

Biosafety Clearing-House (BCH)

ORGANISM (ORGA)

BCH-ORGA-SCBD-115755-1

LAST UPDATED: 17 NOV 2020

Organism information

Scientific name

Castanea dentata

Taxonomic Classification

Kingdom Viridiplantae
Phylum Streptophyta
Class Magnoliopsida
Order Fagales
Family Fagaceae
Genus Castanea
Species Castanea dentata

Common name(s)

American chestnut

EN

Type of organism

Trees

Domestication

Wild

Characteristics related to biosafety

Habitat range

The chestnut has a deep tap root, allowing it to survive in various soil types and topographic positions. However, it has been noted that they have been historically more abundant on south-facing slopes and in well-drained, subxeric to mesic soils that often occur on sand plains and dry ridges. The trees prefer more acidic soils and steeper slopes. Nutrient content of the soil does not appear to greatly affect the ability to survive. The trees grow poorly in very damp soils, very dry soils or limestone-derived soils. Flat areas are also not conducive to colonization by the chestnut. In the native range, annual precipitation varies from 810 to 2030 mm (majority of the range receiving 1010 to 1220 mm). Mean average temperature ranged from 4°C (in the north) to 16°C (in the south). The chestnut has been classified as intermediate-shade tolerant, persisting in shaded conditions for years. However, they will grow rapidly under high-light conditions.

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Geographical distribution

The American chestnut had a historical (pre-blight) range along the Eastern United States of America. The northern limit was Southern Ontario (Canada), the southern limit was Northern Alabama (USA), the western limit was Illinois and Michigan (USA) and the eastern limit is the Atlantic coast. Often, the tree was the predominant forest tree species (in terms of stand density and stature), especially in the southern Appalachian mountains.

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The American chestnut overlapped with the ranges of the following related chestnut species: Ozark chinquapin (*Castanea ozarkensis*) and Allegheny chinquapin (*C. pumila*). Hybridization between these species was noted.

Common use(s)

Research
Timber
Food
Other (Restoration)

Additional Information

The American chestnut is a long lived (400 to 600 years), fast growing, late-successional hardwood tree. The tree is a generalist, tolerating varying environmental and climatic conditions. Being monoecious, the trees bear both male and female flowers on the same plant. Fertilization occurs via wind pollination, but pollinators, such as bees, may also assist. Pollination generally occurs within 100, but the pollen may travel up to 100 km. Seeds mature in late September or October with frost serving as means to open the burs and release the seeds. People tend to use the tree for food (chestnuts) and for hardwood.

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The species is critically endangered due its extreme susceptibility to the chestnut blight fungus (*Cryphonectria parasitica* (Murr.) Barr), introduced from Asia. In addition to chestnut blight, the tree is also susceptible to root rot caused by *Phytophthora cinnamomi*.

Other relevant website addresses and/or attached documents

- ? [APHIS - Petition for determination of nonregulated status for blight-tolerant darling 58 american chestnut.pdf](#) (English)
- ? [NCBI Taxonomy Browser - Castanea dentata](#) (English)
- ? [Missouri Botanical Garden - Castanea dentata](#) (English)
- ? [USDA Plants Database - Castanea dentata \(Marshall\) Borkh.](#) (English)
- ? [CABI - Castanea dentata](#) (English)
- ? [ITIS Report - Castanea dentata \(Marsh.\) Borkh.](#) (English)
- ? [BOLD Systems - Castanea dentata {species}](#) (English)
- ? [American Chestnut - Re-Examining the Historical Attributes of a Lost Tree.pdf](#) (English)
- ? [Modeling the historical distribution of American chestnut \(Castanea dentata\) for potential restoration in western New York State, US.pdf](#) (English)
- ? [The Silvics of Castanea dentata \(Marsh\) Borkh, American chestnut, Fagaceae \(Beech Family\).pdf](#) (

English)

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Further Information

Questions about the Cartagena Protocol on Biosafety or the operation of the Biosafety Clearing-House may be directed to the Secretariat of the Convention on Biological Diversity.

**Secretariat of the Convention
on Biological Diversity**

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