

2. **CASTANEA** Miller, Gard. Dict., Abr. ed. 4, 1: [278]. 1754.

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Trees or rarely shrubs, deciduous. Bark furrowed. Axillary buds of most apical leaves in false-terminal buds, usually enclosed by 2 outer scales, imbricate within. Leaves spirally arranged but twisted and appearing 2-ranked; secondary veins ± parallel. Male inflorescences erect catkins; flowers in clusters of 1–3(–5) with each cluster subtended by a bract; perianth 6-parted; stamens 10–12(–20); rudimentary pistil pubescent. Female flowers borne on proximal part of androgynous inflorescences, rarely on a separate inflorescence, usually 3 and subtended by 1 symmetric cupule; ovary 6–9-loculed; styles 6–9; stigmas terminal, minutely punctiform. Cupules splitting into 2–4 valves; bracts spinelike. Nuts 1–3 per cupule. Germination hypogeal.

About 12 species: Asia, Europe, North America; four species (two endemic, one introduced) in China.

Most species are cultivated for edible nuts and durable wood.

1a. Nut 1 per cupule, usually longer than wide 4. *C. henryi*

1b. Nuts usually 2 or 3 per cupule, usually shorter than wide.

2a. Leaf blade abaxially often without scalelike glands but at least when young densely covered with tomentose or stellate hairs 1. *C. mollissima*

2b. Leaf blade abaxially covered with scalelike glands.

3a. Leaf blade glabrous or abaxially sparsely pubescent along veins 2. *C. seguinii*

3b. Leaf blade abaxially tomentose 3. *C. crenata*

1. **Castanea mollissima** Blume, Mus. Bot. 1: 286. 1850.

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Castanea bungeana Blume; *C. duclouxii* Dode; *C. fargesii* Dode; *C. formosana* (Hayata) Hayata; *C. hupehensis* Dode; *C. mollissima* var. *pendula* X. Y. Zhou & Z. D. Zhou; *C. sativa* Miller var. *formosana* Hayata; *C. sativa* var. *mollissima* (Blume) Pampanini; *C. vulgaris* Lamarck var. *yunnanensis* Franchet.

Trees to 20 m tall. Branchlets with short pubescence, often also with long spreading hairs. Petiole 1–2 cm; leaf blade elliptic-oblong to oblong-lanceolate, 10–17 cm or rarely shorter, at least along veins abaxially tomentose to softly pubescent, adaxially scalelike glands sometimes absent, base rounded to truncate, margin coarsely serrate, apex acute to acuminate. Male inflorescences 10–20 cm. Cupule densely covered with pubescent spinelike bracts. Nuts usually 2 or 3 per cupule, 2–3 cm in diam. or rarely narrower. Fl. Apr–Jun, fr. Aug–Oct.

Cultivated or wild particularly on mountain slopes; near sea level to 2800 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Korea].

Extensively cultivated for its edible nuts. Most collections are impossible to determine if they are cultivated, escaped, or native.

2. **Castanea seguinii** Dode, Bull. Soc. Dendrol. France 8: 152. 1908.

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Castanea davidii Dode.

Trees or shrubs small, rarely to 12 m tall. Stipules narrowly lanceolate, 0.7–1.5 cm, deciduous in fruit. Petiole 0.5–1.5 cm; leaf blade oblong-obovate to elliptic-oblong, 6–14 cm, abaxially covered with yellowish brown or grayish, scalelike glands and sparsely hairy along veins when young, base rounded to sometimes

subcordate but cuneate when young, margin coarsely serrate, apex acuminate. Male inflorescences 5–12 cm. Female flowers solitary or few per cupule. Cupule 3–5 cm in diam., covered with sparsely pilose spinelike bracts 6–10 mm. Nuts 2 or 3 or rarely more per cupule, 1.5–2 cm in diam. Fl. May–Jul, fr. Sep–Nov.

• Mixed mesophytic forests, thickets, and in orchards; 400–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang. Cultivated for its edible nuts but not as extensively as *Castanea mollissima*.

3. **Castanea crenata** Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4: 224. 1846.

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Castanea japonica Blume; *C. stricta* Siebold & Zuccarini.

Trees or shrubs to 15 m tall. Petiole 0.5–2.5 cm; leaf blade oblong-lanceolate, 8–19 cm, abaxially tomentose and covered with yellowish brown to yellowish gray scalelike glands, base broadly cuneate, rounded, or rarely subcordate, margin finely serrate, apex acuminate to acute; secondary veins ending on teeth and often reduced to long bristlelike points. Male inflorescences 7–20 cm. Female flowers 3 per cupule. Cupule 5–6 cm in diam., covered with spinelike bracts 1–1.5 cm. Nuts 2 or 3 or rarely more per cupule, 2–3 cm in diam., apex sparsely covered with appressed pubescence. Fl. Apr–Jun, fr. Sep–Oct.

Cultivated. Jiangxi (Lu Shan), Liaoning, Shandong (Qingdao Shi), Taiwan [native to Japan, S Korea].

Castanea crenata was introduced from Korea about 1910; var. *dulcis* Nakai has been reported from NE China, but probably only var. *crenata* is grown.

4. *Castanea henryi* (Skan) Rehder & E. H. Wilson in Sargent, Pl. Wilson. 3: 196. 1916.

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Castanopsis henryi Skan in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 523. 1899; *Castanea sativa* Miller var. *acuminatissima* Seemen; *C. vilmoriniana* Dode.

Trees to 30 m tall. Petiole 1–2.5 cm; leaf blade oblong-ovate, oblong-lanceolate, or lanceolate, 10–23 cm, abaxially covered with yellowish brown scalelike glands and sparsely pilose along veins when young, glabrescent, base rounded to broadly cuneate but narrowly cuneate when young, margin with bristlelike teeth 2–4 mm, apex long acuminate. Male inflorescences 5–16 cm. Female flowers 1(–3) per cupule. Cupules on a short spike, 2.5–3.5 cm in diam. including bracts, covered with slightly pubescent spinelike bracts. Nut 1 per cupule, globose-ovoid, 1.5–2 cm, longer than wide. Fl. May–Jul, fr. Sep–Oct.

• Mixed mesophytic forests on mountain slopes; 100–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

Castanea henryi var. *omeiensis* W. P. Fang (Acta Phytotax. Sin. 9: 307. 1964) has stellate tomentose hairs on the young leaf blades and 1–3 nuts per cupule, and is probably not a variety of *C. henryi* but rather a hybrid between *C. henryi* and *C. mollissima*.

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