

	sq. km	sq. mi	FIA Plots
Area of Region	8,800.0	3,397.7	88

**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	4			High	10	22	Increase	19	21	Very Good	1	1	Likely	0	0
Hickory	4			Medium	25	35	No Change	10	8	Good	13	14	Infill	28	30
Maple	4	Abundant	0	Low	29	10	Decrease	21	21	Fair	11	9	Migrate	4	7
Oak	8	Common	10	FIA	5		New	9	9	Poor	11	13			
Pine	2	Rare	45				Unknown	10	10	Very Poor	12	10			
Other	33	Absent	12							FIA Only	3	3			
	<b>55</b>		<b>67</b>		<b>69</b>	<b>67</b>		<b>69</b>	<b>69</b>	Unknown	5	5			
											<b>56</b>	<b>55</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	51.9	53.6	55.9	56.2	
	CCSM85	51.9	54.3	56.8	59.8	
	GFDL45	51.9	57.8	57.4	58.3	
	GFDL85	51.9	54.9	58.3	62.4	
	HAD45	51.9	54.7	58.2	59.7	
	HAD85	51.9	55.1	59.7	64.3	
Growing Season (May—Sep)	CCSM45	69.1	70.8	72.8	73.6	
	CCSM85	69.1	71.7	74.1	77.8	
	GFDL45	69.1	76.3	75.5	77.0	
	GFDL85	69.1	72.8	76.9	81.7	
	HAD45	69.1	72.3	75.6	77.6	
	HAD85	69.1	72.6	78.6	83.3	
Coldest Month Average	CCSM45	24.5	25.9	27.6	28.1	
	CCSM85	24.5	27.3	28.4	30.0	
	GFDL45	24.5	28.6	29.0	29.6	
	GFDL85	24.5	27.8	28.9	29.8	
	HAD45	24.5	25.9	28.6	28.7	
	HAD85	24.5	27.4	29.8	32.0	
Warmest Month Average	CCSM45	74.7	76.3	77.6	78.4	
	CCSM85	74.7	77.6	79.4	81.2	
	GFDL45	74.7	77.8	79.5	80.6	
	GFDL85	74.7	78.5	80.8	83.7	
	HAD45	74.7	78.3	80.9	81.9	
	HAD85	74.7	79.9	83.9	86.8	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	42.1	41.8	44.0	43.1	
	CCSM85	42.1	43.0	43.3	45.2	
	GFDL45	42.1	46.5	49.9	51.3	
	GFDL85	42.1	45.1	50.7	52.9	
	HAD45	42.1	44.0	45.8	45.3	
	HAD85	42.1	44.6	42.2	45.6	
Growing Season (May—Sep)	CCSM45	20.1	20.0	20.3	19.3	
	CCSM85	20.1	18.9	18.9	18.8	
	GFDL45	20.1	21.9	21.9	22.5	
	GFDL85	20.1	21.0	22.0	22.0	
	HAD45	20.1	20.4	18.7	19.5	
	HAD85	20.1	19.9	16.6	16.6	

