

### Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	30,371	11,726	971

### 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	23	25	Increase	19	23	Very Good	6	10	Likely	0	1
Hickory	4			Medium	31	50	No Change	10	8	Good	14	11	Infill	8	10
Maple	8	Abundant	6	Low	31	14	Decrease	31	29	Fair	5	8	Migrate	8	11
Oak	9	Common	22	FIA	8		New	15	18	Poor	23	17		16	22
Pine	6	Rare	40				Unknown	18	15	Very Poor	10	9			
Other	38	Absent	24					93	93	FIA Only	4	4			
	68		92		93	89				Unknown	10	7			
											72	66			

### Potential Changes in Climate Variables

#### Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	44.4	46.0	48.1	48.2	
	CCSM85	44.4	46.3	48.5	51.2	
	GFDL45	44.4	46.7	49.4	50.4	
	GFDL85	44.4	47.3	50.4	54.1	
	HAD45	44.4	46.9	49.7	51.1	
	HAD85	44.4	47.0	50.6	55.0	
Growing Season (May—Sep)	CCSM45	57.9	59.5	61.3	61.7	
	CCSM85	57.9	59.8	62.0	65.3	
	GFDL45	57.9	60.5	64.1	65.4	
	GFDL85	57.9	61.7	65.2	69.3	
	HAD45	57.9	60.8	63.2	65.2	
	HAD85	57.9	60.5	64.9	69.6	
Coldest Month (Average)	CCSM45	23.5	25.1	26.7	27.0	
	CCSM85	23.5	25.9	27.0	28.6	
	GFDL45	23.5	25.8	26.8	27.4	
	GFDL85	23.5	26.2	27.3	28.9	
	HAD45	23.5	24.6	27.1	27.2	
	HAD85	23.5	25.6	27.5	29.9	
Warmest Month (Average)	CCSM45	62.6	64.5	65.6	65.9	
	CCSM85	62.6	64.9	66.2	68.2	
	GFDL45	62.6	65.2	67.2	68.2	
	GFDL85	62.6	66.6	68.6	71.1	
	HAD45	62.6	65.8	67.4	68.8	
	HAD85	62.6	66.3	69.2	72.6	

#### Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	37.2	38.3	37.9	39.8	
	CCSM85	37.2	38.4	39.4	41.0	
	GFDL45	37.2	40.9	42.2	41.9	
	GFDL85	37.2	38.5	42.3	43.2	
	HAD45	37.2	37.9	38.5	38.4	
	HAD85	37.2	39.0	36.6	39.6	
Growing Season (May—Sep)	CCSM45	17.8	18.3	17.8	18.5	
	CCSM85	17.8	17.6	18.1	18.0	
	GFDL45	17.8	19.1	18.7	18.3	
	GFDL85	17.8	17.6	18.3	17.9	
	HAD45	17.8	18.1	16.6	17.2	
	HAD85	17.8	18.0	15.5	16.1	

