



Variables used to predict current and future tree species habitat:

Climate<sup>a</sup>

TAVG	Mean annual temperature (°C)
TJAN	Mean January temperature (°C)
TJUL	Mean July temperature (°C)
TMAYSEP	Mean May–September temperature (°C)
PPT	Annual precipitation (mm)
PPTMAYSEP	Mean May–September precipitation (mm)
JULJANDIFF	Mean difference between July and January temperature (°C)

Elevation<sup>b</sup>

ELV_CV	Elevation coefficient of variation
ELV_MAX	Maximum elevation (m)
ELV_MEAN	Average elevation (m)
ELV_MIN	Minimum elevation (m)
ELV_RANGE	Range of elevation (m)

Soil class<sup>c</sup>

ALFISOL	Alfisol (%)
ARIDISOL	Aridisol (%)
ENTISOL	Entisol (%)
HISTOSOL	Histosol (%)
INCEPTSOL	Inceptisol (%)
MOLLISOL	Mollisol (%)
SPODOSOL	Spodosol (%)
ULTISOL	Ultisol (%)
VERTISOL	Vertisol (%)

Soil property<sup>d</sup>

BD	Soil bulk density (g/cm <sup>3</sup> )
CLAY	Percent clay (<0.002 mm size)
KFFACT	Soil erodibility factor, rock fragment free (susceptibility of soil erosion to water movement)
NO10	Percent soil passing sieve no. 10 (coarse)
NO200	Percent soil passing sieve no. 200 (fine)
OM	Organic matter content (% by weight)
ORD	Potential soil productivity (m <sup>3</sup> timber/ha)
PERM	Soil permeability rate (cm/h)
PH	Soil pH
ROCKDEP	Depth to bedrock (cm)
SLOPE	Soil slope (%) of a soil component
TAWC	Total available water capacity (cm, to 152 cm)

Land use and fragmentation<sup>e</sup>

FRAG	Fragmentation index (Riitters et al. (2002))
AGRICULT	Cropland (%)
FOREST	Forest land (%)
NONFOREST	Nonforest land (%)
WATER	Water (%)

Common Name	Scientific Name	Model Reliability	Potential change in habitat suitability by 2100	Capability of coping with changing climate	Species Selection Option
sugar maple	<i>Acer saccharum</i>	High	Small decrease	Good	1
yellow-poplar	<i>Liriodendron tulipifera</i>	High	Large decrease	Good	1
red maple	<i>Acer rubrum</i>	High	Large decrease	Good	1
white oak	<i>Quercus alba</i>	Medium	No change	Good	1
black cherry	<i>Prunus serotina</i>	Medium	Small decrease	Poor	0
white ash	<i>Fraxinus americana</i>	Medium	No change	Poor	0
shagbark hickory	<i>Carya ovata</i>	Medium	Large decrease	Poor	0
black oak	<i>Quercus velutina</i>	High	Small increase	Good	1
Sassafras	<i>Sassafras albidum</i>	Low	Small decrease	Poor	0
chestnut oak	<i>Quercus prinus</i>	High	Large decrease	Fair	1
black locust	<i>Robinia pseudoacacia</i>	Low	No change	Fair	1
American elm	<i>Ulmus americana</i>	Medium	Small increase	Good	1
American beech	<i>Fagus grandifolia</i>	High	Large decrease	Poor	0
northern red oak	<i>Quercus rubra</i>	Medium	No change	Good	1
bigtooth aspen	<i>Populus grandidentata</i>	Medium	Very large decr.	Lost	0
pignut hickory	<i>Carya glabra</i>	Medium	No change	Fair	1
mockernut hickory	<i>Carya alba</i>	Medium	Small increase	Very Good	1
slippery elm	<i>Ulmus rubra</i>	Low	No change	Fair	1
Sycamore	<i>Platanus occidentalis</i>	Low	Small increase	Good	1
bitternut hickory	<i>Carya cordiformis</i>	Low	Small increase	Very Good	1
black walnut	<i>Juglans nigra</i>	Low	Small increase	Good	1
yellow buckeye	<i>Aesculus flava</i>	Low	Large decrease	Very Poor	0
scarlet oak	<i>Quercus coccinea</i>	Medium	Small decrease	Poor	1
Boxelder	<i>Acer negundo</i>	Low	Small increase	Very Good	1
Virginia pine	<i>Pinus virginiana</i>	High	Small decrease	Poor	1
Sourwood	<i>Oxydendrum arboreum</i>	High	Large decrease	Fair	1
Blackgum	<i>Nyssa sylvatica</i>	Medium	Large increase	Very Good	1
silver maple	<i>Acer saccharinum</i>	Low	No change	Good	1
river birch	<i>Betula nigra</i>	Low	Small decrease	Very Poor	0
eastern white pine	<i>Pinus strobus</i>	High	Very large decr.	Lost	0
flowering dogwood	<i>Cornus florida</i>	Medium	Small increase	Good	1
Ailanthus	<i>Ailanthus altissima</i>	Unacceptable	Unknown	Non-native invasive	0
eastern hemlock	<i>Tsuga canadensis</i>	High	Very large decr.	Lost	0
American hornbeam; musclewood	<i>Carpinus caroliniana</i>	Low	No change	Poor	1
sweet birch	<i>Betula lenta</i>	High	Large decrease	Very Poor	0
pitch pine	<i>Pinus rigida</i>	High	Large decrease	Very Poor	0
Hackberry	<i>Celtis occidentalis</i>	Medium	Large increase	Good	1
loblolly pine	<i>Pinus taeda</i>	High	Large increase	Good	2
American basswood	<i>Tilia americana</i>	Medium	Very large decr.	Lost	0
eastern redbud	<i>Cercis canadensis</i>	Low	Large increase	Good	1

