

Area of Region sq. km sq. mi FIA Plots
 10,400 4,015.5 25

Species Information

The columns below provide brief summaries of the species associated with the region and described in the table on the next pages. Definitions are provided in the Excel file for this region.

Genus	Species	Abundance		Model		Potential Change in Habitat Suitability		Capability to Cope or Persist		Migration Potential					
				Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85				
Ash	1			High	2	12	Increase	4	4	Very Good	1	1	Likely	2	2
Hickory	1			Medium	14	16	No Change	8	8	Good	3	3	Infill	7	7
Maple	2	Abundant	0	Low	17	5	Decrease	6	6	Fair	6	6	Migrate	3	8
Oak	2	Common	7	FIA	2		New	14	13	Poor	4	4			
Pine	0	Rare	13				Unknown	3	4	Very Poor	3	3			
Other	14	Absent	15							FIA Only	0	0			
	20		35		35	33		35	35					12	17
										Unknown	1	2			
											18	19			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	51.2	53.0	55.1	55.9	
	CCSM85	51.2	53.6	56.1	59.0	
	GFDL45	51.2	57.3	56.0	57.3	
	GFDL85	51.2	54.0	57.2	61.5	
	HAD45	51.2	53.8	57.0	58.1	
	HAD85	51.2	54.4	59.1	62.6	
Growing Season (May—Sep)	CCSM45	70.1	72.2	74.4	75.3	
	CCSM85	70.1	73.0	75.5	78.8	
	GFDL45	70.1	78.2	76.1	78.2	
	GFDL85	70.1	73.8	77.4	82.8	
	HAD45	70.1	72.2	74.8	75.9	
	HAD85	70.1	73.0	77.8	80.9	
Coldest Month Average	CCSM45	21.9	24.2	25.3	26.3	
	CCSM85	21.9	24.4	25.5	27.4	
	GFDL45	21.9	25.2	25.7	26.0	
	GFDL85	21.9	24.3	25.8	27.2	
	HAD45	21.9	24.2	27.4	27.2	
	HAD85	21.9	27.1	30.4	32.7	
Warmest Month Average	CCSM45	76.7	79.0	80.8	81.4	
	CCSM85	76.7	80.6	82.2	84.3	
	GFDL45	76.7	80.3	81.6	83.1	
	GFDL85	76.7	81.0	82.4	86.3	
	HAD45	76.7	78.6	80.5	81.1	
	HAD85	76.7	80.4	83.1	85.0	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	30.2	31.0	30.9	29.8	
	CCSM85	30.2	30.5	30.6	31.7	
	GFDL45	30.2	34.2	36.6	35.2	
	GFDL85	30.2	34.1	37.6	36.0	
	HAD45	30.2	34.4	34.2	34.6	
	HAD85	30.2	32.5	31.9	34.9	
Growing Season (May—Sep)	CCSM45	19.3	19.2	18.5	18.0	
	CCSM85	19.3	18.2	17.6	18.4	
	GFDL45	19.3	22.1	23.0	21.3	
	GFDL85	19.3	21.7	23.4	21.7	
	HAD45	19.3	20.7	21.0	21.1	
	HAD85	19.3	20.0	18.5	18.4	

NOTE: For the six climate variables, four 30-year periods are used to indicate six potential future trajectories. The period ending in 2009 is based on modeled observations from the PRISM Climate Group and the three future periods were obtained from the NASA NEX-DCP30 dataset. Future climate projections from three models under two emission scenarios show estimates of each climate variable within the region. The three models are CCSM4, GFDL CM3, and HadGEM2-ES and the emission scenarios are the 4.5 and 8.5 RCP. The average value for the region is reported, even though locations within the region may vary substantially based on latitude, elevation, land-use, or other factors.

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U.S. Census Bureau Urban Areas
Climate Change Atlas Tree Species

USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

Current and Potential Future Habitat, Capability, and Migration

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
American elm	Ulmus americana	WDH	Medium	30.8	83.2	25.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	1
eastern redcedar	Juniperus virginiana	WDH	Medium	15.4	79.2	47.5	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	2	2
green ash	Fraxinus pennsylvanica	WSH	Low	26.9	63.1	21.6	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	3
red mulberry	Morus rubra	NSL	Low	34.6	61.3	16.4	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	2	4
Siberian elm	Ulmus pumila	NDH	FIA	11.5	61.2	48.9	Unknown	Unknown	NA	Common	NNIS	NNIS			0	5
bur oak	Quercus macrocarpa	NDH	Medium	23.1	53.9	21.6	No change	No change	High	Common	Good	Good			2	6
hackberry	Celtis occidentalis	WDH	Medium	38.5	50.5	12.1	Lg. inc.	Sm. inc.	High	Common	Very Good	Very Good			2	7
black willow	Salix nigra	NSH	Low	11.5	46.6	37.3	Lg. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	8
black locust	Robinia pseudoacacia	NDH	Low	3.8	41.7	100.0	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	9
eastern cottonwood	Populus deltoides	NSH	Low	7.7	41.0	49.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	10
white mulberry	Morus alba	NSL	FIA	3.8	32.6	78.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	11
honeylocust	Gleditsia triacanthos	NSH	Low	15.4	15.9	9.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	12
black walnut	Juglans nigra	WDH	Low	7.7	9.0	10.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	13
American basswood	Tilia americana	WSL	Medium	3.8	7.1	17.1	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	14
boxelder	Acer negundo	WSH	Low	3.8	6.9	16.6	No change	No change	High	Rare	Fair	Fair			2	15
slippery elm	Ulmus rubra	WSL	Low	7.7	5.0	6.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	16
silver maple	Acer saccharinum	NSH	Low	3.8	4.2	10.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	17
bitternut hickory	Carya cordiformis	WSL	Low	7.7	2.4	2.9	No change	No change	High	Rare	Fair	Fair			0	18
Osage-orange	Maclura pomifera	NDH	Medium	3.8	1.3	3.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	19
chinkapin oak	Quercus muehlenbergii	NSL	Medium	3.8	0.7	1.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	20
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	21
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	22
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	23
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	24
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	25
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	26
white ash	Fraxinus americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	27
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	Unknown	High	Absent	New Habitat	Unknown			3	28
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	29
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	30
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	31
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	32
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	33
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	34
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	35