

Fagus grandifolia: American Beech¹

Edward F. Gilman and Dennis G. Watson²

Introduction

This massive tree will slowly reach a height and spread of 50 or more feet. Forest grown trees reach up to 120 feet. The tree is naturally low-branched with attractive glossy green leaves providing deep, inviting shade. Little grows in the dense shade of a Beech tree but if low branches are left on the tree no ground cover or grass is needed. In the fall, the leaves turn bronze but weather to a light tan color. Some leaves are held late into the winter if not blown off by the wind and the thin, smooth, silvery-gray bark is quite ornamental. The bark looks like elephant skin on older specimens. The four tiny nuts in each spiny bur of this American native are much prized by birds and various mammals, including man. The wood is almost white and is used most often in toys, cookware, furniture and for barrels which age beer. The tree is very resistant to decay under water so it was used to make water wheels in Colonial times. The wood is also used for tool handles, chairs, cuttings boards, and for making charcoal.



Figure 1. Middle-aged *Fagus grandifolia*: American Beech
Credit: Ed Gilman

General Information

Scientific name: *Fagus grandifolia*

Pronunciation: FAY-gus gran-dih-FOLE-ee-uh

Common name(s): American Beech

Family: *Fagaceae*

USDA hardiness zones: 3A through 8B (Fig. 2)

Origin: native to North America

Invasive potential: little invasive potential

Uses: hedge; shade; specimen

Availability: not native to North America

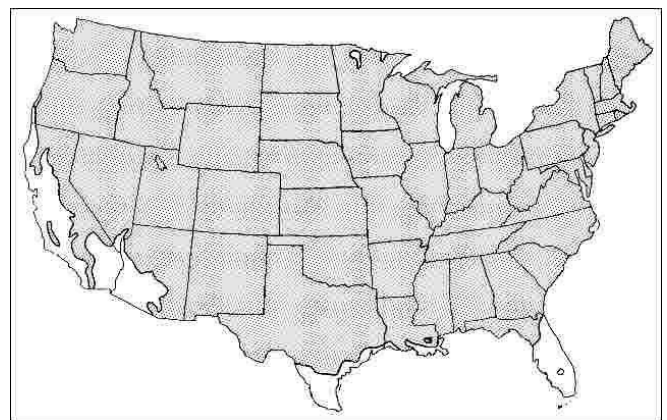


Figure 2. Range

Description

Height: 50 to 75 feet

Spread: 40 to 60 feet

Crown uniformity: symmetrical

Crown shape: oval, pyramidal

Crown density: dense

Growth rate: moderate

Texture: medium

Foliage

Leaf arrangement: alternate (Fig. 3)

Leaf type: simple

Leaf margin: serrate

Leaf shape: ovate, oblong

Leaf venation: pinnate

Leaf type and persistence: deciduous

Leaf blade length: 2 to 4 inches

Leaf color: green

Fall color: copper, yellow

Fall characteristic: showy

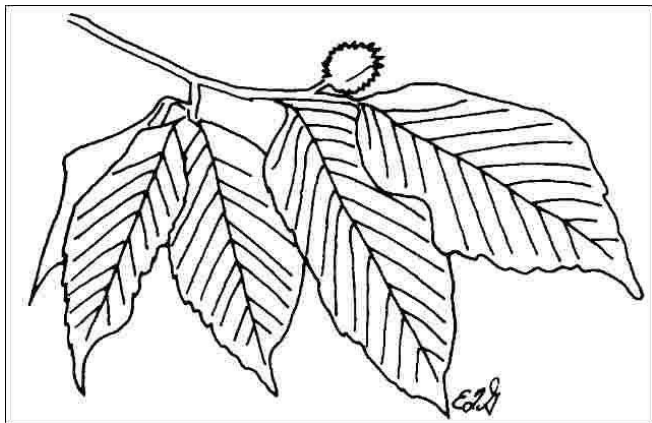


Figure 3. Foliage

Flower

Flower color: unknown

Flower characteristics: not showy

Fruit

Fruit shape: oval

Fruit length: .5 to 1 inch

Fruit covering: dry or hard

Fruit color: brown

Fruit characteristics: attracts birds; not showy;
fruit/leaves not a litter problem

Trunk and Branches

Trunk/bark/branches: branches droop; very showy;
typically one trunk; thorns

Pruning requirement: little required

Breakage: resistant

Current year twig color: gray, brown

Current year twig thickness: thin

Wood specific gravity: 0.64

Culture

Light requirement: full sun, partial sun or partial
shade, shade tolerant

Soil tolerances: clay; sand; loam; acidic; well-drained

Drought tolerance: moderate, moderate

Aerosol salt tolerance: low

Other

Roots: can form large surface roots

Winter interest: yes

Outstanding tree: no

Ozone sensitivity: tolerant

Verticillium wilt susceptibility: resistant

Pest resistance: resistant to pests/diseases

Use and Management

Branch structure is typically very good, with one central trunk growing straight up through the crown of the tree. Many branches are often horizontally oriented, small in diameter, and well secured to the trunk.

American Beech needs a loose, acid soil which is well-drained yet can retain enough moisture for its shallow root system. The root zone should be free of compaction and grass competition. Not a good street or parking lot tree due to its need for good soil and low-branching, horizontal habit. Plant it on large estates along entry

drives to large commercial properties or as a specimen in a park or campus setting. Young trees collected from the woods are difficult to transplant and are best simply preserved where they naturally occur, or should be planted from nursery-bought stock. Insect and disease problems are usually not very serious, but this is not an urban-tough, downtown type of tree. Give it plenty of above-ground and below-ground rooting space. It is not suited for dry climates.

Pests

Aphid colonies on the lower branches can be dislodged with a strong stream of water from the garden hose. Colonies are often disposed of by predatory insects.

Borers such as flat-headed appletree borer or two-lined chestnut borer bore into trees weakened by stress. Prevent the insect infestations by keeping trees healthy with regular fertilization and irrigation in dry weather.

Regular inspections of the trunk and branches are suggested for early detection of scales. Beech scale can be devastating to trees in the northeastern United States.

Certain caterpillars can be controlled with sprays of *Bacillus thuringiensis*. Insect identification allows proper spray recommendations to be made.

Diseases

Usually none are serious provided soil is not compacted and is well-drained.

Several fungi cause leaf spots but are generally not serious to warrant chemical control.

Powdery mildew causes a white coating on the leaves. The disease is most common late in the season.

Bleeding canker forms cankers from which a brownish liquid oozes. Crown symptoms include leaves of smaller size and lighter green color than normal. In severe cases the leaves wilt and the branches die. Avoid feeding with high nitrogen fertilizers as it seems to worsen the condition of infected trees.

Beech bark disease occurs when the feeding site of woolly beech scale is invaded by a fungus. The fungus kills the bark and in the process, the insects. There are no satisfactory controls for the fungus. Control the disease by controlling the scale with a horticultural oil.

Cankers infect, girdle, and occasionally kill branches. Prune out the infected branches.

During periods of high temperatures and low rainfall beech may scorch. Make sure trees are adequately watered and mulched.

¹ This document is ENH402, one of a series of the UF/IFAS School of Forest, Fisheries, and Geomatics Sciences. Original publication date November 1993. Revised December 2006. Visit the Ask IFAS website at <https://ask.ifas.ufl.edu> for the currently supported version of this publication. © 2026 UF/IFAS. This publication is licensed under [CC BY-NC-ND 4.0](#)

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