

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

	sq. km	sq. mi	FIA Plots
Area of Region	8,100.0	3,127.4	256

### 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	24	Increase	24	25	Very Good	11	12	Likely	2	2
Hickory	5			Medium	26	51	No Change	10	11	Good	13	15	Infill	2	2
Maple	6	Abundant	3	Low	36	12	Decrease	32	30	Fair	12	10	Migrate	3	7
Oak	10	Common	35	FIA	5		New	12	13	Poor	10	10			
Pine	5	Rare	33				Unknown	12	11	Very Poor	15	17			
Other	42	Absent	17							FIA Only	2	2			
	<b>71</b>		<b>88</b>		<b>90</b>	<b>87</b>		<b>90</b>	<b>90</b>	Unknown	7	6			
											<b>70</b>	<b>72</b>			

### Potential Changes in Climate Variables

#### Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	55.4	57.3	59.6	59.7	
	CCSM85	55.4	57.7	60.1	63.1	
	GFDL45	55.4	58.1	60.7	61.5	
	GFDL85	55.4	58.4	61.8	65.4	
	HAD45	55.4	57.7	60.9	62.2	
	HAD85	55.4	58.1	62.5	66.5	
Growing Season (May—Sep)	CCSM45	70.0	71.9	74.0	74.5	
	CCSM85	70.0	72.2	74.8	78.7	
	GFDL45	70.0	73.2	76.5	77.7	
	GFDL85	70.0	73.7	77.9	81.8	
	HAD45	70.0	73.2	76.2	77.8	
	HAD85	70.0	73.4	79.5	83.4	
Coldest Month (Average)	CCSM45	33.4	35.4	36.6	36.8	
	CCSM85	33.4	36.2	37.0	38.3	
	GFDL45	33.4	36.8	36.8	37.3	
	GFDL85	33.4	35.2	36.2	37.0	
	HAD45	33.4	33.4	35.5	36.0	
	HAD85	33.4	34.7	36.3	38.0	
Warmest Month (Average)	CCSM45	75.1	77.1	78.3	78.5	
	CCSM85	75.1	77.3	79.0	80.8	
	GFDL45	75.1	78.7	80.5	81.4	
	GFDL85	75.1	79.2	81.9	84.1	
	HAD45	75.1	79.0	81.3	82.2	
	HAD85	75.1	80.2	84.5	86.5	

#### Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	49.6	52.3	55.9	55.0	
	CCSM85	49.6	55.0	56.3	60.1	
	GFDL45	49.6	54.9	56.1	60.2	
	GFDL85	49.6	54.3	58.1	60.3	
	HAD45	49.6	48.6	51.9	52.6	
	HAD85	49.6	51.1	48.0	50.6	
Growing Season (May—Sep)	CCSM45	21.2	22.2	23.4	22.9	
	CCSM85	21.2	23.4	22.2	23.7	
	GFDL45	21.2	23.9	23.5	24.7	
	GFDL85	21.2	23.0	24.0	24.7	
	HAD45	21.2	21.0	20.3	20.9	
	HAD85	21.2	21.8	18.2	19.2	

