

8. METASEQUOIA Hu & W. C. Cheng, Bull. Fan Mem. Inst. Biol., n.s., 1: 154. 1948, nom. cons.

水杉属 shui shan shu

Trees deciduous, monoecious; main branches irregularly whorled; branchlets of several kinds: persistent or deciduous, opposite or subopposite, developing from paired, superimposed axillary buds, 1 of which remains dormant as a winter bud; winter buds ovoid or ellipsoid, with 6–8 pairs of decussate, ovate, membranous, scales; branchlets each subtended by ca. 4 whorls of early deciduous, salmon-colored basal scales. Leaves deciduous together with lateral branchlet as a unit, decussate, 2-ranked, spirally arranged on leading branchlets, \pm sessile; blade linear, flattened, soft, midvein depressed adaxially, raised abaxially, stomatal bands 4–8, on abaxial surface only, or on both surfaces on seedling leaves, base twisted. Pollen cones developing in autumn but not shedding pollen until following spring, borne in spikes or panicles, shortly pedunculate; microsporophylls 15–20, decussate, each with 3 pollen sacs, except apical and basal with 2. Seed cones terminal or subterminal on previous year's growth, solitary, shortly pedunculate at pollination, becoming long pedunculate and pendulous, subglobose, slightly cubic, or occasionally oblong-globose, ripening in 1st year; peduncle clothed with decussate, linear leaves; cone scales 16–24, persistent, decussate, shieldlike, woody, grooved, 5–9-seeded (when fertile), base cuneate, distal part transversely rhombic. Seeds 5–9, compressed-obovoid, winged all round, apex emarginate. Cotyledons 2. Germination epigeal. $2n = 22^*$.

• One species: China.

A relict species of the Cretaceous and Cenozoic, when this genus was widely distributed in what is now NE China, Europe, Greenland, Japan, North America, and Russia (Siberia).

1. Metasequoia glyptostroboides Hu & W. C. Cheng, Bull. Fan Mem. Inst. Biol., n.s., 1: 154. 1948.

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Metasequoia glyptostroboides var. *caespitosa* Y. H. Long & Y. Wu; *Sequoia glyptostroboides* (Hu & W. C. Cheng) Weide.

Trees to 50 m tall; trunk buttressed at base, to 2.5 m d.b.h.; bark of young trees pale orange-brown with darker flakes and exfoliating, finally dark reddish brown to gray, fissured; crown narrowly conical or pyramidal, finally broadly conical; branches ascending; branchlets pendulous, axis pinkish green or pale purple in 1st year, later brownish gray; winter buds to 5×3 mm, apex obtuse, scales yellowish brown, ca. $2\text{--}2.5 \times 2\text{--}2.5$ mm. Lateral branchlets deciduous, opposite, each subtended by leaflike scale, with longer and shorter leaves alternating irregularly, forming an ovate-elliptic outline $3\text{--}7 \times 1.5\text{--}4$ cm. Leaves borne at $45\text{--}60^\circ$ to branchlet axis, 2–5 mm apart, bluish green or yellowish green adaxially, paler abaxially, turning orange or red in autumn, linear, $0.8\text{--}1.5$ cm \times $1.2\text{--}2$ mm on old trees but longer on younger trees, stomatal bands 0.4–0.6 mm, indistinct, marginal bands 0.5–0.6 mm wide, apex obtuse or with hyaline mucro, more sharply acute on leaves of leader branchlets. Pollen cones ovoid, $2.5\text{--}5.5 \times 2\text{--}3.8$ mm; bracts triangular-ovate or obovate, ca. 4×3 mm, lowest minutely ciliate distally, others glabrous. Seed cones purplish black when young, oblong-ellipsoid and to 9×5.5 mm at pollination, subglobose and $1.4\text{--}2.5 \times 1.6\text{--}2.3$ cm when mature; basal cone scales 9-ovulate, middle 7-ovulate, distal 5-ovulate, apical sterile. Seeds ca. 5×4 mm. Pollination Feb–Mar, before leaves, seed maturity Oct–Nov.

• Riparian habitats on valley floors and in moist ravine bottoms, on acidic, montane yellow-earth soils in regions with moderate climate, high sunshine, and high summer and autumn rainfall, associated with *Castanea henryi*, *Houttuynia cordata*, *Liquidambar acalycina*, *Populus adenopoda*, species of *Pterocarya*, etc.; (750–)1000–1300(–1500) m. SW Hubei (Lichuan Xian), NW Hunan (Longshan Xian, Sangzhi Xian), E Sichuan (Shizhu Xian); also widely cultivated as an ornamental or planted for afforestation in Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang.

A rare species as a native plant because the valley floors are now largely under rice cultivation.

