

Trees of the Huron River Watershed in a Changing Climate

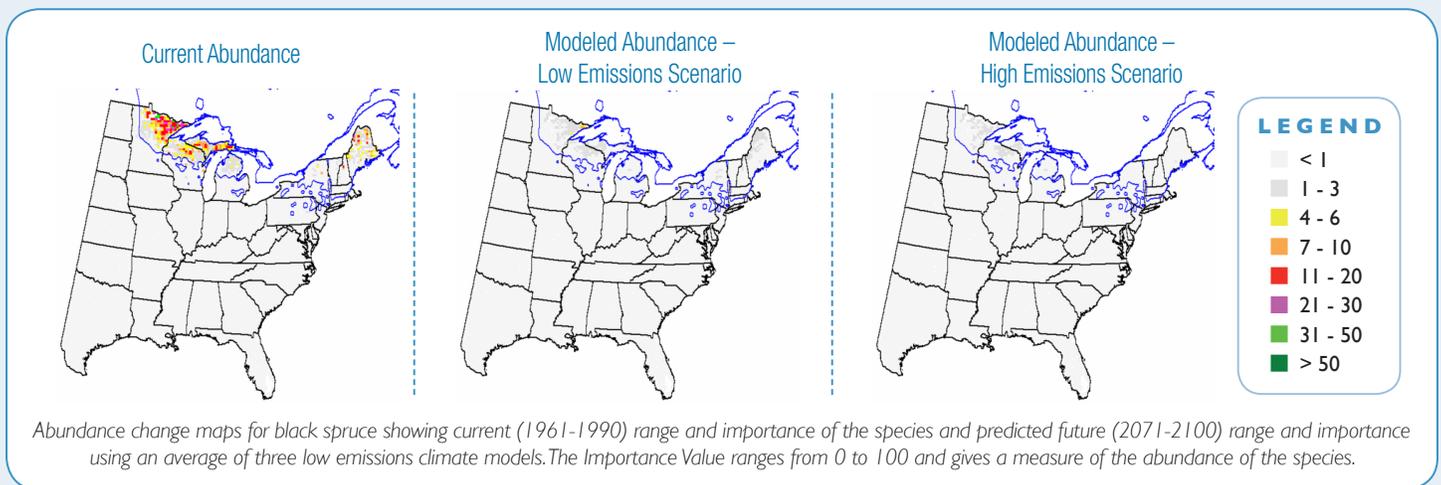
Black Spruce *Picea mariana*

Description

Black spruce is common at northern latitudes and in boreal environments. Southeast Michigan is at the southernmost extent of its range. Here the species is rare and almost exclusively found growing on the sphagnum mats of bogs. The species is somewhat shade tolerant, very slow growing and can form dense stands following fire.



Change Maps for Black Spruce¹



Implications of Climate Change

Models predict nearly complete loss of this species across its entire range in the US Midwest including in the Huron River Watershed. As a wetland species, this species is likely to decline with warmer, drier summers. Indications of decline in this species may provide an important sign of climate change stresses that will impact bogs. Restoring fire where black spruce occur may help species persist for some time.

Natural Communities Associations²

Canopy dominant, and almost exclusively found, in bogs at the

southern extent of its range in lower Michigan.

Vulnerability of Natural Communities³

Bogs are likely highly vulnerable natural communities. Decreases in soil moisture and increased evapotranspiration rates will negatively impact this system. While increased storms and fire may help support bogs, drought will harm this community. Due to unique physiographic requirements, dispersal potential is low.

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.