

**Key to *Juniperus* of Europe, Canary Islands, Azores, Asia Minor and Africa** rev. 16 Jun 2011

- 1a. All leaves acicular (subulate), jointed at the base, in whorls of 3; cones borne axillary  
(sections *Caryocedrus* & *Juniperus*)
  - 2a. Seed cones 20-25 mm, seeds united to form a stone; male cones in axillary fascicles..  
.....***J. drupacea***
  - 2b. Seed cones 6-15 mm, seeds free (not united), male cones solitary, axillary
    - 3a. Leaves with one (rarely divided by a faint midrib) broad stomatiferous band above  
(adaxial, closest to the stem), seed cones 6 - 9 mm, black when mature (2 - 3 yrs.)..  
.....***J. communis***
    - 3b. Leaves with two stomatiferous bands above (adaxially); seed cones 6 -15 mm, reddish-  
brown to dark purple when mature (1, 2 yrs.)
      - 4a. Fastigate shrubs to 2 m; seed cones red when mature, 7 - 10 mm; Pliocene sands  
near the sea coast of w. Portugal.....***J. navicularis***
      - 4b. Shrubs or trees; seed cones reddish-brown, to dark purple when mature; leaves up to  
25 mm.
        - 5a. Mature seed cones 12 - 15 mm, purple, with 3 distinct leaf impressions (from fused  
cone scales); leaves 2 - 2.5 mm wide.....***J. macrocarpa***
        - 5b. Mature seed cones 8 - 10 mm, reddish- brown to red, globose, without leaf  
impressions; leaves 1 - 2 mm wide
          - 6a. Leaves curved, shorter than mature seed cones; shrubs; endemic to Azores.....  
.....***J. brevifolia***
          - 6b. Leaves straight, longer than mature seed cones

- 7a.1 Stomatal bands about as wide as midrib, mature seed cones about as long as leaves, endemic to Madeira Island.....***J. maderensis***
- 7a.2 Stomatal bands wider than midrib, mature seed cones longer than leaves, endemic to the Canary Islands.....***J. cedrus***
- 7b. Mature seed cones reddish-brown, dark red, reddish-purple, glaucous; leaves closely spaced, shrubs or trees to 6 m
  - 8a. Leaves narrowing at the base of attachment, stomatal bands sunken; seed cones globose, shrubs and trees with round crowns; France, Spain, Portugal, Algeria, Morocco.....***J. oxycedrus***
  - 8b. Leaves with base of attachment nearly as wide as the blade, stomatal bands scarcely sunken; seed cones with raised cone scale tips, shrub and trees with pyramidal crown, Italy, Greece, Turkey and eastward.....***J. deltoides***
- 1b. Leaves decurrent (not subulate, not jointed at the base), scale-like and whip-leaves, whip leaves only on juvenile plants and at the tips of adult foliage, leaves in pairs or whorls of 3; cones borne terminal (section ***Sabina***)
  - 9a. Seed cones small, 5 - 6 mm, irregularly globose, (1-) 2 seeds per cone, shrubs, fine foliage (0.8 - 1 mm in diam.).....***J. sabina***
  - 9b. Seed cones large 7 - 14 mm
    - 10a. Twigs distichously arranged; seed cones dark purple, glaucous; 2 - 4 seeds per cone.....***J. thurifera***
    - 10b. Twigs irregularly arranged; seed cones red, reddish brown, dark blue, purplish-black; black, 1 - 8 seeds per cone
      - 11a. 1-2 (-3) seeds per cone; scale-leaf tips often free, scale-leaves 2 - 2.7 mm; leaves with a fetid odor, ultimate branchlets 1.2 - 1.7 mm diam. seed cones almost black.....***J. foetidissima***
      - 11b. 3 - 6 (-8) seeds per cone
        - 12a. Seed cones copper-red to dark red (mature), 3 - 9 seeds per cone, leaf margins serrate (at 40X), Mediterranean.....***J. phoenicea***
        - 12b. Seed cones reddish-brown, bluish-red, blue, purple or black when mature, 2 - 8 seeds per cone, leaf margins smooth (at 40X)
        - 13a. Ultimate branchlets 0.6 - 1 mm diam.; scale-leaves 0.5 - 1 mm; 2 - 5 seeds per cone, seed cones reddish-brown to purple-black; trees with pendulous foliage; endemic to e. Africa, Arabian Peninsula.....***J. procera***
        - 13b. Ultimate branchlets 0.7 - 1 mm, scale-leaves 0.6 - 1.6 mm long, 3 - 6 (-8) seeds per cone, reddish-brown to purple black, trees and shrubs, foliage erect to pendulous
        - 14a. Ultimate branchlets 0.7 - 1 mm diam.; scale-leaves very small, 0.6 - 1.1 mm long, appressed; seed cones 6 - 11 mm diam., globose.....***J. excelsa***
        - 14b. Ultimate branchlets 1 - 1.3 mm diam.; scale-leaves coarse, 1.2 - 1.6 mm long, appressed or apex free; seed cones 8 - 14 mm diam., globose.....***J. polycarpus***