**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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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
sugar maple	Acer saccharum	WDH	High	72.7	243.2	14.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	1
honeylocust	Gleditsia triacanthos	NSH	Low	28.4	141.6	20.3	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	2
white ash	Fraxinus americana	WDL	Medium	72.7	136.9	12.8	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	3
yellow-poplar	Liriodendron tulipifera	WDH	High	38.6	131.0	10.6	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	4
black cherry	Prunus serotina	WDL	Medium	78.4	128.0	10.5	Sm. dec.	Lg. dec.	Low	Common	Poor	Very Poor	Infill +		0	5
black walnut	Juglans nigra	WDH	Low	63.6	104.2	8.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	6
green ash	Fraxinus pennsylvanica	WSH	Low	53.4	78.8	12.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	7
sycamore	Platanus occidentalis	NSL	Low	31.8	65.6	8.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	8
American elm	Ulmus americana	WDH	Medium	67	56.5	5.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	9
shagbark hickory	Carya ovata	WSL	Medium	28.4	51.8	8.1	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	2	10
red maple	Acer rubrum	WDH	High	28.4	48.7	8.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	11
bitternut hickory	Carya cordiformis	WSL	Low	34.1	47.9	5.3	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	12
northern red oak	Quercus rubra	WDH	Medium	28.4	45.7	5.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	13
hackberry	Celtis occidentalis	WDH	Medium	59.1	45.3	6.9	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	14
sassafras	Sassafras albidum	WSL	Low	15.9	44.8	4.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	15
boxelder	Acer negundo	WSH	Low	42	44.3	6.9	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	16
American beech	Fagus grandifolia	WDH	High	20.5	40.8	3.7	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	17
black locust	Robinia pseudoacacia	NDH	Low	13.6	38.3	6.3	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	18
slippery elm	Ulmus rubra	WSL	Low	35.2	36.7	3.4	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	19
Osage-orange	Maclura pomifera	NDH	Medium	14.8	31.2	13.0	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	20
red mulberry	Morus rubra	NSL	Low	27.3	27.0	14.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	21
eastern cottonwood	Populus deltoides	NSH	Low	20.5	26.2	5.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	22
black oak	Quercus velutina	WDH	High	8	23.4	4.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	23
black willow	Salix nigra	NSH	Low	19.3	20.8	10.9	Lg. dec.	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	24
pin oak	Quercus palustris	NSH	Low	13.6	19.9	20.7	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	25
blackgum	Nyssa sylvatica	WDL	Medium	3.4	18.0	4.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	26
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	18.2	17.3	3.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	27
silver maple	Acer saccharinum	NSH	Low	19.3	17.2	4.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	28
red pine	Pinus resinosa	NSH	Medium	1.1	16.3	12.7	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	29
white oak	Quercus alba	WDH	Medium	26.1	15.1	4.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	30
American basswood	Tilia americana	WSL	Medium	20.5	15.1	4.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
eastern redcedar	Juniperus virginiana	WDH	Medium	10.2	14.4	6.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	32
Ohio buckeye	Aesculus glabra	NSL	Low	25	14.3	2.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	33
ailanthus	Ailanthus altissima	NSL	FIA	1.1	11.2	8.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	34
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	22.7	11.0	1.5	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	35
eastern white pine	Pinus strobus	WDH	High	9.1	8.5	13.2	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	36
pawpaw	Asimina triloba	NSL	Low	2.3	8.2	3.2	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	37
chinkapin oak	Quercus muehlenbergii	NSL	Medium	17	6.5	1.2	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	38
northern catalpa	Catalpa speciosa	NSHX	FIA	4.5	4.9	15.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	39
bigtooth aspen	Populus grandidentata	NSL	Medium	10.2	4.8	1.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	40
flowering dogwood	Cornus florida	WDL	Medium	8	4.5	1.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	41
pignut hickory	Carya glabra	WDL	Medium	2.3	4.3	1.7	Sm. inc.	No change	Medium	Rare	Fair	Poor	Infill +	Infill +	2	42
rock elm	Ulmus thomasii	NSLX	FIA	9.1	3.6	5.6	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	43
eastern redbud	Cercis canadensis	NSL	Low	14.8	2.3	0.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	44
mockernut hickory	Carya alba	WDL	Medium	1.1	1.9	1.5	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	45
common persimmon	Diospyros virginiana	NSL	Low	6.8	1.2	0.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	46
black ash	Fraxinus nigra	WSH	Medium	4.5	0.8	2.5	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	47

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
Siberian elm	Ulmus pumila	NDH	FIA	9.1	0.7	1.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	48
sweetgum	Liquidambar styraciflua	WDH	High	4.5	0.7	2.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	49
bur oak	Quercus macrocarpa	NDH	Medium	4.5	0.6	1.9	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	50
river birch	Betula nigra	NSL	Low	4.5	0.5	1.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	51
northern pin oak	Quercus ellipsoidalis	NSH	Medium	4.5	0.3	0.9	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	52
swamp white oak	Quercus bicolor	NSL	Low	4.5	0.3	0.9	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			0	53
blue ash	Fraxinus quadrangulata	NSL	Low	4.5	0.2	0.7	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	54
Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	4.5	0.1	0.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	55
jack pine	Pinus banksiana	NSH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	56
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	57
black maple	Acer nigrum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	58
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	59
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	60
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	61
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	62
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	63
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	64
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	65
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	66
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	67
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	68
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	69