

### **Carpinus betulus (European Hornbeam)**

This species is preferred for its delicate gray bark. The leaves can grow as big as 4 inch in length. The fall color of the leaves is yellow. It is popular in bonsai for many styles. Small forest of European hornbeam are beautiful. Hardy in zones 5-7.

### **Carpinus coreana (Korean Hornbeam)**

The true Korean hornbeam. From it's name you can conclude that it is native to Korea. For the last 20 years, Korea exported a lot of these trees collected from the forest. It is now very hard to import trees from Korea since they want to protect their native stock. The leaves are rather small and they adapt very well to bonsai techniques. It is the fastest growing carpinus species preferred for bonsai. The leaves will either be red, yellow or orange in fall. Sometimes, color can vary for leaves on same branch.

### **Carpinus turczaninowii (Yeddo Hornbeam)**

The other Korean Hornbeam. This is a good bonsai candidate because of the small leaves it produces. However, one drawback is it's slow growing rate. The branch will grow twiggy. It is also known under these various name: Carpinus tschonoskii, Yedoensis hornbeam, Yeddo hornbeam, Carpinus turczaninowii, Korean hornbeam, Turkish hornbeam and Rock Hornbeam, as this variety is used a lot for root-over-rock style.

### **Carpinus caroliniana (C. americana): (American hornbeam)**

Blue beech, water beech - Native to eastern North America. A small - under 20 ft. - tree with a rounded habit and generally prone to multiple trunks. Tolerates both wet soil and shade, but does not like to be transplanted. Nice orange and yellow autumn show. Hardy in zones 3-8.



## Hornbeam Care Sheet





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*"Live as if you were to die tomorrow. Learn as if  
you were to live forever."*  
*—Mahatma Gandhi—*

# The Hornbeam

(*Carpinus sp.* )

**General Information:** Hornbeam bonsai come in a variety of species. From the Betulaceae family of trees, this deciduous species is gracious with light green foliage and a smooth, muscle-like, grey colored bark. It is reportedly difficult to transplant from a field nursery.

Ironwood is a common name for hornbeam. The name ironwood comes from the ancient times when they used carpinus wood to build ships.

During spring, it produces wind-pollinated pendulous catkins flowers. Hornbeam is monoecious, meaning the male and female flowers are on separate catkins, but on the same tree.

In general, the hornbeam is a slow growing tree. The leaves will turn yellow, orange and red in the fall and will turn brown when dry. The brown leaves will often stay attached in the winter season.

Six species are popular as bonsai. Two of them are known as Korean hornbeam while one is known as the European Hornbeam or Common Hornbeam. Two are Japanese Hornbeam and one is the American Hornbeam.

## CARE

**Temperature:** Hardiness Zones: 5-8. Needs to be protected from hot summer sun and freezing temperatures during winter.

**Lighting:** Full Sun to semi-shade. In hot summer months move to a semi-shaded position out of direct sunlight and wind, to avoid the leaf scorching at the edges and tips. The carpinus trees are very forgiving about light conditions. They will grow attractive and open with shaded light. They will however grow very dense in full sun. In spring, young shoots are best protected with partial shade. The rest of the growing season, full sun is

preferred.

**Watering:** Likes moist but well drained soil. It is important not to let the soil dry out in between waterings. Moderate watering is needed but in the peak of the summer growing season it will require more and constant watering.

**Fertilizing:** Feeding instructions vary greatly. This author prefers a weekly feeding for the first month after bud-burst, switching to every two weeks thereafter until summer. And then to stop feeding for a month long break in August. Then back to two week feeding through the rest of the growing season, stopping completely in the fall. Ordinary plant food at half strength is fine, as is bonsai fertilizer. Use an organic fertilizer, to avoid salt imbalances in the soil. Inorganic fertilizers can lead to excessive feeding resulting in thickened branches and large leaves. Do not feed for two months after repotting. *C. laxiflora* may experience branch die-back if underfed.

**Pruning / Training:** Carpinus can be wired from spring to autumn - some bark protection may be needed, but the hornbeam is fairly sturdy for a deciduous tree. The Korean Hornbeam with its twiggy branches does not normally need to be wired, you can achieve most shaping with timely pruning, as it responds very well to pruning. If required, younger branches can be shaped with wiring between spring and summer but watch out for scaring as the branches can grow quite quickly during this period. Older branches are best shaped with anchoring. It accepts repeated pruning with quickly healing scars. Prune back to the first pair of leaves on new shoots that have about 5-6 leaves on a stem. The best times for minor pruning are early spring and after flowering. Major developmental pruning should be done in late winter, before bud burst; before sap starts rising as the hornbeams bleed quite profusely. There is strong apical growth of the upper part of the tree, so it may be necessary to cut back radically at the apex, but prune the lower portions of the tree conservatively, especially

with the Japanese species, in order to check its rapid apical growth. Defoliation to reduce leaf size is possible, but will inhibit flowering and fruiting. As it ages branches die, complicating management as a bonsai. As the tree ages, branches may die back for no discernable reason.

**Insects / Pests:** Usually problem free. Sometimes could be troubled by leaf spot, leaf miner, spider mites, canker, powdery mildew and dieback. Leaf spots are not serious so control measures are usually not needed. Canker, caused by several fungi, causes infected branches to dieback and entire trees die if the trunk is infected and girdled.

**Propagation:** Fresh seed in fall is best - sow immediately in an outdoors seedbed as soon as it is ripe. Otherwise, seed must be cold treated and planted in late winter. Seed which has been dried may need up to a year to germinate. If collected whilst still 'green' it should germinate in the following spring. Move to pots as soon as large enough to handle and grow in a sheltered location for the first couple of winters. It is difficult to get viable seed from *C. japonica*, as there is little overlap in flowering time between the male and female flowers. May also be propagated by cuttings. Carpinus cuttings are easier to root in early spring from juvenile tree shoot. Carpinus cuttings have a poor success rate. The correct time to do air layering is in the spring as the buds are ready to open. Use ring barking for best effect. Grafting is also used.

**Repotting:** Every 2-3 years in early spring. They can be root pruned quite vigorously, with between 30%-40% of root ball edges being cut back if required. Prefers a deep pot. Hornbeams aren't fussy about the compost they grow in but the best soil to use is 2 parts Turface mixed with 1 part general purpose Bonsai compost or pumice.

**Design and Styling:** Formal upright; Informal Upright; Slanting; Cascade; Semi-cascade; Broom; Twin-trunk and Group planting . Excellent tree for styles with exposed roots.