, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, NE Sichuan (Chengkou Xian), Zhejiang.

5. *Corylus chinensis* Franchet, J. Bot. (Morot) 13: 197. 1899.

华榛 hua zhen

*Corylus chinensis* var. *macrocarpa* Hu; *C. colurna* Linnaeus var. *chinensis* (Franchet) Burkill; *C. papyracea* Hickel.

Trees to 40 m tall; bark gray-brown, fissured. Branchlets purplish brown, slender, sparsely villous, stipitate glandular, glabrescent. Petiole 1–2.5 cm, densely villous, stipitate glandular; leaf blade ovate, ovate-elliptic, or obovate-elliptic, 8–18 × 6–12 cm, base obliquely cordate, margin irregularly and doubly serrate, apex mucronate or shortly caudate, abaxially bearded in axils of lateral veins, villous along veins, adaxially glabrous; lateral veins 7–11 on each side of midvein. Male inflorescences 4–6 in a cluster, cylindrical, 1.5–2 cm; bracts rhombic-ovate, pubescent. Female inflorescences 2–6 in a cluster; bracts forming a tubular sheath, 2–6 cm, striate, pilose, stipitate glandular, much constricted above nut and deeply divided into linear lobes, usually forked at apex. Nut enclosed by bracts, ovoid-globose, 1–1.5 cm in diam., glabrous.

• Forests on moist mountain slopes; 1200–3500 m. Gansu, Guizhou, Hubei, Shaanxi, SW Sichuan, Xizang, NW Yunnan.

This species is vulnerable because of its rarity.

6. *Corylus fargesii* C. K. Schneider, Ill. Handb. Laubholz. 2: 896. 1912.

披针叶榛 pi zhen ye zhen

*Corylus mandshurica* Maximowicz var. *fargesii* (Franchet) Burkill; *C. rostrata* Aiton var. *fargesii* Franchet.

Trees to 25 m tall; bark yellow-brown, fissured. Branchlets gray, slender, pubescent. Petiole 1–1.5 cm, densely pubescent; leaf blade oblong-lanceolate, obovate-oblong, or lanceolate, 6–9 × 3–5 cm, both surfaces sparsely pilose especially along midvein and lateral veins, base obliquely cordate or subrounded, margin coarsely and irregularly doubly serrate, apex acuminate; lateral veins 8–10 on each side of midvein. Male inflorescences 2–8 in a cluster, cylindrical, 2–6 cm; bracts ovate-triangular, apex acute with a stipitate gland. Female flowers 2–4 in a cluster; bracts forming a tubular sheath, 2–5 cm, densely yellow tomentose, sparsely stipitate glandular when young, with faint veins, apex divided into triangular-lanceolate lobes usually not forked at apex. Nut enclosed by bracts, ovoid-globose, 1–1.5 cm in diam., gray-white pubescent at apex. Fl. May–Jul, fr. Jul–Aug.

• Forests in mountain valleys; 800–3000 m. S Gansu, Guizhou, Henan, Hubei, Jiangxi, S Ningxia, Shaanxi, NE Sichuan (Chengkou Xian).

7. *Corylus mandshurica* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 15: 137. 1856.

毛榛 mao zhen

*Corylus rostrata* Aiton var. *mandshurica* (Maximowicz) Regel; *C. sieboldiana* Blume var. *mandshurica* (Maximowicz) C. K. Schneider.

Shrubs to 6 m tall; bark gray-brown, fissured. Branchlets pubescent, villous, stipitate glandular, glabrescent. Petiole 1–3 cm, slender, pubescent, villous, stipitate glandular; leaf blade broadly ovate, oblong, or oblong-obovate, 6–12 × 4–9 cm, abaxially pilose especially along veins, adaxially pilose or glabrous, base cordate, margin irregularly and coarsely serrate, lobed above middle, apex mucronate-acuminate or caudate; lateral veins 9 or 10 on each side of midvein. Male inflorescences 2–4 in a cluster; peduncle short; bracts ovate-triangular, densely pubescent. Female flowers 2–4 in a cluster; bracts forming a tubular sheath, 3–6 cm, densely yellow setose, white pubescent, and stipitate glandular, much constricted above nut and divided into lanceolate lobes at apex. Nut enclosed by bracts, ovoid-globose, ca. 1.5 cm in diam., white pubescent. Fl. May–Jul, fr. Jul–Sep.

Temperate forests, thickets; 400–2600 m. E Gansu, Hebei, Heilongjiang (Daxinganling), Henan (Funiu Shan), ?Hubei, Jilin (Changbai Shan), Liaoning, Nei Mongol, Shaanxi, Sichuan [Japan, Korea, Russia (Far East)].

The nuts are edible.

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