

# American Chestnut: *Castanea dentate*



Twig & buds



Twig highlighting lenticels



Leaf



Seed husk opening to release chestnuts

Photos courtesy of:  
(Sieler et al., 2012)

The American Chestnut is the only native chestnut to Canada. It was once a dominate tree of the eastern deciduous forest, but the population has been devastated by chestnut blight which was introduced in the first part of the 20<sup>th</sup> century. Most succumb to the blight before reaching a significant size, and few trees are large enough to produce seed in the province. In addition to this threat, seed sets have become reduced because the mature trees are scattered from habitat fragmentation from land clearing. These threats have put the population at risk, and have acquired protection from the federal Species at Risk Act and the provincial Endangered Species Act to attempt its recovery and survival.

## BIOLOGY

- Large deciduous tree reaching 30m in height and 1.5m in stem diameter
- Fast growing rate (up to 2.5 cm per year in diameter)
- Smooth, thin, dark gray-brown bark with shallow fissures that break into ridges and furrows with age
- Twigs are moderately stout, hairless, brown to orange-brown with lightly coloured lenticels
- Buds are orange-brown and ¼ inch long covered with 2 or 3 scales
- Leaves are simple, alternate, oblong, and range from 15-30 cm wide
- Leaf surface is green and smooth with 15-20 veins running parallel on each side with each margin ending with a prominent tooth
- Produces seed as early as 8 years of age
- Flowering American chestnut trees will either have only male flowers (catkins) or both male and female flowers (small burrs) in late spring to early summer
- It is insect pollinated requiring cross-pollination for a seed set and is self-incompatible.
- In fall of the same year, at maturity, female flowers develop into bur-like fruits and are 5-8 cm across enclosing one to several chestnuts
- The burs act to protect the seeds until they are fully mature
- When they are ripe the burs open in four sections and the chestnuts fall to the ground
- Pollinated chestnuts appear plump while un-pollinated seeds are flat and empty
- The nuts are usually mature by first autumn frost and are edible for humans and animals.
- The nuts are sought after by squirrels, chipmunks and large birds that also act to disperse seeds

## HABITAT

- Prefers dryer upland deciduous forests
- Commonly found with Red Oaks, Black Cherry, Sugar Maple and American Beech
- Thrives in neutral to acidic sandy soils
- Shade-tolerant but responds rapidly to openings in the canopy
- Requires canopy cover for seedling establishment
- In Canada it is restricted to the Carolinian Zone of southern Ontario



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## THREATS

- Chestnut Blight is the biggest threat to the American Chestnut
  - Caused by the fungal pathogen *Cryphonectria parasitica*
- Land clearing and fragmentation in remaining sites
  - Results in reduced seed sets due to mature trees being widely scattered that require cross-pollination
- Hybridization

## CHESTNUT BLIGHT: SIGNS & SYMPTOMS

- Blight kills many trees before they become large enough to produce seed
- Blight manifest rapidly as cankers on the stem, branches and resemble reddish blisters
- Cankers enlarge until they surround the trunk, preventing vascular circulation between the roots and branches which causes the crown to die
- Cracks develop on the bark, which occasionally split, exposing the wood
- Orange pustules (sometimes yellow to brown) are often found in the cankered areas
- Disease symptoms also include leaf yellowing followed by leaf withering above the cankered parts due to the prevention of sap circulation
- The disease primarily kills the tops of the trees, often leaving the root system intact, resulting in stump sprouts
- The majority of the population is therefore saplings that grow from the stumps

## HOW CAN I HELP THE AMERICAN CHESTNUT

- If you are planting American Chestnut trees on your property choose planting locations carefully so they don't act as a bridge to connect diseased populations to isolated populations that escaped the disease
- Always use good forestry practices and careful harvesting techniques during logging operations to limit damage, infection, and fragmentation of American chestnut trees
- Private land owners have a very important role to play in species recovery. If you find American Chestnut on your property, you may be eligible for [stewardship programs](#) from the Ministry of Natural Resources that support the protection and recovery of Species at Risk and their habitats
- Be willing and open to work with recovery teams who require access to private land for research
- Report illegal activity related American Chestnut to 1-877-TIPS-MNR (847-7667)
- Report your sightings of American Chestnut trees to the Natural Heritage Information Centre at <http://www.mnr.gov.on.ca/en/Business/NHIC/>



The fungal pathogen, *Cryphonectria parasitica*



Canker of Chestnut blight. The orange-coloured areas are where Chestnut blight is actively growing and releasing spores.

Photos courtesy of: (Canadian Chestnut Council, 2012)

To read more about the resistance and recovery of the American Chestnut visit the Canadian Chestnut Council website: <http://www.canadianchestnutcouncil.ca/>