National Capital Region Network

National Park Service
U.S. Department of the Interior

American Chestnut Inventory *Resource Brief*

Importance

The American chestnut (*Castanea dentata*) was once a dominant tree of the eastern U.S., renowned for its rot resistant lumber and its abundant production of wildlife-supporting chestnuts (Anagnostakis 1987, Ellison et al. 2005, Russell 1987).

American chestnuts occupied forests as far south as central Alabama, west through Tennessee, and as far north as Maine and southern Ontario. They comprised over 50% of the total basal area in some forest stands (Braun 1950, Keever 1953).

In 1904 however, the exotic chestnut blight fungus (*Chrysphonectria parasitica*) was introduced and quickly spread through forests of the eastern U.S. at a rate of ~37 km/year (Anagnostakis 1987). By 1950, almost all American chestnuts in their native range were dead (Anagnostakis 1987).

However, because the blight fungus does not directly impact the root system of trees, American chestnuts persist today in natural areas as re-sprouts from blight-free root systems.

Photos: NPS/Reidman

Left: An American chestnut grows toward the canopy. **Right:** Orange bark cankers of chestnut blight infection.

Inventory

Because of its ecological function, historical importance, and the fact that the National Capital Region (NCR) is part of its native range, many people are interested in bringing back American chestnuts to NCR forests.

To better understand their current status, the National Capital Region Network, Inventory & Monitoring (NCRN I&M) inventoried American chestnuts in eleven NCR parks in 2014. We collected location information for each living stem, measured diameter at breast height (dbh) of all stems >1cm dbh, estimated height for the tallest stem, classified each tree's canopy position, and recorded the presence of visual blight symptoms and reproductive structures including flowers and fruit.

Results

We found living American chestnut trees in every National Capital Region park except Antietam and Manassas (Table 1). In all, we documented 234 trees.

Table 1. Distribution of living American chestnut trees in NCRN parks:

Park	# living trees	# reproductive trees
Catoctin Mountain Park	98	4
C&O Canal National Historical Park	3	0
George Washington Memorial Parkway	27	0
Harpers Ferry National Historical Park	46	1
Monocacy National Battlefield	1	0
National Capital Parks - East	5	0
Prince William Forest Park	5	1
Rock Creek Park	20	0
Wolf Trap National Park for the Performing Arts	29	1

The majority of the trees were small (Figure 1), with dbh values ranging from 1.5 - 42.5cm (mean=7.3cm) and heights ranging from 1.4 - 23.9m (mean=6.8m). Most were understory trees; 91% were classified as "overtopped," meaning that the tree's crown is entirely below the level of the canopy and receives no direct sunlight. Only one tree was tall enough to reach the forest canopy.

We found evidence of reproduction (flowers and/or fruit) at seven trees. Eleven percent of the trees we inventoried showed at least one visual symptom of chestnut blight.

Complete results from the American chestnut inventory data are available at https://irma.nps.gov/App/Reference/

More Information

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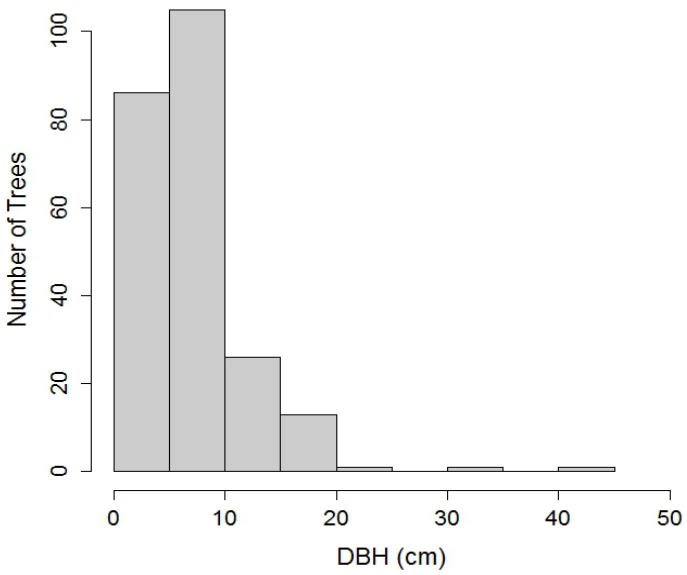
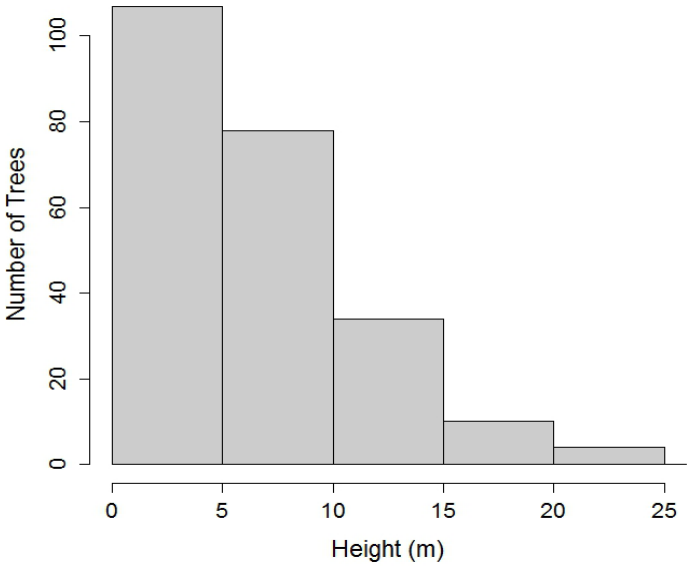
http://science.nature.nps.gov/im/units/ncrn/index.cfm

Figure 1. Distribution of American chestnut trees in the National Capital Region with respect to dbh and height.





Profile/2217458. Results include a geodatabase in which each park in the NCR has one folder containing shapefiles with chestnut locations, monitoring tracklines, and area surveyed. Data on size, health, and other characteristics are also included.

Future Restoration

Restoration of American chestnuts to long-term, self-sustaining and naturally reproducing populations is still a far-off goal. Since the near devastation of the blight, university scientists, non-profit organizations, and others have worked to create hybrid, blight-resistant chestnut trees and to find naturally resistant survivors.

In 2009, NPS signed a memorandum of understanding with the American Chestnut Foundation (TACF) allowing parks to "assist TACF in its goal of restoring American chestnut to the forests of the eastern United States" and giving preference to NPS as a "most favored recipient" of chestnut trees offered by TACF.

References

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