**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
yellow-poplar	Liriodendron tulipifera	WDH	High	93.8	1159.1	12.4	Lg. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
red maple	Acer rubrum	WDH	High	88.9	924.8	10.4	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	2
chestnut oak	Quercus prinus	NDH	High	65.4	562.0	8.6	No change	No change	High	Abundant	Very Good	Very Good			1	3
Virginia pine	Pinus virginiana	NDH	High	54.3	484.0	8.9	No change	No change	Medium	Common	Fair	Fair			1	4
sugar maple	Acer saccharum	WDH	High	82.7	467.8	5.7	Sm. dec.	Lg. dec.	High	Common	Fair	Fair			1	5
white oak	Quercus alba	WDH	Medium	72.8	392.3	5.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	6
eastern redcedar	Juniperus virginiana	WDH	Medium	33.3	377.6	11.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
American beech	Fagus grandifolia	WDH	High	71.6	366.0	5.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	8
pignut hickory	Carya glabra	WDL	Medium	69.1	329.4	4.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	9
sourwood	Oxydendrum arboreum	NDL	High	80.2	293.2	3.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	10
sassafras	Sassafras albidum	WSL	Low	66.7	287.1	4.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	11
scarlet oak	Quercus coccinea	WDL	Medium	60.5	281.6	4.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	12
blackgum	Nyssa sylvatica	WDL	Medium	74.1	266.5	3.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	13
northern red oak	Quercus rubra	WDH	Medium	67.9	264.4	3.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	14
black locust	Robinia pseudoacacia	NDH	Low	54.3	238.6	4.4	No change	No change	Medium	Common	Fair	Fair			1	15
mockernut hickory	Carya alba	WDL	Medium	51.9	228.5	4.4	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
flowering dogwood	Cornus florida	WDL	Medium	69.1	202.2	2.9	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	17
black oak	Quercus velutina	WDH	High	54.3	193.2	3.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
sweetgum	Liquidambar styraciflua	WDH	High	24.7	188.3	7.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
white ash	Fraxinus americana	WDL	Medium	43.2	155.7	3.6	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	20
sweet birch	Betula lenta	NDH	High	42	144.0	3.4	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	21
shagbark hickory	Carya ovata	WSL	Medium	42	135.2	3.2	No change	No change	Medium	Common	Fair	Fair			1	22
sycamore	Platanus occidentalis	NSL	Low	23.5	124.2	5.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	23
shortleaf pine	Pinus echinata	WDH	High	35.8	121.9	3.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	24
black walnut	Juglans nigra	WDH	Low	32.1	118.2	3.7	No change	No change	Medium	Common	Fair	Fair			1	25
American basswood	Tilia americana	WSL	Medium	28.4	113.9	4.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	26
eastern hemlock	Tsuga canadensis	NSH	High	19.8	113.9	5.8	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	27
southern red oak	Quercus falcata	WDL	Medium	17.3	97.6	5.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	28
eastern redbud	Cercis canadensis	NSL	Low	44.4	93.7	2.1	No change	No change	Medium	Common	Fair	Fair			1	29
black cherry	Prunus serotina	WDL	Medium	33.3	88.9	2.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	30
bitternut hickory	Carya cordiformis	WSL	Low	29.6	88.5	3.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	31
American elm	Ulmus americana	WDH	Medium	27.2	86.1	3.2	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	32
cucumbertree	Magnolia acuminata	NSL	Low	38.3	79.8	2.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	33
ailanthus	Ailanthus altissima	NSL	FIA	16	66.8	4.2	Unknown	Unknown	NA	Common	NNIS	NNIS			0	34
chinkapin oak	Quercus muehlenbergii	NSL	Medium	16	65.6	4.1	No change	No change	Medium	Common	Fair	Fair			1	35
paulownia	Paulownia tomentosa	NSL	FIA	14.8	62.3	4.2	Unknown	Unknown	NA	Common	NNIS	NNIS			0	36
green ash	Fraxinus pennsylvanica	WSH	Low	21	58.7	2.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	37
yellow buckeye	Aesculus flava	NSL	Low	28.4	54.7	1.9	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	38
red mulberry	Morus rubra	NSL	Low	16	49.6	3.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
boxelder	Acer negundo	WSH	Low	9.9	49.3	5.0	No change	No change	High	Rare	Fair	Fair			1	40
pitch pine	Pinus rigida	NSH	High	9.9	43.9	4.4	No change	No change	Medium	Rare	Poor	Poor			1	41
common persimmon	Diospyros virginiana	NSL	Low	16	37.3	2.3	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	42
slippery elm	Ulmus rubra	WSL	Low	24.7	33.2	1.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	43
eastern white pine	Pinus strobus	WDH	High	6.2	32.4	5.2	No change	No change	Low	Rare	Very Poor	Very Poor			0	44
serviceberry	Amelanchier spp.	NSL	Low	24.7	32.3	1.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	45
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	14.8	26.9	1.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	46
winged elm	Ulmus alata	WDL	Medium	12.3	24.0	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	47

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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	11.1	23.8	2.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 48
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	8.6	22.3	2.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor				0 49
river birch	Betula nigra	NSL	Low	6.2	20.8	3.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 50
black willow	Salix nigra	NSH	Low	3.7	15.7	4.2	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor				2 51
white mulberry	Morus alba	NSL	FIA	7.4	9.6	1.3	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 52
Ohio buckeye	Aesculus glabra	NSL	Low	3.7	9.5	2.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 53
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	9.9	7.9	0.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good				1 54
post oak	Quercus stellata	WDH	High	7.4	7.7	1.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++		2 55
hackberry	Celtis occidentalis	WDH	Medium	3.7	7.1	1.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++		1 56
loblolly pine	Pinus taeda	WDH	High	3.7	6.9	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 57
blue ash	Fraxinus quadrangulata	NSL	Low	2.5	6.6	2.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor				0 58
black maple	Acer nigrum	NSH	Low	1.2	5.7	4.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor				0 59
eastern cottonwood	Populus deltoides	NSH	Low	2.5	4.4	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 60
butternut	Juglans cinerea	NSLX	FIA	1.2	4.1	3.3	Unknown	Unknown	Low	Rare	FIA Only	FIA Only				0 61
willow oak	Quercus phellos	NSL	Low	1.2	3.0	2.4	Very Lg. dec.	Sm. dec.	Medium	Rare	Lost	Very Poor				0 62
American holly	Ilex opaca	NSL	Medium	3.7	2.4	0.7	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor				0 63
pawpaw	Asimina triloba	NSL	Low	3.7	2.4	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 64
shellbark hickory	Carya laciniosa	NSL	Low	2.5	2.3	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 65
Osage-orange	Maclura pomifera	NDH	Medium	2.5	1.4	0.6	Very Lg. dec.	Sm. inc.	High	Rare	Lost	Good				2 66
bigtooth aspen	Populus grandidentata	NSL	Medium	1.2	1.3	1.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 67
silver maple	Acer saccharinum	NSH	Low	1.2	0.8	0.6	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost				0 68
striped maple	Acer pensylvanicum	NSL	Medium	1.2	0.7	0.6	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 69
chokecherry	Prunus virginiana	NSLX	FIA	1.2	0.6	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 70
blackjack oak	Quercus marilandica	NSL	Medium	1.2	0.5	0.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 71
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 72
red spruce	Picea rubens	NDH	High	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 73
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			Migrate +	3 74
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +		3 75
northern white-cedar	Thuja occidentalis	WSH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 76
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 77
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 78
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				3 79
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +		3 80
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 81
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 82
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			Migrate +	3 83
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 84
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 85
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			Migrate +	3 86
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 87
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 88
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 89
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			Migrate +	3 90