

Trees of the Huron River Watershed in a Changing Climate

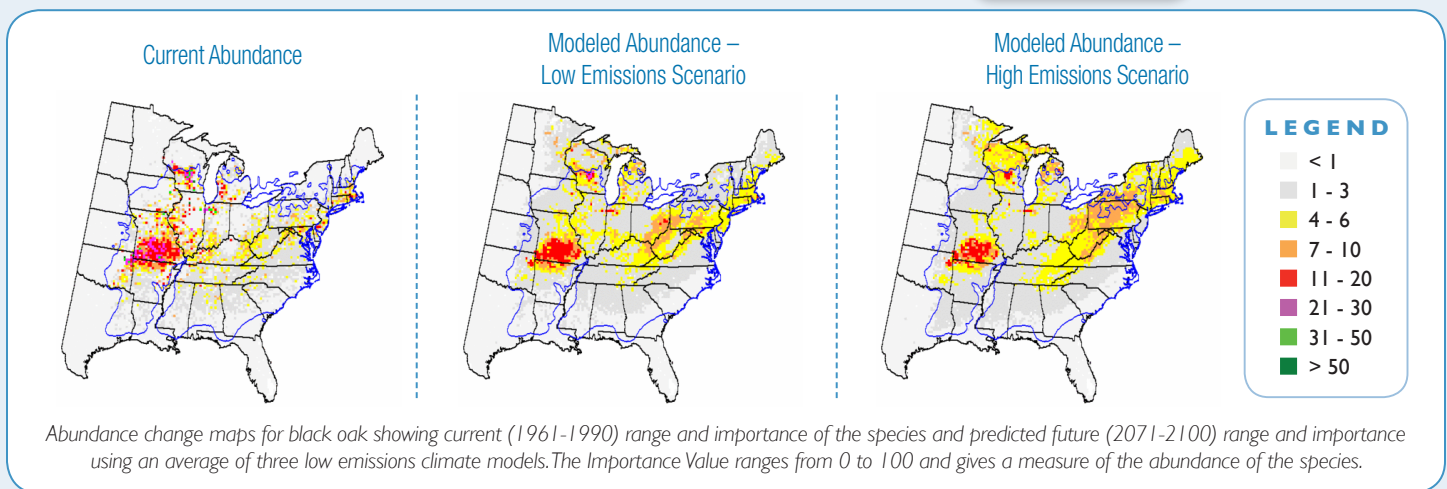
Black Oak *Quercus velutina*

Description

Black oak is a large, strong, moderately long lived tree. It is frequent in southern Michigan but not commonly found further north except along the Great Lakes. Like other oaks, it is poorly adapted to hard winter freezes. Black oak likes dry, sandy, well drained soils that reduce competition from other species and cannot tolerate high water tables. This species is significant canopy component of many natural communities in the Huron River watershed and a high quality food source.



Change Maps for Black Oak¹



Implications of Climate Change

Black oak should continue to do well as climate changes in the area. Models predict that black oak distribution will shift northward, primarily as a result of milder winter conditions though summer droughts may impact germination and therefore, regeneration. Restoring savanna systems, reducing invasive species and prescribed burns will help this species persist.

Natural Communities Associations²

Canopy dominant in dry southern forest, dry mesic southern forest, oak barrens, oak-pine barrens and lakeplain oak openings. Canopy associate in bur oak plains, oak openings. As grub or open grown species in dry-mesic prairie and hillside prairie.

Vulnerability of Natural Communities³

Dry southern forest systems are expected to have low vulnerability to climate change. Longer growing season and warmer temperatures may increase productivity. Because these systems are widespread, there is greater potential for dispersal except in areas of significant fragmentation. The climate envelope for oak barrens and oak-pine barrens will likely shift north, moving these systems out of southeast Michigan. Savannah and dry prairie systems may benefit from increased temperatures, drought and disturbance therefore oak openings, dry-mesic and hillside prairies have low vulnerability to climate change. Oak plains and lakeplain oak openings are currently very rare.

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.