

	sq. km	sq. mi	FIA Plots
Area of Region	93,809	36,220	4,980

**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	3			High	18	21	Increase	23	26	Very Good	9	8	Likely	0	0
Hickory	1			Medium	27	43	No Change	7	4	Good	11	14	Infill	7	8
Maple	5	Abundant	6	Low	30	16	Decrease	10	10	Fair	13	11	Migrate	7	8
Oak	4	Common	16	FIA	7		New	22	27	Poor	2	4			
Pine	4	Rare	25				Unknown	20	15	Very Poor	5	3			
Other	30	Absent	33							FIA Only	5	5			
	<b>47</b>		<b>80</b>		<b>82</b>	<b>80</b>		<b>82</b>	<b>82</b>	Unknown	13	8			
											<b>58</b>	<b>53</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	39.3	40.8	43.8	44.2	
	CCSM85	39.3	41.7	45.0	48.7	
	GFDL45	39.3	42.4	45.0	46.8	
	GFDL85	39.3	42.6	46.4	51.6	
	HAD45	39.3	42.5	46.1	48.1	
	HAD85	39.3	43.0	47.3	53.2	
Growing Season (May—Sep)	CCSM45	60.4	62.1	64.6	65.0	
	CCSM85	60.4	63.1	66.0	70.0	
	GFDL45	60.4	64.0	67.3	69.4	
	GFDL85	60.4	64.4	68.5	74.4	
	HAD45	60.4	63.6	66.4	68.7	
	HAD85	60.4	63.5	67.6	73.6	
Coldest Month (Average)	CCSM45	5.0	6.7	9.0	9.2	
	CCSM85	5.0	6.2	8.8	11.2	
	GFDL45	5.0	8.6	10.5	11.2	
	GFDL85	5.0	9.5	11.3	14.7	
	HAD45	5.0	7.1	11.3	11.1	
	HAD85	5.0	10.6	13.9	18.0	
Warmest Month (Average)	CCSM45	67.1	69.0	70.5	71.1	
	CCSM85	67.1	70.4	72.4	74.9	
	GFDL45	67.1	71.0	72.5	74.2	
	GFDL85	67.1	71.5	73.7	76.9	
	HAD45	67.1	70.5	71.9	73.7	
	HAD85	67.1	70.7	72.9	76.9	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	27.6	28.3	28.4	27.7	
	CCSM85	27.6	27.3	28.0	27.7	
	GFDL45	27.6	30.3	31.8	30.1	
	GFDL85	27.6	31.0	33.0	32.6	
	HAD45	27.6	29.2	27.5	28.8	
	HAD85	27.6	28.9	28.8	30.3	
Growing Season (May—Sep)	CCSM45	17.9	18.0	17.4	17.2	
	CCSM85	17.9	17.2	16.8	16.0	
	GFDL45	17.9	19.8	20.1	19.0	
	GFDL85	17.9	20.3	20.9	19.6	
	HAD45	17.9	18.1	16.2	16.6	
	HAD85	17.9	17.7	15.9	15.6	

