

Key to *Juniperus* of China, e. Himalayas, Mongolia, e. Russia, Korea. rev. 8-1-08

- 1a. All leaves acicular (subulate, jointed at the base), in whorls of 3, cones borne axillary (section *Juniperus*)
 - 2a. Leaves with 2 white stomatal bands on the adaxial surface, seed cones reddish when immature, turning reddish-blue to blue/black at maturity.....*J. formosana*
 - 2b. Leaves with 1 white stomatal band on the adaxial surface
 - 3a. Leaves 'V' shaped in cross section, 12 - 22 mm x 0.5 - 0.9 mm wide, with a keel (ridge) on the abaxial side, deeply grooved, white stomatal band narrower than green margins, seed cones reddish when immature, turning bluish-black when mature.....*J. rigida*
 - 3b. Leaves nearly flat to curved in cross section, 4 - 10 (-12) mm x 1 mm or more wide, white stomatal band wider than green margins, seed cones blue to blue-black....
.....*J. communis*
- 1b. Leaves decurrent (not subulate, not jointed at the base), both scale-like and whip (decurrent with free tips) leaves, only whip-leaves on juvenile plants and at the tips of adult foliage, leaves in pairs or whorls of 3, cones borne terminal (section *Sabina*)
 - 4a. All leaves of one kind, decurrent, with a blade (that is free) and a sheath (that clasps the stem)
 - 5a. Seed cones 2 - 3 seeded.....*J. procumbens*
 - 5b. Seed cones 1 seeded
 - 6a. Leaf tips (blades) appressed to stem giving the ultimate branchlets a smooth rope appearance
 - 7a. Foliage pendulous and recurved, blades long and narrow, and very tightly recurved or appressed to the stem.
 - 8a. Single white stomatal band on adaxial side of leaves.....*J. recurva*
 - 8b. Two white stomatal bands on adaxial side of leaves.....*J. coxii*
 - 7b. Foliage not pendulous, blades shorter and wider, not so appressed
 - 9a. Trees with strong central axis in boreal forest, leaves with abaxial keel and narrow grooves next to the keel (or a raised oil gland in some cases) ..
.....*J. pingii*
 - 9b. Shrubs at timberline, leaves without abaxial keel and without narrow grooves....
.....*J. pingii* var. *carinata*
 - 6b. Leaf tips (blades) free and divergent from stem giving the ultimate branchlets a thorny appearance.....*J. squamata*
 - 4b. Leaves of two kinds: scale-like and whip (decurrent) with free tips, whip-leaves only on juvenile plants or on fast growing branchlets or interspersed with sections of scale-like leaves on mature branchlets.
 - 10a. (1-) 2 seeds per globose cone or 2-3 (-4) seeds per bi-lobed cone, seed without pointed end
 - 11a. Whip-leaves found only on juvenile plants or at the ends of rapidly growing (juvenile) branchlets, otherwise, all leaves are scale-like
 - 12a. Seed cones 4 - 6 mm when mature, irregularly globose, (1-) 2 seeds per cone, shrubs or trees
 - 13a. Trees, seed cones 4 - 5 mm, very fine foliage (0.6 - 0.9 mm in diam.)...
.....*J. erectopatens*
 - 13b. Shrubs, seed cones 5 - 6 mm, fine foliage (0.8 - 1 mm in diam.).....*J. sabina*
 - 12b. Seed cones 6 - 9 mm, bi-lobed (occasionally globose on the same tree), 2 - 3 (-4) seeds, trees with strong central axis
 - 14a. Scale-leaves mostly flat, scarcely overlapping, giving the ultimate branchlets a smooth appearance, glands on whip-leaves not conspicuous, not generally raised.....*J. semiglobosa*

- 14b. Scale-leaves beaked, overlapping by about 1/4, giving the ultimate branchlets a rough appearance, glands on whip-leaves conspicuous, generally raised.....
.....*J. jarkendensis*
- 11b. Both scale and whip-leaves found on mature plants, interspersed on a single branchlet, not just at the ends of rapidly growing branchlets. Occasionally, one type of leaves predominates.
- 15a. Both scale- and whip-leaves interspersed in mature foliage; decumbent shrubs, glands conspicuous on whip-leaves and some scale-leaves, n. Mongolia, far e. Russia.....*J. sabina var. davurica*
- 15b. Whip-leaves in clumps next to clumps of scale-leaves in mature foliage; shrubs, trees (a very variable taxon), glands on scale and whips leaves usually not conspicuous, e. China, Korea, Japan, Taiwan.....*J. chinensis*
- 10b. One seed per cone, seed cones ovoid to turbinate, if turbinate, then with pointed tip, seeds with pointed end.
- 16a. Gland at the base of scale-leaves on abaxial surface
- 17a. Branchlets quadrangular (leaves opposite), curved, seed cones 4 - 8 mm...
.....*J. saltuaria*
- 17b. Branchlets terete, straight, rarely curved.
- 18a. Branchlets tapering, ultimate branchlets gradually shorter toward the apex of branch; leaves without noticeable cuticular wax (glaucous) covering, seed cones 8 - 10 mm, foliage weeping (pendulous).....*J. komarovii*
- 18b. Branchlets not tapering, ultimate branchlets of equal length or irregularly equal; leaves with noticeable cuticular wax (glaucous) covering, seed cones 8 - 13 mm, , foliage erect (except pendulous in f. *pendula*).....*J. przewalskii*
- 16b. Gland centrally positioned on scale-leaves on abaxial surface
- 19a. Ultimate branchlets thin, less than 1 mm diam.; seed cones small, 5 - 8 mm, globose
- 20a. Seed cones 5 mm diam.....*J. microsperma*
- 20b. Seed cones 7 - 8 mm diam.....*J. convallium*
- 19b. Ultimate branchlets stout, more than 1 mm diam.; seed cones large, 8 - 16 mm, turbinate
- 21a. Branchlets terete with a few branchlets quadrangular (leaves opposite), limbs on trees upturned at the tips reminiscent of the roofs of Tibetan temples...
.....*J. tibetica*
- 21b. Branchlets quadrangular (leaves opposite), a few branchlets terete, limbs not upturned at the tips
- 22a. Scale-leaves overlapping by 1/4, with scarios border, whip-leaves with oval to elliptical glands, and gland ray usually absent or extending less 1/2 the distance to the leaf tip, foliage green.....*J. pseudosabina*
- 22b. Scale-leaves not overlapping, without scarios border, whip-leaves with oval to elliptical glands with a gland ray (narrow groove) that extends more than 1/2 the distance to the leaf tip, foliage dark green (causing plants to appear black when viewed from a distance)
- 23a. Monoecious, shrubs or shrubby trees.....*J. indica*
- 23b. Dioecious, trees with a strong central axis.....*J. indica var. rushforthiana*