

	sq. km	sq. mi	FIA Plots
Area of Region	31,405	12,126	239

**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	15	22	Increase	15	13	Very Good	2	0	Likely	0	0
Hickory	4			Medium	28	46	No Change	15	17	Good	13	14	Infill	31	28
Maple	6	Abundant	0	Low	31	11	Decrease	26	26	Fair	9	11	Migrate	7	10
Oak	8	Common	14	FIA	11		New	15	15	Poor	14	10		<b>38</b>	<b>38</b>
Pine	5	Rare	53				Unknown	14	14	Very Poor	16	19			
Other	40	Absent	18					<b>85</b>	<b>85</b>	FIA Only	5	5			
	<b>67</b>		<b>85</b>		<b>85</b>	<b>79</b>				Unknown	3	3			
											<b>62</b>	<b>62</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	49.3	51.2	53.8	53.9	
	CCSM85	49.3	51.9	54.6	57.5	
	GFDL45	49.3	55.3	54.8	55.8	
	GFDL85	49.3	52.4	55.8	60.2	
	HAD45	49.3	52.2	55.7	57.5	
HAD85	49.3	52.5	57.2	62.1		
Growing Season (May—Sep)	CCSM45	67.4	69.4	71.6	72.1	
	CCSM85	67.4	70.2	72.7	76.2	
	GFDL45	67.4	74.7	73.9	75.5	
	GFDL85	67.4	71.2	75.2	80.3	
	HAD45	67.4	70.5	73.3	75.4	
HAD85	67.4	70.4	75.7	80.6		
Coldest Month Average	CCSM45	20.4	21.8	24.3	24.3	
	CCSM85	20.4	23.0	24.8	26.5	
	GFDL45	20.4	24.2	25.3	25.8	
	GFDL85	20.4	24.1	25.5	27.1	
	HAD45	20.4	21.8	25.6	25.6	
HAD85	20.4	24.3	27.5	30.4		
Warmest Month Average	CCSM45	73.4	75.5	77.0	77.7	
	CCSM85	73.4	76.9	78.7	80.4	
	GFDL45	73.4	76.5	78.1	79.3	
	GFDL85	73.4	77.6	79.4	82.5	
	HAD45	73.4	76.7	78.7	79.9	
HAD85	73.4	77.8	81.1	84.3		

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	37.0	36.6	36.0	36.3	
	CCSM85	37.0	36.7	36.2	37.1	
	GFDL45	37.0	39.4	43.6	43.9	
	GFDL85	37.0	40.3	45.6	46.0	
	HAD45	37.0	38.4	40.1	39.7	
HAD85	37.0	40.0	37.5	40.6		
Growing Season (May—Sep)	CCSM45	19.2	19.6	18.8	18.3	
	CCSM85	19.2	18.3	18.0	17.5	
	GFDL45	19.2	19.8	22.0	22.1	
	GFDL85	19.2	20.9	22.3	21.8	
	HAD45	19.2	19.4	18.2	18.9	
HAD85	19.2	19.4	16.2	16.7		