**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
quaking aspen	Populus tremuloides	WDH	High	91	2293.6	22.3	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
black spruce	Picea mariana	NSH	High	57	930.5	15.6	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	2
tamarack (native)	Larix laricina	NSH	High	51	781.6	14.6	No change	No change	Low	Abundant	Fair	Fair			0	3
paper birch	Betula papyrifera	WDH	High	83.9	760.2	8.0	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	4
balsam fir	Abies balsamea	NDH	High	67.4	706.6	9.6	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	5
black ash	Fraxinus nigra	WSH	Medium	67.6	629.6	8.4	No change	No change	Low	Abundant	Fair	Fair			0	6
red maple	Acer rubrum	WDH	High	62.6	412.4	6.0	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	7
northern white-cedar	Thuja occidentalis	WSH	High	34.2	401.7	11.5	No change	Sm. inc.	Medium	Common	Fair	Good			1	8
bur oak	Quercus macrocarpa	NDH	Medium	41.9	396.6	7.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
red pine	Pinus resinosa	NSH	Medium	32.4	354.9	10.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	10
balsam poplar	Populus balsamifera	NSH	Medium	47.8	348.3	6.3	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	11
jack pine	Pinus banksiana	NSH	Medium	31.3	310.7	9.3	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	12
American basswood	Tilia americana	WSL	Medium	37	278.1	6.6	Lg. inc.	Sm. inc.	Medium	Common	Very Good	Good			1	13
northern red oak	Quercus rubra	WDH	Medium	34	259.7	6.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	14
sugar maple	Acer saccharum	WDH	High	33	238.6	6.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	15
white spruce	Picea glauca	NSL	Medium	49.4	184.2	3.3	No change	No change	Medium	Common	Fair	Fair			1	16
green ash	Fraxinus pennsylvanica	WSH	Low	38.4	176.4	3.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
eastern white pine	Pinus strobus	WDH	High	25.5	141.7	4.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	18
American elm	Ulmus americana	WDH	Medium	44.2	138.1	2.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
bigtooth aspen	Populus grandidentata	NSL	Medium	27.5	128.1	4.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	20
northern pin oak	Quercus ellipsoidalis	NSH	Medium	9.8	75.7	4.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	2	21
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	23.1	54.6	1.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	22
boxelder	Acer negundo	WSH	Low	8.9	36.0	3.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	23
silver maple	Acer saccharinum	NSH	Low	2.3	34.1	7.5	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	24
mountain maple	Acer spicatum	NSL	Low	23.8	27.6	1.0	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	25
yellow birch	Betula alleghaniensis	NDL	High	11.8	26.4	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	26
chokecherry	Prunus virginiana	NSLX	FIA	22.3	17.8	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	27
black cherry	Prunus serotina	WDL	Medium	10.8	16.6	1.0	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	28
serviceberry	Amelanchier spp.	NSL	Low	14.1	10.9	0.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	29
black willow	Salix nigra	NSH	Low	2.8	10.3	3.0	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	30
pin cherry	Prunus pensylvanica	NSL	Low	10.9	9.6	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
Scots pine	Pinus sylvestris	NSH	FIA	0.7	9.4	5.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	32
butternut	Juglans cinerea	NSLX	FIA	2.4	6.8	2.3	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	33
eastern cottonwood	Populus deltoides	NSH	Low	0.5	6.8	9.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	34
peachleaf willow	Salix amygdaloides	NSLX	FIA	3.4	5.8	1.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	35
white oak	Quercus alba	WDH	Medium	2	5.6	2.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	36
slippery elm	Ulmus rubra	WSL	Low	1.1	4.0	2.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	37
eastern redcedar	Juniperus virginiana	WDH	Medium	0.3	3.5	3.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	38
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	3.2	3.2	0.9	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	39
American mountain-ash	Sorbus americana	NSL	Low	3.5	2.9	0.7	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	40
black walnut	Juglans nigra	WDH	Low	0.2	2.8	4.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	41
bitternut hickory	Carya cordiformis	WSL	Low	1.2	2.1	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	42
Siberian elm	Ulmus pumila	NDH	FIA	0.1	2.0	19.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	43
white ash	Fraxinus americana	WDL	Medium	0.3	1.0	1.8	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	44
hackberry	Celtis occidentalis	WDH	Medium	0.6	0.5	0.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	45
wild plum	Prunus americana	NSLX	FIA	0.5	0.5	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	46
rock elm	Ulmus thomasii	NSLX	FIA	0.1	0.4	0.6	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			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
eastern hemlock	<i>Tsuga canadensis</i>	NSH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	48
striped maple	<i>Acer pensylvanicum</i>	NSL	Medium	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown				49
Ohio buckeye	<i>Aesculus glabra</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				50
yellow buckeye	<i>Aesculus flava</i>	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				51
sweet birch	<i>Betula lenta</i>	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				52
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum ssp.</i>	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				53
pignut hickory	<i>Carya glabra</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				54
shellbark hickory	<i>Carya laciniosa</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				55
shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		56
black hickory	<i>Carya texana</i>	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				57
mockernut hickory	<i>Carya alba</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				58
sugarberry	<i>Celtis laevigata</i>	NDH	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				59
eastern redbud	<i>Cercis canadensis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				60
American beech	<i>Fagus grandifolia</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		61
blue ash	<i>Fraxinus quadrangulata</i>	NSL	Low	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown				62
honeylocust	<i>Gleditsia triacanthos</i>	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +		63
American holly	<i>Ilex opaca</i>	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				64
sweetgum	<i>Liquidambar styraciflua</i>	WDH	High	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				65
Osage-orange	<i>Maclura pomifera</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				66
cucumbertree	<i>Magnolia acuminata</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				67
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				68
mountain or Fraser magnolia	<i>Magnolia fraseri</i>	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				69
red mulberry	<i>Morus rubra</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		70
sycamore	<i>Platanus occidentalis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				71
swamp white oak	<i>Quercus bicolor</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		72
scarlet oak	<i>Quercus coccinea</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				73
blackjack oak	<i>Quercus marilandica</i>	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				74
chinkapin oak	<i>Quercus muehlenbergii</i>	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				75
chestnut oak	<i>Quercus prinus</i>	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				76
Shumard oak	<i>Quercus shumardii</i>	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				77
post oak	<i>Quercus stellata</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				78
black oak	<i>Quercus velutina</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		79
black locust	<i>Robinia pseudoacacia</i>	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate +		80
sassafras	<i>Sassafras albidum</i>	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				81
winged elm	<i>Ulmus alata</i>	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				82