

sq. km    sq. mi    FIA Plots  
Area of Region    46,670    18,019    1,279

**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	Scenario	Scenario	Scenario	SHIFT	SHIFT			
				High	26	Increase	RCP45	RCP85	Very Good	5	4	Likely	0	0
Ash	3			Medium	38	No Change	15	9	Good	15	21	Infill	13	18
Hickory	4			Low	38	Decrease	30	28	Fair	9	11	Migrate	4	9
Maple	7	Abundant	4	FIA	10	New	26	32	Poor	18	14			
Oak	12	Common	18			Unknown	20	14	Very Poor	17	14			
Pine	4	Rare	54						FIA Only	5	5			
Other	46	Absent	34						Unknown	10	4			
	<b>76</b>		<b>110</b>		<b>112</b>	<b>107</b>	<b>112</b>	<b>112</b>		<b>79</b>	<b>73</b>		<b>17</b>	<b>27</b>

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	48.1	49.9	52.0	52.3	
	CCSM85	48.1	50.4	52.8	55.8	
	GFDL45	48.1	51.2	53.8	55.0	
	GFDL85	48.1	51.2	55.1	59.4	
	HAD45	48.1	50.7	54.0	55.6	
	HAD85	48.1	50.7	55.0	60.0	
Growing Season (May—Sep)	CCSM45	64.7	66.7	68.4	68.7	
	CCSM85	64.7	66.9	69.2	72.7	
	GFDL45	64.7	67.9	70.8	72.2	
	GFDL85	64.7	68.0	72.2	76.7	
	HAD45	64.7	67.3	70.2	72.4	
	HAD85	64.7	66.7	71.5	76.7	
Coldest Month Average	CCSM45	22.8	24.3	26.0	26.6	
	CCSM85	22.8	25.3	26.4	28.5	
	GFDL45	22.8	26.1	27.7	28.8	
	GFDL85	22.8	26.4	28.3	30.6	
	HAD45	22.8	24.8	27.3	27.6	
	HAD85	22.8	25.9	28.0	31.1	
Warmest Month Average	CCSM45	71.0	73.3	74.2	74.3	
	CCSM85	71.0	73.5	75.0	76.7	
	GFDL45	71.0	73.8	75.4	76.6	
	GFDL85	71.0	74.5	77.0	79.6	
	HAD45	71.0	73.8	75.3	76.5	
	HAD85	71.0	73.1	75.6	79.1	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	48.8	48.2	46.9	52.8	
	CCSM85	48.8	48.8	51.0	54.5	
	GFDL45	48.8	52.8	55.7	54.0	
	GFDL85	48.8	51.3	54.3	56.9	
	HAD45	48.8	50.5	54.1	53.1	
	HAD85	48.8	53.0	53.2	55.1	
Growing Season (May—Sep)	CCSM45	20.0	21.4	19.7	21.4	
	CCSM85	20.0	20.2	21.4	21.3	
	GFDL45	20.0	19.8	19.3	19.7	
	GFDL85	20.0	20.2	19.3	19.4	
	HAD45	20.0	20.9	21.0	20.7	
	HAD85	20.0	20.5	20.3	21.1	

**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
red maple	Acer rubrum	WDH	High	92.7	2308.9	21.7	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	1
eastern white pine	Pinus strobus	WDH	High	73.2	1644.5	19.3	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	2
northern red oak	Quercus rubra	WDH	Medium	77.4	944.9	10.4	No change	Sm. dec.	High	Abundant	Very Good	Good			1	3
eastern hemlock	Tsuga canadensis	NSH	High	51.8	752.4	11.6	Sm. dec.	Lg. dec.	Low	Abundant	Fair	Poor			0	4
sweet birch	Betula lenta	NDH	High	53.9	430.5	6.8	No change	Sm. dec.	Low	Common	Poor	Poor			0	5
black oak	Quercus velutina	WDH	High	56.3	418.6	7.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
white oak	Quercus alba	WDH	Medium	57.4	355.0	5.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	7
white ash	Fraxinus americana	WDL	Medium	52.7	332.6	5.2	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	8
sugar maple	Acer saccharum	WDH	High	40.7	309.7	5.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
American beech	Fagus grandifolia	WDH	High	45.9	296.8	5.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
scarlet oak	Quercus coccinea	WDL	Medium	33.9	241.2	7.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
yellow birch	Betula alleghaniensis	NDL	High	42.3	191.2	3.9	No change	Sm. inc.	Medium	Common	Fair	Good			1	12
black cherry	Prunus serotina	WDL	Medium	37.9	179.6	4.0	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	13
pitch pine	Pinus rigida	NSH	High	13.5	129.0	8.9	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	14
paper birch	Betula papyrifera	WDH	High	37.5	127.6	2.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	15
pignut hickory	Carya glabra	WDL	Medium	22.1	95.3	4.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
American elm	Ulmus americana	WDH	Medium	22.3	88.0	3.2	Sm. dec.	No change	Medium	Common	Poor	Fair			1	17
bigtooth aspen	Populus grandidentata	NSL	Medium	18.7	77.5	3.5	Sm. inc.	No change	Medium	Common	Good	Fair			1	18
eastern redcedar	Juniperus virginiana	WDH	Medium	12.2	75.1	6.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	19
quaking aspen	Populus tremuloides	WDH	High	17.5	74.2	3.3	No change	No change	Medium	Common	Fair	Fair			1	20
balsam fir	Abies balsamea	NDH	High	11	65.5	4.3	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	2	21
shagbark hickory	Carya ovata	WSL	Medium	18.1	51.1	2.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	22
gray birch	Betula populifolia	NSL	Low	21	49.4	2.0	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	23
chestnut oak	Quercus prinus	NDH	High	8.5	48.9	4.9	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	24
blackgum	Nyssa sylvatica	WDL	Medium	15.5	47.8	2.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	25
red spruce	Picea rubens	NDH	High	11.1	34.4	1.9	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	26
American basswood	Tilia americana	WSL	Medium	7.9	26.4	2.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	27
yellow-poplar	Liriodendron tulipifera	WDH	High	5.7	25.7	4.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	28
black locust	Robinia pseudoacacia	NDH	Low	2.8	25.5	6.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	29
black walnut	Juglans nigra	WDH	Low	0.7	25.0	28.2	Lg. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	30
red pine	Pinus resinosa	NSH	Medium	6.6	24.3	3.5	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	31
mockernut hickory	Carya alba	WDL	Medium	7.1	24.1	2.7	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	32
sassafras	Sassafras albidum	WSL	Low	12.5	24.1	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	33
swamp white oak	Quercus bicolor	NSL	Low	5.3	22.0	5.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	34
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	13	21.6	1.3	No change	Lg. inc.	High	Rare	Fair	Good			1	35
silver maple	Acer saccharinum	NSH	Low	2	19.2	11.1	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	36
Norway maple	Acer platanoides	NSL	FIA	4.3	17.5	5.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	37
green ash	Fraxinus pennsylvanica	WSH	Low	3.7	15.7	3.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	38
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	10.5	13.4	1.2	No change	Lg. inc.	Medium	Rare	Poor	Good			1	39
slippery elm	Ulmus rubra	WSL	Low	1.3	12.1	9.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	40
striped maple	Acer pensylvanicum	NSL	Medium	6.6	11.6	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	41
black ash	Fraxinus nigra	WSH	Medium	2.8	8.8	2.9	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			2	42
bitternut hickory	Carya cordiformis	WSL	Low	2.6	8.8	3.1	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	43
sycamore	Platanus occidentalis	NSL	Low	0.4	7.8	18.1	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	44
black spruce	Picea mariana	NSH	High	0.9	7.5	8.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
pin cherry	Prunus pensylvanica	NSL	Low	3	7.4	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	46
Norway spruce	Picea abies	NSH	FIA	1.6	7.3	4.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	47