**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
black cherry	Prunus serotina	WDL	Medium	60.1	335.2	17.7	Sm. dec.	Lg. dec.	Low	Common	Poor	Very Poor	Infill +		0	1
American elm	Ulmus americana	WDH	Medium	40.8	137.5	7.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	2
boxelder	Acer negundo	WSH	Low	30.7	127.6	14.2	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	3
green ash	Fraxinus pennsylvanica	WSH	Low	33.3	115.4	11.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	4
black walnut	Juglans nigra	WDH	Low	30.8	108.5	8.8	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	5
black oak	Quercus velutina	WDH	High	25.1	102.0	8.6	Sm. inc.	No change	Medium	Common	Good	Fair	Infill ++	Infill +	2	6
white oak	Quercus alba	WDH	Medium	34.4	91.8	9.0	Sm. inc.	Sm. dec.	High	Common	Very Good	Fair	Infill ++	Infill +	2	7
sugar maple	Acer saccharum	WDH	High	15.1	82.6	7.1	Sm. inc.	No change	High	Common	Very Good	Good			2	8
red maple	Acer rubrum	WDH	High	12.4	76.4	8.2	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	9
white ash	Fraxinus americana	WDL	Medium	28.2	75.8	7.1	Sm. inc.	No change	Low	Common	Fair	Poor	Infill +	Infill +	2	10
American basswood	Tilia americana	WSL	Medium	22.4	75.4	12.3	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	11
sassafras	Sassafras albidum	WSL	Low	14.5	75.4	8.5	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	12
northern red oak	Quercus rubra	WDH	Medium	28.2	71.0	5.2	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	13
bur oak	Quercus macrocarpa	NDH	Medium	27.8	69.9	12.8	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	14
eastern white pine	Pinus strobus	WDH	High	5.8	49.9	10.5	Sm. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			2	15
red pine	Pinus resinosa	NSH	Medium	6.3	49.7	15.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	16
shagbark hickory	Carya ovata	WSL	Medium	23.4	49.3	6.9	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	17
pin oak	Quercus palustris	NSH	Low	10.3	39.9	12.4	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	18
silver maple	Acer saccharinum	NSH	Low	17.7	39.0	13.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	19
eastern cottonwood	Populus deltoides	NSH	Low	17.1	38.8	14.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	20
quaking aspen	Populus tremuloides	WDH	High	7.9	35.8	8.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	21
Siberian elm	Ulmus pumila	NDH	FIA	2.4	32.3	34.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	22
yellow-poplar	Liriodendron tulipifera	WDH	High	2.6	29.4	11.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	23
black willow	Salix nigra	NSH	Low	12.2	28.4	6.4	Sm. dec.	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	24
black locust	Robinia pseudoacacia	NDH	Low	9.2	26.3	8.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	25
hackberry	Celtis occidentalis	WDH	Medium	12.5	20.6	6.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	26
slippery elm	Ulmus rubra	WSL	Low	13.6	18.7	2.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	27
northern pin oak	Quercus ellipsoidalis	NSH	Medium	8.8	15.9	6.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	28
Norway spruce	Picea abies	NSH	FIA	3	15.1	13.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	29
Osage-orange	Maclura pomifera	NDH	Medium	3.9	14.8	10.0	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	30
red mulberry	Morus rubra	NSL	Low	9.5	14.2	3.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	31
bitternut hickory	Carya cordiformis	WSL	Low	16.2	14.2	3.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	32
Scots pine	Pinus sylvestris	NSH	FIA	3.5	13.4	10.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	33
honeylocust	Gleditsia triacanthos	NSH	Low	7.9	13.1	9.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	34
eastern redcedar	Juniperus virginiana	WDH	Medium	7.6	12.3	13.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	35
blackgum	Nyssa sylvatica	WDL	Medium	7.8	12.1	4.5	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	36
river birch	Betula nigra	NSL	Low	3.2	8.5	9.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	37
pignut hickory	Carya glabra	WDL	Medium	4.1	8.4	5.4	No change	No change	Medium	Rare	Poor	Poor	Infill +		2	38
black ash	Fraxinus nigra	WSH	Medium	1.7	6.6	5.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	39
white mulberry	Morus alba	NSL	FIA	12.6	6.4	3.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	40
swamp white oak	Quercus bicolor	NSL	Low	8	3.9	5.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	41
pin cherry	Prunus pensylvanica	NSL	Low	0.2	3.8	6.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	42
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	8.4	3.7	2.3	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	43
mockernut hickory	Carya alba	WDL	Medium	0.3	3.1	9.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	44
northern catalpa	Catalpa speciosa	NSHX	FIA	0.3	2.9	7.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	45
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	1.5	2.4	2.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	46
Virginia pine	Pinus virginiana	NDH	High	0.3	2.3	7.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			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
jack pine	Pinus banksiana	NSH	Medium	3.4	2.1	8.0	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	48
black maple	Acer nigrum	NSH	Low	4.3	1.9	5.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	49
peachleaf willow	Salix amygdaloides	NSLX	FIA	1.5	1.8	3.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	50
chokecherry	Prunus virginiana	NSLX	FIA	1.9	1.5	1.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	51
shingle oak	Quercus imbricaria	NDH	Medium	0.7	1.3	2.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	52
American beech	Fagus grandifolia	WDH	High	2.4	1.2	1.3	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	53
sycamore	Platanus occidentalis	NSL	Low	4	1.1	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	54
bigtooth aspen	Populus grandidentata	NSL	Medium	5	1.1	3.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	55
butternut	Juglans cinerea	NSLX	FIA	1.3	0.9	1.7	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	56
serviceberry	Amelanchier spp.	NSL	Low	3	0.7	2.7	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	57
white spruce	Picea glauca	NSL	Medium	1.7	0.7	2.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	58
ailanthus	Ailanthus altissima	NSL	FIA	0.6	0.5	0.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	59
northern white-cedar	Thuja occidentalis	WSH	High	1.3	0.5	5.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	60
balsam poplar	Populus balsamifera	NSH	Medium	1.3	0.4	4.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	61
pawpaw	Asimina triloba	NSL	Low	0.7	0.4	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	62
blue ash	Fraxinus quadrangulata	NSL	Low	1.5	0.3	1.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	63
wild plum	Prunus americana	NSLX	FIA	0.3	0.3	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	64
Ohio buckeye	Aesculus glabra	NSL	Low	0.2	0.1	0.2	No change	Lg. dec.	Medium	Rare	Poor	Very Poor			0	65
Norway maple	Acer platanoides	NSL	FIA	0.9	0.0	0.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	66
flowering dogwood	Cornus florida	WDL	Medium	1.3	0.0	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	67
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	68
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	69
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	70
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	71
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	72
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	73
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	74
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	75
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	76
cucumber tree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	77
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	78
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	79
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	80
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	81
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	82
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	83
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	84
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	85