Climate Resilient Communities

Huron River Watershed Council

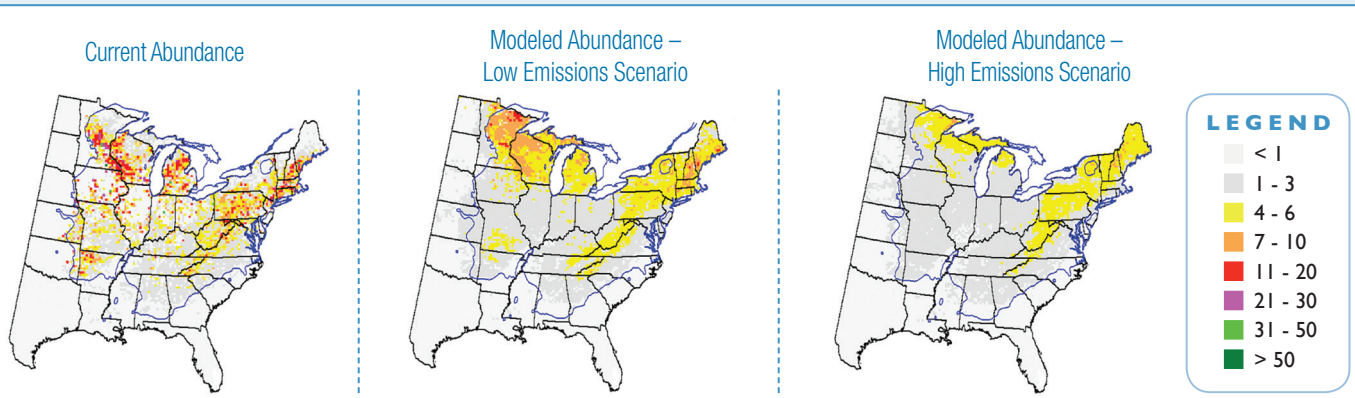
Trees of the Huron River Watershed in a Changing Climate

Northern Red Oak *Quercus rubra*

Description

Northern red oak is common throughout Michigan and is an important component of many natural communities that occur in southeast Michigan. The species is long-lived and prefers well-drained, moist soils. Northern red oak's current range extends significantly further north than other oak species. The acorns produced by northern red oak are very important to wildlife communities. It is one of the more important species to the lumber industry and is a popular shade tree in landscaping.

Change Maps for Northern Red Oak[1]



Abundance change maps for serviceberry showing current (1961-1990) range and importance of the species and predicted future (2071-2100) range and importance using an average of three low emissions climate models. The Importance Value ranges from 0 to 100 and gives a measure of the abundance of the species.

Implications of Climate Change

Climate models predict northern red oak will persist in southeast Michigan though may see declines in importance, especially under higher emissions scenarios. It is considered a moderately adaptable species. The species is fire tolerant and can grow in a wide range of temperatures but is susceptible to gypsy moth and other pests and pathogens that may become more common as climate changes.

Natural Communities Associations[2]

Canopy dominant in wet-mesic flatwoods, dry-mesic southern forest. Canopy associate in mesic southern forest, southern hardwood swamps.

Vulnerability of Natural Communities[3]

Wet-mesic flatwoods and southern hardwood swamps are considered highly vulnerable to climate changed due to expected hydrological changes and the limited dispersal potential of these fragmented systems. Dry southern forest and mesic southern forest systems are expected to have low vulnerability helped by a potentially longer growing season, warmer temperatures, strong dispersal potential, and increased productivity.

[1] Prasad, 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.

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

[3] Lee, 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.

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