

## Trees of the Huron River Watershed in a Changing Climate

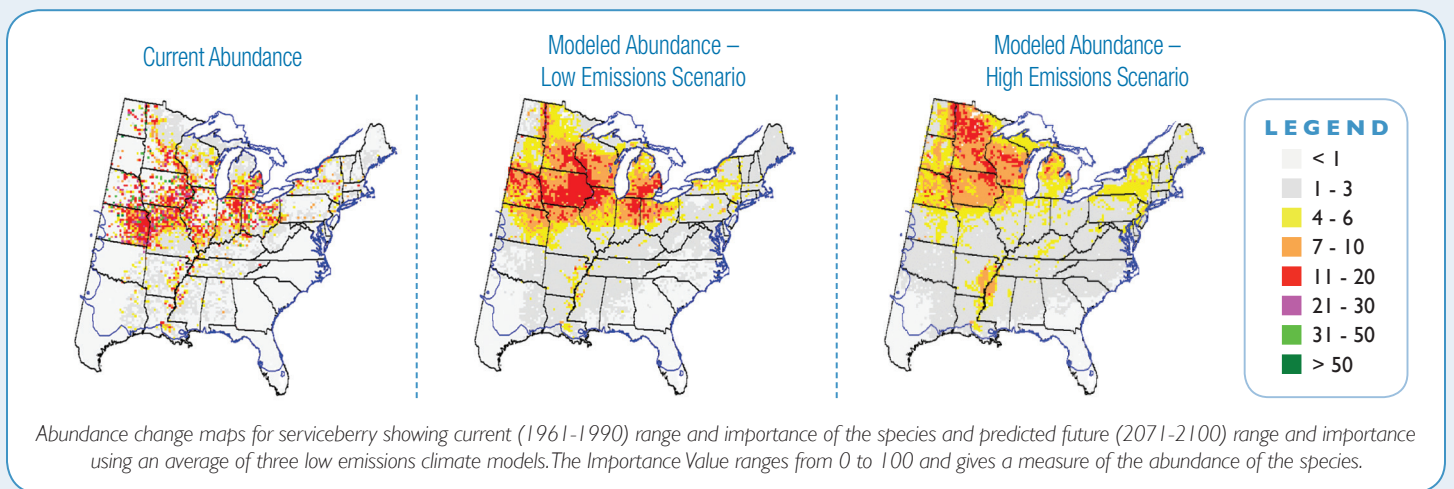
### American Elm *Ulmus americana*

#### Description

American elm occurs throughout the eastern US and is an important component of forest communities in southeast Michigan, particularly on flats and bottomlands. American elm grows in a wide range of soil moisture conditions. Historically occurring in much higher densities, Dutch elm disease has severely diminished the number of elms throughout its range. This fast growing, hardy, tolerant tree was a favored street tree until Dutch elm disease pushed planners to use a more diverse street tree plan.



#### Change Maps for American Elm<sup>1</sup>



#### Implications of Climate Change

Climate models indicate American elm will continue to be a part of forest communities in southeast Michigan. Its ability to tolerate a wide range of environmental conditions and habitat types will help the elm adapt. The predicted warmer, drier summers and increased threat of disease and pests may negatively impact the species. Disease and susceptibility of ice damage may lead to declines in its use as a street tree.

#### Natural Communities Associations<sup>2</sup>

Canopy dominant in floodplain forests. Canopy associate in poor conifer, rich tamarack and hardwood-conifer swamps,

wet-mesic flatwoods and mesic southern forest. Subcanopy species in southern hardwood swamps.

#### Vulnerability of Natural Communities<sup>3</sup>

The wetland communities in which the elm occurs are highly vulnerable to climate change as they typically occur in isolated patches of unique conditions. Changes in hydrology and limited dispersal potential limit their ability to adapt. Wet-mesic flatwoods are also considered highly vulnerable however, the elm component can tolerate some drying and therefore may persist where these communities occur. Mesic southern forests are expected to have low vulnerability to climate change.

<sup>1</sup>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.

<sup>2</sup>Michigan Natural Features Inventory. [www.mnfi.nrmsu.edu/communities](http://www.mnfi.nrmsu.edu/communities)

<sup>3</sup>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.