

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	32,802	12,665	925

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	26	27	Increase	23	28	Very Good	7	10	Likely	0	0
Hickory	5			Medium	30	56	No Change	16	11	Good	15	17	Infill	15	17
Maple	7	Abundant	7	Low	39	18	Decrease	23	23	Fair	14	11	Migrate	9	18
Oak	11	Common	21	FIA	11		New	26	30	Poor	11	10			
Pine	4	Rare	45				Unknown	18	14	Very Poor	15	14			
Other	43	Absent	33							FIA Only	6	6			
	73		106		106	101		106	106	Unknown	7	3			
											75	71			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	42.9	44.5	46.4	46.5	
Average	CCSM85	42.9	44.9	47.0	49.6	
	GFDL45	42.9	45.3	48.1	49.2	
	GFDL85	42.9	45.8	49.2	53.1	
	HAD45	42.9	45.4	48.0	49.5	
	HAD85	42.9	45.4	48.9	53.3	
Growing Season	CCSM45	57.0	58.8	60.2	60.7	
	CCSM85	57.0	59.0	61.0	64.2	
May—Sep	GFDL45	57.0	59.6	62.9	64.1	
	GFDL85	57.0	60.4	64.1	68.2	
	HAD45	57.0	59.6	61.8	63.7	
	HAD85	57.0	59.2	63.0	67.9	
Coldest Month	CCSM45	20.9	22.4	24.2	24.4	
	CCSM85	20.9	23.2	24.2	26.1	
Average	GFDL45	20.9	23.6	25.3	26.0	
	GFDL85	20.9	24.2	25.7	27.8	
	HAD45	20.9	22.8	25.3	25.5	
	HAD85	20.9	23.8	25.8	28.6	
Warmest Month	CCSM45	61.9	63.9	64.8	65.0	
	CCSM85	61.9	64.3	65.6	67.3	
Average	GFDL45	61.9	64.3	66.1	67.2	
	GFDL85	61.9	65.4	67.7	69.9	
	HAD45	61.9	64.6	65.9	67.1	
	HAD85	61.9	64.5	66.6	70.2	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	37.8	37.6	36.6	40.4	
Total	CCSM85	37.8	38.2	39.6	41.2	
	GFDL45	37.8	41.6	43.2	42.1	
	GFDL85	37.8	39.7	42.4	44.4	
	HAD45	37.8	39.5	40.8	40.3	
	HAD85	37.8	40.5	40.4	42.9	
Growing Season	CCSM45	17.1	17.6	16.5	18.0	
	CCSM85	17.1	17.2	18.1	17.2	
May—Sep	GFDL45	17.1	17.7	17.1	17.3	
	GFDL85	17.1	17.2	17.1	16.8	
	HAD45	17.1	18.1	17.0	17.6	
	HAD85	17.1	17.3	17.0	17.9	

