

Trees of the Huron River Watershed in a Changing Climate

American Beech *Fagus grandifolia*

Description

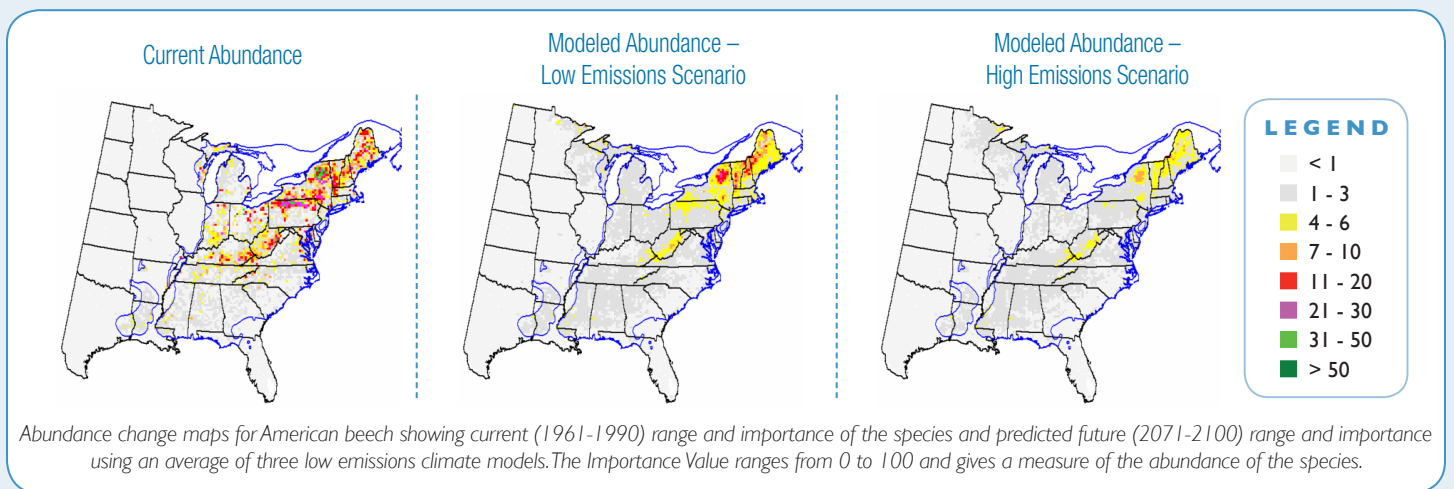
American beech occurs in the eastern United States and is a slow-growing, long-lived species. Common in mesic habitats of Michigan, the beech is shade tolerant and prefers humid summers. Climatically, rainfall averages 30-50" per year throughout the native range of beech, with some locations in Michigan supporting beech with only 23 inches of annual rainfall. Beech is a mesophytic species requiring more water for growth and transpiration than most species. It is drought intolerant.



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Change Maps for American Beech¹



Implications of Climate Change

Under most climate scenarios, American beech will disappear from much of its current range. Some populations will remain primarily in higher elevations and higher latitudes. While an increase in annual rainfall expected during a warming climate would be beneficial to beech trees, the increased heat index is considered to be a much more limiting factor. Protecting alluvial soils and large canopy trees will help maintain beech stands.

Natural Communities Associations²

Canopy dominate species in mesic southern forest. Canopy

associate in floodplain forests above influence of floodwaters, southern hardwood swamp and wet mesic flatwoods.

Vulnerability of Natural Communities³

Mesic southern forest is widespread and therefore less vulnerable to predicted changes but still vulnerable to threats such as invasive species and deer herbivory likely to increase under climate change. Because of low dispersal potential and expected alterations to hydrology, floodplain forests, southern hardwood swamps and wet mesic flatwoods are highly vulnerable to climate change.

¹Prasad, A. M., L. R. Iverson., S. Matthews., M. Peters. 2007-ongoing. A Climate Change Atlas for 134 Forest Tree Species of the Eastern United States [database]. <http://www.nrs.fs.fed.us/atlas/tree>, Northern Research.

²Michigan Natural Features Inventory. www.mnfi.anr.msu.edu/communities

³Lee, Y., M. A. Kost, J. G. Cohen, and E. H. Schools. 2012. Climate Change Vulnerability Assessment and Adaptation Strategies for Natural Communities in Michigan, Focusing on the Coastal Zone. Michigan Natural Features Inventory Report No. 2012-18, Lansing, MI.