Climate Resilient Communities

Huron River Watershed Council

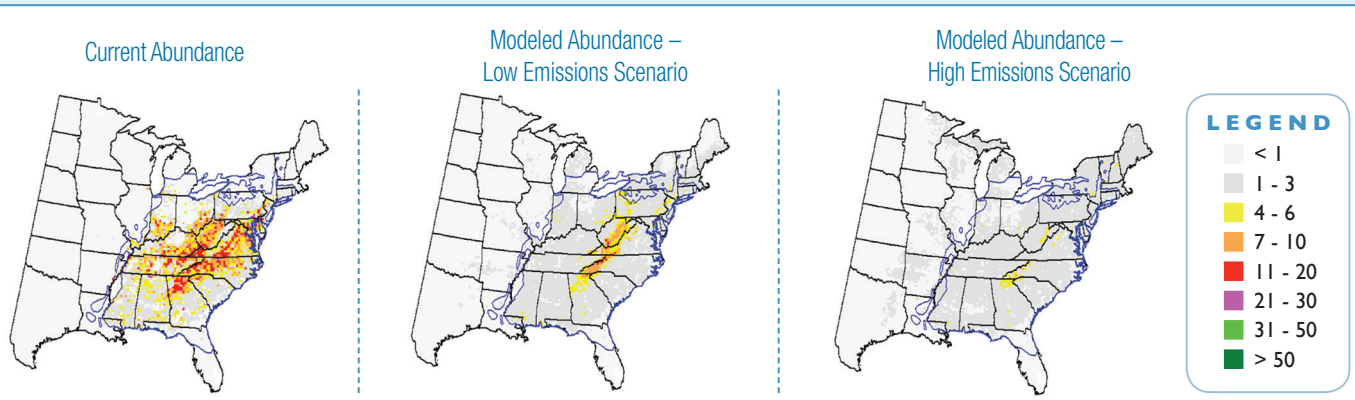
Trees of the Huron River Watershed in a Changing Climate

Tuliptree *Liriodendron tulipifera*

Description

Tuliptree occurs throughout the eastern US and thrives in a variety of temperature and moisture conditions. In Michigan, the species is found in the southern Lower Peninsula, mostly in bottomlands. The best growth is found in moderately moist, well-drained soils. The species is less successful in extreme wet or dry. The seeds of the tuliptree are wind dispersed and regeneration occurs mostly in forest gaps where light can penetrate. This is an extremely important tree commercially and ornamentally.

Change Maps for Tuliptree[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 the range for tuliptree will expand north and experience a slight increase in importance in southeast Michigan. The species' tolerance for a wide variety of conditions, resistance to pests and pathogens, ability to colonize after disturbance and wind dispersal of seeds will help the tuliptree adapt as climate changes in this region. This species will likely remain an important urban and ornamental species.

Natural Communities Associations[2]

Canopy associate in mesic southern forests, hardwood conifer swamps and southern hardwood swamps.

Vulnerability of Natural Communities[3]

Local hydrology is an important factor influencing the success of southern hardwood and hardwood conifer swamps making them highly vulnerable to climate change as local hydrology is altered. Mesic southern forest systems are expected to have low vulnerability to climate change and are expected to expand in range northward. This system is common and has high dispersal potential. Present day threats such as deer herbivory and invasive species are expected to increase in mesic southern forest which could negatively impact the tuliptree.

[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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