

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	9,037.3	3,489.3	138

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				Increase	16	17	Very Good	4	6	Likely	3	3	
Hickory	3				No Change	9	11	Good	12	13	Infill	9	11	
Maple	5	Abundant 6	High	17	23	Decrease	18	15	Fair	11	10	Migrate	9	15
Oak	6	Common 17	Medium	29	40	New	26	26	Poor	5	4			
Pine	3	Rare 24	Low	28	13	Unknown	9	9	Very Poor	8	6			
Other	27	Absent 29	FIA	4					FIA Only	2	2			
	47	76		78	76		78	78	47	46		21	29	

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	41.4	42.6	44.3	44.3	
	CCSM85	41.4	42.9	44.6	46.6	
	GFDL45	41.4	43.3	45.2	45.9	
	GFDL85	41.4	43.5	45.9	48.7	
	HAD45	41.4	43.4	45.5	46.6	
	HAD85	41.4	43.4	46.1	49.5	
Growing Season (May—Sep)	CCSM45	51.6	52.8	54.2	54.5	
	CCSM85	51.6	53.0	54.6	57.1	
	GFDL45	51.6	53.8	56.3	57.3	
	GFDL85	51.6	54.4	57.1	60.3	
	HAD45	51.6	53.9	55.6	57.2	
	HAD85	51.6	53.6	56.7	60.4	
Coldest Month (Average)	CCSM45	25.6	27.0	28.4	28.4	
	CCSM85	25.6	27.6	28.4	29.7	
	GFDL45	25.6	27.2	28.2	28.6	
	GFDL85	25.6	27.7	28.7	30.1	
	HAD45	25.6	26.7	28.8	28.8	
	HAD85	25.6	27.6	29.1	31.3	
Warmest Month (Average)	CCSM45	55.3	56.7	57.6	57.8	
	CCSM85	55.3	57.0	58.1	59.4	
	GFDL45	55.3	57.1	58.6	59.2	
	GFDL85	55.3	58.1	59.6	61.4	
	HAD45	55.3	57.9	58.9	60.0	
	HAD85	55.3	58.0	60.0	62.7	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	26.2	26.4	25.7	27.3	
	CCSM85	26.2	27.1	27.0	27.3	
	GFDL45	26.2	28.6	29.8	29.4	
	GFDL85	26.2	27.1	29.4	30.2	
	HAD45	26.2	26.3	27.1	27.0	
	HAD85	26.2	27.1	26.0	28.2	
Growing Season (May—Sep)	CCSM45	12.0	12.1	11.3	12.0	
	CCSM85	12.0	11.7	11.5	11.2	
	GFDL45	12.0	12.6	12.5	12.2	
	GFDL85	12.0	11.9	12.1	11.8	
	HAD45	12.0	11.7	10.8	11.4	
	HAD85	12.0	11.7	10.0	10.4	