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
sugar maple	Acer saccharum	WDH	High	81.1	1505.8	13.7	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	1
red maple	Acer rubrum	WDH	High	87	1329.0	11.7	No change	No change	High	Abundant	Very Good	Very Good			1	2
American beech	Fagus grandifolia	WDH	High	62	953.0	11.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	3
eastern hemlock	Tsuga canadensis	NSH	High	55.8	738.8	10.5	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	4
eastern white pine	Pinus strobus	WDH	High	49.7	696.1	11.3	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	5
white ash	Fraxinus americana	WDL	Medium	67.7	664.4	7.2	No change	No change	Low	Abundant	Fair	Fair			0	6
northern red oak	Quercus rubra	WDH	Medium	48.5	548.0	8.6	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	7
yellow birch	Betula alleghaniensis	NDL	High	50.9	497.9	6.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	8
black cherry	Prunus serotina	WDL	Medium	56.7	379.1	5.2	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	9
red spruce	Picea rubens	NDH	High	30.6	297.7	7.0	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	10
quaking aspen	Populus tremuloides	WDH	High	29.9	251.2	6.5	No change	No change	Medium	Common	Fair	Fair			1	11
American elm	Ulmus americana	WDH	Medium	38.2	246.1	5.7	No change	Sm. inc.	Medium	Common	Fair	Good			1	12
balsam fir	Abies balsamea	NDH	High	24.2	243.6	6.8	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	13
chestnut oak	Quercus prinus	NDH	High	18.3	236.2	8.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	14
sweet birch	Betula lenta	NDH	High	33.4	215.3	4.5	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	15
paper birch	Betula papyrifera	WDH	High	28.7	155.7	3.4	No change	Sm. dec.	Medium	Common	Fair	Poor			1	16
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	45.9	150.9	2.7	No change	No change	High	Common	Good	Good			1	17
black oak	Quercus velutina	WDH	High	14.7	114.5	6.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	18
white oak	Quercus alba	WDH	Medium	19.5	109.0	4.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	19
American basswood	Tilia americana	WSL	Medium	31.1	108.1	3.2	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	20
shagbark hickory	Carya ovata	WSL	Medium	18.5	88.8	4.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	21
bitternut hickory	Carya cordiformis	WSL	Low	13.6	83.8	4.7	No change	Sm. inc.	High	Common	Good	Very Good			1	22
striped maple	Acer pennsylvanicum	NSL	Medium	32.9	81.3	1.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	23
eastern cottonwood	Populus deltoides	NSH	Low	3.6	75.4	20.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	24
pignut hickory	Carya glabra	WDL	Medium	16.8	74.4	3.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	25
eastern redcedar	Juniperus virginiana	WDH	Medium	9.9	71.8	7.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	26
green ash	Fraxinus pennsylvanica	WSH	Low	8.2	67.1	8.2	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	27
swamp white oak	Quercus bicolor	NSL	Low	3.5	61.3	16.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			2	28
red pine	Pinus resinosa	NSH	Medium	5.2	59.5	8.1	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	29
black locust	Robinia pseudoacacia	NDH	Low	5.2	54.1	9.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	30
Scots pine	Pinus sylvestris	NSH	FIA	4.4	49.5	9.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	31
bigtooth aspen	Populus grandidentata	NSL	Medium	15.4	48.3	2.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	32
serviceberry	Amelanchier spp.	NSL	Low	22.9	44.7	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	33
boxelder	Acer negundo	WSH	Low	3.5	44.0	11.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	34
Norway spruce	Picea abies	NSH	FIA	2.7	43.4	8.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	35
tamarack (native)	Larix laricina	NSH	High	4.7	40.5	6.9	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	36
pitch pine	Pinus rigida	NSH	High	2.3	33.7	10.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	37
black willow	Salix nigra	NSH	Low	1.9	31.7	12.5	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	38
pin oak	Quercus palustris	NSH	Low	3.7	30.9	11.9	No change	No change	Low	Rare	Very Poor	Very Poor			2	39
northern white-cedar	Thuja occidentalis	WSH	High	5.9	29.0	3.8	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	40
black ash	Fraxinus nigra	WSH	Medium	7.4	29.0	2.9	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	41
American hornbeam; muscle	Carpinus caroliniana	WDL	Low	15.8	27.8	1.6	Sm. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair			1	42
scarlet oak	Quercus coccinea	WDL	Medium	4	26.3	2.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	43
Norway maple	Acer platanoides	NSL	FIA	2.2	24.7	9.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	44
black walnut	Juglans nigra	WDH	Low	2.1	19.0	6.1	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	45
gray birch	Betula populifolia	NSL	Low	7.5	18.3	2.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	46
yellow-poplar	Liriodendron tulipifera	WDH	High	2.1	14.1	4.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	47