SSO Description:

1	Currently present in the region and has Fair, Good, or Very Good Capability to cope; should do ok into the future.
2	Rare (or nearby), but has a good chance of spreading within the region
3	Not recorded from the region, but has some chance of colonizing naturally within 100 years.
0	Not recommended according to these models (but may be other reasons to evaluate potential).

Common Name	Scientific Name	Model Reliability	Potential change in habitat suitability by 2100	Capability of coping with changing climate	Species Selection Option
honeylocust	<i>Gleditsia triacanthos</i>	Low	Large increase	Good	1
green ash	<i>Fraxinus pennsylvanica</i>	Low	Large increase	Good	1
Ohio buckeye	<i>Aesculus glabra</i>	Low	Large decrease	Very Poor	0
black willow	<i>Salix nigra</i>	Low	No change	Very Poor	0
eastern hophornbeam; ironwood	<i>Ostrya virginiana</i>	Low	Small increase	Good	1
pawpaw	<i>Asimina triloba</i>	Low	Large decrease	Very Poor	0
red pine	<i>Pinus resinosa</i>	Medium	Large decrease	Very Poor	0
common persimmon	<i>Diospyros virginiana</i>	Low	Large increase	Good	1
chinkapin oak	<i>Quercus muehlenbergii</i>	Medium	No change	Poor	2
shingle oak	<i>Quercus imbricaria</i>	Medium	Small decrease	Very Poor	0
Osage-orange	<i>Maclura pomifera</i>	Medium	Large increase	Good	1
eastern cottonwood	<i>Populus deltoides</i>	Low	No change	Poor	2
shellbark hickory	<i>Carya laciniata</i>	Low	Small decrease	Very Poor	0
Scotch pine	<i>Pinus sylvestris</i>	Unacceptable	Unknown	Non-native invasive	0
Norway spruce	<i>Picea abies</i>	Unacceptable	Unknown	Non-native invasive	0
sweetgum	<i>Liquidambar styraciflua</i>	High	Large increase	Good	1
quaking aspen	<i>Populus tremuloides</i>	High	Large decrease	Very Poor	0
black maple	<i>Acer nigrum</i>	Low	Very large decr.	Lost	0
pin oak	<i>Quercus palustris</i>	Low	No change	Very Poor	2
serviceberry	<i>Amelanchier spp.</i>	Low	Large decrease	Very Poor	0
eastern redcedar	<i>Juniperus virginiana</i>	Medium	Large increase	Good	2
cucumbertree	<i>Magnolia acuminata</i>	Low	Small decrease	Very Poor	0
butternut	<i>Juglans cinerea</i>	Unacceptable	Unknown	Not modeled	0
chokecherry	<i>Prunus virginiana</i>	Unacceptable	Unknown	Not modeled	0
post oak	<i>Quercus stellata</i>	High	Large increase	Good	2
northern catalpa	<i>Catalpa speciosa</i>	Unacceptable	Unknown	Not modeled	0
white mulberry	<i>Morus alba</i>	Unacceptable	Unknown	Non-native invasive	0
red spruce	<i>Picea rubens</i>	High	Small decrease	Very Poor	0
red mulberry	<i>Morus rubra</i>	Low	Large increase	Good	2
bur oak	<i>Quercus macrocarpa</i>	Medium	No change	Fair	2
shortleaf pine	<i>Pinus echinata</i>	High	New Habitat	Potential to migrate in	3
cittamwood / gum bumelia	<i>Sideroxylon lanuginosum</i> <i>ssp. lanuginosum</i>	Low	New Habitat	Potential to migrate in	3
pecan	<i>Carya illinoensis</i>	Low	New Habitat	Potential to migrate in	3
black hickory	<i>Carya texana</i>	High	New Habitat	Potential to migrate in	3
sugarberry	<i>Celtis laevigata</i>	Medium	New Habitat	Potential to migrate in	3
American holly	<i>Ilex opaca</i>	Medium	Unknown	Insufficient data	0
southern red oak	<i>Quercus falcata</i>	Medium	New Habitat	Potential to migrate in	3
blackjack oak	<i>Quercus marilandica</i>	Medium	New Habitat	Potential to migrate in	3
water oak	<i>Quercus nigra</i>	High	New Habitat	Potential to migrate in	3
bluejack oak	<i>Quercus incana</i>	Low	Unknown	Insufficient data	0
winged elm	<i>Ulmus alata</i>	Medium	New Habitat	Potential to migrate in	3

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