

JUNIPERUS PROCERA

Description



Figure 1. *Juniperus procera* forest in Bale Mountains National Park, Ethiopia.

Juniperus procera Hochst. is an afro-montane tree often reaching 30-35m high, and sometimes up to 50m, and is the largest tree of its genus. It is commonly called as East African cedar, African pencil cedar, and in Ethiopia it is called Thed. It has straight bole but sharply tapered, often with a pronounced twist, usually heavily fluted. Its bark is pale brown to reddish-brown, thin fibrous, with thin shallow longitudinal fissures, exfoliating in thin papery strips (ICRAF). Its family is *Cupressaceae*.

Geographic range

Juniperus procera has wide range of distribution that extend from Saudi Arabia to Zimbabwe dominantly found in East Africa but covering North East and South East Africa. It is generally native to Democratic republic of Congo, Djibouti, Eritrea, Ethiopia, Kenya, Malawi, Saudi Arabia, Somalia, Uganda, Yemen and Zimbabwe (IUCN 2015). In Ethiopia it dominates the afro-montane forests from 2300 to 3200 m a.s.l., where the mean annual rainfall ranges from 500 to 1100mm (HANECA et al., 2006).

Current conservation status



Figure 2. *Juniperus procera*.

The natural forest cover of *Juniperus procera* is continually shrinking and particularly its habitat is changing rapidly due to increased grazing pressure, agricultural expansion, commercial fuelwood and timber exploitation (BORGHESIO et al., 2004). Currently *Juniperus procera* is listed under the list of near threatened (IUCN, 2015)

Habitat and ecology

This species forms evergreen Afro-montane forest (also locally invading into savanna where low fire frequencies permit), either with pure stands of *Juniperus procera*, or mixed coniferous, with *Afrocarpus gracilior*, *Podocarpus milanjanus*, or conifer-mixed angiosperm, with *Olea chrysophylla*, *O. hochstetterii*, *Faurea saligna*, *Dombeya mastersii*, *Olinia rochetiana*, *Ilex mitis*, *Vepris nobilis* and numerous smaller trees and shrubs, e.g. *Agarista salicifolia*, *Catha edulis*, *Buddleja spp.*, *Cadia purpurea*, *Cussonia spicata*, *Dodonaea sp.*, *Erica arborea*, *Euclea schimperi*, *Faurea sp.*, *Maytenus spp.*, *Nuxia congesta*, and *Olea spp.* Pure stands are usually evidence of establishment after forest disturbance in the past. *Juniperus procera* occurs on mountain slopes, summits, on escarpments and outcrops and in forested ravines in sand, loam or clay over various rock types, e.g. basalt, volcanic ash and cinders, granite, limestone, or metamorphic rock. The altitudinal range is 1,370-3,000 m a.s.l. The climate is tropical montane, with a prolonged dry season (IUCN, 2015).

Uses and ecosystem services of *Juniperus procera*

The wood of *Juniperus procera* (trade name: African pencil cedar) is widely used for building (both construction and lining), joinery, flooring (strip and parquet), furniture and all sorts of outdoor work such as roofing shingles, fence posts, water flumes and transmission poles. *Juniperus procera* wood was exported to Europe and North America for the manufacture of pencils and penholders, while small quantities were used for wardrobe linings. It is also suitable for ship and boat building, agricultural implements, musical instruments, carving, vats, toys and novelties, turnery, draining boards and food containers. It can be used for making veneer and plywood, hardboard and particle board, and as pulpwood. The wood is used as firewood and to make charcoal. The bark is used for roof shingles and for covering beehives. Essential oil distilled mainly from the sawdust ('cedar wood oil', 'cedar oil') is used in the cosmetic industry in soaps and perfumes. It is also a valuable tree species for dendrochronology studies in the afro-montane ecosystems (COURALET ET AL., 2005; TOMMY ET AL., 2009). It has higher rate of litter fall and nutrient release as compared to exotic tree species such as *Eucalypts globulus* and *Cupressus lussitanica* (LISANWORK AND MICHELSON, 1994). Growing in the highlands of Ethiopia, it has wide range of environmental benefits for reduction of soil erosion, regulated flow of water for downstream people and other environmental benefits.



Figure 3. *Juniperus procera* in Bale Mountains National Park, Ethiopia.

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Propagation and management techniques

Juniperus procera is propagated through seed and natural regeneration. It germinates better in areas where there is continuous light supply. It has 40% germination rate in nursery after six weeks. Germination can be enhanced by pre-treatment with hot water, sulfuric acid or scorching. Propagation through rooting of branch cuttings from young trees is also possible although at low percentage. Use of wildings and direct sowing are also possible (D. BERHE AND L. NEGASH, 1998).



Figure 4. *Juniperus procera* in Bale Mountains National Park, Ethiopia.

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