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black spruce	<i>Picea mariana</i>	NSH	High	0.9	10.4	10.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	48
blackgum	<i>Nyssa sylvatica</i>	WDL	Medium	3	10.0	1.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	49
ailanthus	<i>Ailanthus altissima</i>	NSL	FIA	1.6	9.0	4.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	50
bur oak	<i>Quercus macrocarpa</i>	NDH	Medium	0.3	8.8	3.4	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	51
silver maple	<i>Acer saccharinum</i>	NSH	Low	0.3	8.1	26.7	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	52
pin cherry	<i>Prunus pensylvanica</i>	NSL	Low	5.4	7.6	1.0	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			1	53
sassafras	<i>Sassafras albidum</i>	WSL	Low	2	5.9	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	54
butternut	<i>Juglans cinerea</i>	NSLX	FIA	3.1	5.4	1.3	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	55
slippery elm	<i>Ulmus rubra</i>	WSL	Low	1.2	4.4	1.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	56
sycamore	<i>Platanus occidentalis</i>	NSL	Low	1.2	4.4	3.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	57
white spruce	<i>Picea glauca</i>	NSL	Medium	0.5	4.2	4.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	58
bear oak; scrub oak	<i>Quercus ilicifolia</i>	NSLX	FIA	1.1	3.8	2.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	59
mockernut hickory	<i>Carya alba</i>	WDL	Medium	3	3.7	1.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	60
American mountain-ash	<i>Sorbus americana</i>	NSL	Low	1.4	3.6	1.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	61
river birch	<i>Betula nigra</i>	NSL	Low	0.3	3.3	10.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	62
flowering dogwood	<i>Cornus florida</i>	WDL	Medium	2.4	2.8	0.9	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	63
hackberry	<i>Celtis occidentalis</i>	WDH	Medium	0.9	1.8	2.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	64
northern pin oak	<i>Quercus ellipsoidalis</i>	NSH	Medium	0.2	1.7	4.5	Sm. dec.	No change	High	Rare	Poor	Fair			0	65
chokecherry	<i>Prunus virginiana</i>	NSLX	FIA	1.5	1.2	0.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	66
mountain maple	<i>Acer spicatum</i>	NSL	Low	1.1	0.8	0.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	67
chinkapin oak	<i>Quercus muehlenbergii</i>	NSL	Medium	0.6	0.7	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	68
American chestnut	<i>Castanea dentata</i>	NSLX	FIA	0.3	0.4	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	69
white mulberry	<i>Morus alba</i>	NSL	FIA	0.3	0.4	1.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	70
shellbark hickory	<i>Carya laciniosa</i>	NSL	Low	0.1	0.2	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	71
wild plum	<i>Prunus americana</i>	NSLX	FIA	0.3	0.2	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	72
northern catalpa	<i>Catalpa speciosa</i>	NSHX	FIA	0.3	0.2	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	73
shortleaf pine	<i>Pinus echinata</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	74
Table Mountain pine	<i>Pinus pungens</i>	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	75
loblolly pine	<i>Pinus taeda</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	76
Virginia pine	<i>Pinus virginiana</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	77
bald cypress	<i>Taxodium distichum</i>	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	78
florida maple	<i>Acer barbatum</i>	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			2	79
black maple	<i>Acer nigrum</i>	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	80
yellow buckeye	<i>Aesculus flava</i>	NSL	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat		Migrate +	3	81
pawpaw	<i>Asimina triloba</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	82
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum</i> ssp. NSL	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	83
pecan	<i>Carya illinoensis</i>	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	84
black hickory	<i>Carya texana</i>	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	85
sugarberry	<i>Celtis laevigata</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	86
eastern redbud	<i>Cercis canadensis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	87
common persimmon	<i>Diospyros virginiana</i>	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	88
honeylocust	<i>Gleditsia triacanthos</i>	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	89
American holly	<i>Ilex opaca</i>	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	90
sweetgum	<i>Liquidambar styraciflua</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	91
cucumbertree	<i>Magnolia acuminata</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	92
southern magnolia	<i>Magnolia grandiflora</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	93
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			0	94

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mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	95
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	96
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	97
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	98
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			0	99
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	100
swamp chestnut oak	Quercus michauxii	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	101
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	102
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	103
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	104
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	105
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	106