**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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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	91.9	2393.3	20.1	Sm. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
black cherry	Prunus serotina	WDL	Medium	86.5	1668.4	14.7	Sm. dec.	Lg. dec.	Low	Abundant	Fair	Poor			0	2
sugar maple	Acer saccharum	WDL	High	63.6	1023.4	12.1	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	3
eastern hemlock	Tsuga canadensis	NSH	High	43.3	608.4	11.1	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	4
northern red oak	Quercus rubra	WDH	Medium	57.5	593.2	7.8	No change	No change	High	Abundant	Very Good	Very Good			1	5
American beech	Fagus grandifolia	WDH	High	55.7	508.5	7.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	6
white ash	Fraxinus americana	WDL	Medium	61	497.1	6.1	No change	No change	Low	Common	Poor	Poor			0	7
sweet birch	Betula lenta	NDH	High	52.4	389.7	6.2	Sm. dec.	Lg. dec.	Low	Common	Poor	Very Poor			0	8
quaking aspen	Populus tremuloides	WDH	High	27.9	309.8	7.9	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	9
white oak	Quercus alba	WDH	Medium	30.3	239.6	6.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	10
yellow-poplar	Liriodendron tulipifera	WDH	High	21.3	188.6	7.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
yellow birch	Betula alleghaniensis	NDL	High	38.1	182.1	3.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	12
black locust	Robinia pseudoacacia	NDH	Low	13.8	167.2	7.3	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	13
bigtooth aspen	Populus grandidentata	NSL	Medium	21.7	160.0	6.2	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	14
eastern white pine	Pinus strobus	WDH	High	17.7	135.7	6.4	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	15
black oak	Quercus velutina	WDH	High	21.3	132.5	5.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
sassafras	Sassafras albidum	WSL	Low	19.3	116.4	3.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
Scots pine	Pinus sylvestris	NSH	FIA	7.5	109.1	8.5	Unknown	Unknown	NA	Common	NNIS	NNIS			0	18
Norway spruce	Picea abies	NSH	FIA	7.8	83.7	7.0	Unknown	Unknown	NA	Common	NNIS	NNIS			0	19
American elm	Ulmus americana	WDH	Medium	19.3	83.6	2.9	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	30.4	74.5	1.9	No change	Sm. inc.	High	Common	Good	Very Good			1	21
American basswood	Tilia americana	WDL	Medium	19.3	74.0	3.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	22
chestnut oak	Quercus prinus	NDH	High	15.7	70.3	3.2	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	23
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	25.2	66.5	2.2	Lg. dec.	No change	Medium	Common	Poor	Fair			1	24
shagbark hickory	Carya ovata	WSL	Medium	12.1	65.9	4.0	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	25
serviceberry	Amelanchier spp.	NSL	Low	26.3	65.1	2.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	26
cucumbertree	Magnolia acuminata	NSL	Low	23.7	64.4	2.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	27
pin cherry	Prunus pensylvanica	NSL	Low	14.8	58.3	2.8	Lg. dec.	Very Lg. dec.	Medium	Common	Poor	Lost			0	28
black willow	Salix nigra	NSH	Low	3.7	51.4	11.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	29
scarlet oak	Quercus coccinea	WDL	Medium	9.3	47.3	4.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	30
blackgum	Nyssa sylvatica	WDL	Medium	18.9	46.8	1.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	31
bitternut hickory	Carya cordiformis	WSL	Low	9.1	40.4	3.2	No change	No change	High	Rare	Fair	Fair			1	32
pignut hickory	Carya glabra	WDL	Medium	13.9	39.9	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	33
red pine	Pinus resinosa	NSH	Medium	5.5	38.7	5.0	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	34
green ash	Fraxinus pennsylvanica	WSH	Low	3.5	36.0	4.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	35
striped maple	Acer pensylvanicum	NSL	Medium	15.3	35.2	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	36
black walnut	Juglans nigra	WDH	Low	5.1	33.7	4.8	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	37
slippery elm	Ulmus rubra	WSL	Low	6.7	32.7	3.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	38
shingle oak	Quercus imbricaria	NDH	Medium	3.3	28.9	8.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
silver maple	Acer saccharinum	NSH	Low	2.3	21.0	9.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	40
white spruce	Picea glauca	NSL	Medium	3	14.9	5.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	41
boxelder	Acer negundo	WSH	Low	1	13.6	13.8	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	42
swamp white oak	Quercus bicolor	NSL	Low	1.3	13.3	10.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	43
sycamore	Platanus occidentalis	NSL	Low	1.3	10.3	7.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	44
black maple	Acer nigrum	NSH	Low	0.3	9.2	28.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	45
jack pine	Pinus banksiana	NSH	Medium	0.7	8.7	13.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	46
chokecherry	Prunus virginiana	NSLX	FIA	3	8.1	2.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	47

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butternut	Juglans cinerea	NSLX	FIA	0.9	7.9	5.5	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	48
flowering dogwood	Cornus florida	WDL	Medium	3	6.8	1.9	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	49
mockernut hickory	Carya alba	WDL	Medium	3.6	6.2	1.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	50
ailanthus	Ailanthus altissima	NSL	FIA	1.1	4.7	3.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	51
black ash	Fraxinus nigra	WSH	Medium	1.4	4.4	2.5	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	52
Virginia pine	Pinus virginiana	NDH	High	0.3	3.2	9.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	53
bur oak	Quercus macrocarpa	NDH	Medium	0.7	2.4	3.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	54
gray birch	Betula populifolia	NSL	Low	1	1.9	2.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	55
balsam poplar	Populus balsamifera	NSH	Medium	0.3	1.7	5.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	56
red spruce	Picea rubens	NDH	High	0.3	1.5	4.6	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	57
Norway maple	Acer platanoides	NSL	FIA	0.2	1.4	2.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	58
American chestnut	Castanea dentata	NSLX	FIA	1.5	1.3	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	59
peachleaf willow	Salix amygdaloides	NSLX	FIA	0.3	1.3	3.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	60
pin oak	Quercus palustris	NSH	Low	0.2	1.1	1.8	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor	Infill +	Infill +	2	61
hackberry	Celtis occidentalis	WDH	Medium	0.7	0.9	1.4	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	62
pitch pine	Pinus rigida	NSH	High	0.3	0.9	2.7	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	63
sweetgum	Liquidambar styraciflua	WDH	High	0.2	0.7	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	64
paper birch	Betula papyrifera	WDH	High	0.3	0.6	1.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	65
eastern cottonwood	Populus deltoides	NSH	Low	0.1	0.5	0.6	No change	Lg. inc.	Medium	Rare	Poor	Good			2	66
American holly	Ilex opaca	NSL	Medium	0.3	0.2	0.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	67
mountain maple	Acer spicatum	NSL	Low	0.3	0.1	0.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	68
balsam fir	Abies balsamea	NDH	High	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	69
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	70
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	71
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	72
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	73
northern white-cedar	Thuja occidentalis	WSH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	75
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	76
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	77
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	78
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	79
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	80
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	81
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat		Likely +	3	82
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	83
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	84
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	85
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	86
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	87
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	88
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	89
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	90
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	91
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	92
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	93