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	65	1456.4	16.2	Sm. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
sugar maple	Acer saccharum	WDH	High	61	913.1	12.2	No change	No change	High	Abundant	Very Good	Very Good			1	2
white ash	Fraxinus americana	WDL	Medium	52.1	692.6	8.6	No change	No change	Low	Abundant	Fair	Fair			0	3
black cherry	Prunus serotina	WDL	Medium	61.7	614.6	6.8	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	4
green ash	Fraxinus pennsylvanica	WSH	Low	34.5	606.0	17.8	Sm. dec.	No change	Medium	Abundant	Fair	Good			1	5
quaking aspen	Populus tremuloides	WDH	High	34.9	563.0	10.4	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	6
eastern hemlock	Tsuga canadensis	NSH	High	29.4	357.3	7.7	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	7
American beech	Fagus grandifolia	WDH	High	40.9	265.3	4.8	No change	No change	Medium	Common	Fair	Fair			1	8
Scots pine	Pinus sylvestris	NSH	FIA	16	261.6	14.0	Unknown	Unknown	NA	Common	NNIS	NNIS			0	9
American elm	Ulmus americana	WDH	Medium	50	191.8	3.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	10
American basswood	Tilia americana	WSL	Medium	33.2	184.5	5.1	No change	No change	Medium	Common	Fair	Fair			1	11
northern red oak	Quercus rubra	WDH	Medium	9.3	133.2	4.2	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	12
silver maple	Acer saccharinum	NSH	Low	11.6	129.1	8.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	13
bitternut hickory	Carya cordiformis	WSL	Low	23.4	119.5	4.1	No change	Sm. inc.	High	Common	Good	Very Good			1	14
black ash	Fraxinus nigra	WSH	Medium	10.7	107.2	7.7	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	15
Norway spruce	Picea abies	NSH	FIA	14	97.0	5.9	Unknown	Unknown	NA	Common	NNIS	NNIS			0	16
white spruce	Picea glauca	NSL	Medium	2.6	91.2	41.2	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	17
shagbark hickory	Carya ovata	WSL	Medium	12.7	88.7	5.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	18
eastern cottonwood	Populus deltoides	NSH	Low	15.4	87.8	6.0	No change	No change	Medium	Common	Fair	Fair			1	19
American hornbeam; musclee	Carpinus caroliniana	WSL	Low	22.2	77.9	2.4	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
eastern white pine	Pinus strobus	WDH	High	11.6	72.7	3.9	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	21
yellow birch	Betula alleghaniensis	NDL	High	20.9	68.2	2.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	22
bigtooth aspen	Populus grandidentata	NSL	Medium	10.7	61.7	5.9	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	23
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	24.2	61.6	2.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	24
pin cherry	Prunus pensylvanica	NSL	Low	6.4	46.6	6.8	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	25
yellow-poplar	Liriodendron tulipifera	WDH	High	8.5	36.0	2.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	26
black walnut	Juglans nigra	WDH	Low	6.2	33.3	4.1	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	27
black locust	Robinia pseudoacacia	NDH	Low	5	32.8	4.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	28
red pine	Pinus resinosa	NSH	Medium	4.5	31.2	6.3	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	29
white oak	Quercus alba	WDH	Medium	5.9	30.7	3.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	30
black willow	Salix nigra	NSH	Low	5.3	20.3	1.7	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	31
chokecherry	Prunus virginiana	NSLX	FIA	7.3	16.5	4.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	32
swamp white oak	Quercus bicolor	NSL	Low	6.2	15.1	1.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	33
bur oak	Quercus macrocarpa	NDH	Medium	1.7	13.1	3.6	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	34
serviceberry	Amelanchier spp.	NSL	Low	12.9	13.0	1.0	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
blackgum	Nyssa sylvatica	WDL	Medium	4.4	11.1	3.0	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	36
cucumber tree	Magnolia acuminata	NSL	Low	3.6	4.5	0.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	37
pignut hickory	Carya glabra	WDL	Medium	1.3	4.3	3.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	38
butternut	Juglans cinerea	NSLX	FIA	1.9	3.1	1.2	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	39
sassafras	Sassafras albidum	WSL	Low	1.1	3.1	2.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	40
boxelder	Acer negundo	WSH	Low	1.3	3.0	2.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	41
chestnut oak	Quercus prinus	NDH	High	2.4	2.6	4.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	42
pin oak	Quercus palustris	NSH	Low	4.8	1.6	5.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	43
striped maple	Acer pensylvanicum	NSL	Medium	1.7	1.5	0.5	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	44
sourwood	Oxydendrum arboreum	NDL	High	0.2	1.0	0.1	Very Lg. dec.	No change	High	Rare	Lost	Fair		Infill +	2	45
slippery elm	Ulmus rubra	WSL	Low	0.8	0.5	0.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	46
American mountain-ash	Sorbus americana	NSL	Low	1.3	0.3	0.3	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	47

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eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	48
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	49
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	50
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	51
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	52
paper birch	Betula papyrifera	WDH	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	53
gray birch	Betula populifolia	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	54
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	55
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	56
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	57
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	58
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	59
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	60
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	61
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	62
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	63
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	64
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	65
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	66
red mulberry	Morus rubra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	67
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	68
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	69
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	70
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	71
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	72
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	73
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	74
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	75
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	76
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	77
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	78