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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	0.2	7.1	25.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	48
white spruce	Picea glauca	NSL	Medium	1.1	6.8	3.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	49
eastern cottonwood	Populus deltoides	NSH	Low	1.3	6.8	4.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	50
serviceberry	Amelanchier spp.	NSL	Low	3.4	6.8	1.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	51
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	1.7	5.8	3.3	No change	No change	Low	Rare	Very Poor	Very Poor			2	52
bear oak; scrub oak	Quercus ilicifolia	NSLX	FIA	2.1	5.4	2.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	53
American chestnut	Castanea dentata	NSLX	FIA	5.9	5.1	1.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	54
black willow	Salix nigra	NSH	Low	1.2	4.5	6.5	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	55
butternut	Juglans cinerea	NSLX	FIA	1	2.9	7.6	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	56
tamarack (native)	Larix laricina	NSH	High	1.8	2.9	1.6	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	57
hackberry	Celtis occidentalis	WDH	Medium	0.1	2.1	3.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	58
balsam poplar	Populus balsamifera	NSH	Medium	0.4	2.0	4.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	59
honeylocust	Gleditsia triacanthos	NSH	Low	0.1	1.9	4.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	60
post oak	Quercus stellata	WDH	High	0.5	1.7	4.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	61
flowering dogwood	Cornus florida	WDL	Medium	2.1	1.7	0.6	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +		2	62
bur oak	Quercus macrocarpa	NDH	Medium	0.2	1.4	6.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	63
ailanthus	Ailanthus altissima	NSL	FIA	1.1	1.4	2.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	64
Scots pine	Pinus sylvestris	NSH	FIA	0.6	1.2	1.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	65
American holly	Ilex opaca	NSL	Medium	0.8	0.9	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	66
American mountain-ash	Sorbus americana	NSL	Low	0.2	0.8	0.4	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	67
boxelder	Acer negundo	WSH	Low	0.4	0.6	1.4	No change	No change	High	Rare	Fair	Fair	Infill +		2	68
swamp chestnut oak	Quercus michauxii	NSL	Low	0.2	0.4	2.1	Sm. dec.	Lg. inc.	Medium	Rare	Very Poor	Good			2	69
pin oak	Quercus palustris	NSH	Low	0.9	0.4	1.2	No change	Lg. inc.	Low	Rare	Very Poor	Fair	Infill +		2	70
sweetgum	Liquidambar styraciflua	WDH	High	0.1	0.4	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	71
chokecherry	Prunus virginiana	NSLX	FIA	0.3	0.3	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	72
northern white-cedar	Thuja occidentalis	WSH	High	0.4	0.3	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	73
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0.7	0.2	3.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	74
mountain maple	Acer spicatum	NSL	Low	0.2	0.1	0.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	75
northern catalpa	Catalpa speciosa	NSHX	FIA	0.2	0.1	0.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	76
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	77
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	78
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	79
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	80
bald cypress	Taxodium distichum	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	81
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	82
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	83
river birch	Betula nigra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	84
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	85
water hickory	Carya aquatica	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	86
pecan	Carya illinoensis	NSH	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			3	87
black hickory	Carya texana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	88
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	89
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	90
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	91
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	92
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	93
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	94

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	95
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			0	96
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	97
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	98
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	99
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	100
redbay	Persea borbonia	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	101
water elm	Planera aquatica	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	102
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	103
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	104
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	105
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	106
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	107
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	108
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	109
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	110
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	111
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	112