

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	7,871.8	3,039.3	142

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	23	Increase	14	18	Very Good	5	5	Likely	1	1
Hickory	5			Medium	25	40	No Change	11	9	Good	13	15	Infill	6	7
Maple	5	Abundant	3	Low	31	12	Decrease	25	23	Fair	8	7	Migrate	8	12
Oak	9	Common	23	FIA	4		New	19	20	Poor	10	9			
Pine	2	Rare	28				Unknown	9	8	Very Poor	10	9			
Other	30	Absent	23							FIA Only	1	1			
	54		77		78	75		78	78	Unknown	5	4			
											52	50			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	44.5	45.8	47.8	47.8	
	CCSM85	44.5	46.3	48.1	50.4	
	GFDL45	44.5	46.8	48.7	49.5	
	GFDL85	44.5	46.9	49.5	52.6	
	HAD45	44.5	46.8	49.3	50.5	
HAD85	44.5	46.9	50.2	53.9		
Growing Season (May—Sep)	CCSM45	56.4	57.7	59.4	59.7	
	CCSM85	56.4	58.1	59.9	62.8	
	GFDL45	56.4	59.1	61.6	62.6	
	GFDL85	56.4	59.4	62.5	66.0	
	HAD45	56.4	59.0	61.1	62.9	
HAD85	56.4	58.8	62.8	66.8		
Coldest Month Average	CCSM45	26.0	27.4	28.8	28.9	
	CCSM85	26.0	28.1	29.0	30.5	
	GFDL45	26.0	28.1	28.9	29.4	
	GFDL85	26.0	28.6	29.5	30.7	
	HAD45	26.0	27.0	29.3	29.4	
HAD85	26.0	28.0	29.8	32.0		
Warmest Month Average	CCSM45	60.7	62.1	63.1	63.3	
	CCSM85	60.7	62.6	63.7	65.4	
	GFDL45	60.7	62.9	64.4	65.1	
	GFDL85	60.7	63.7	65.2	67.3	
	HAD45	60.7	63.5	65.0	66.2	
HAD85	60.7	64.0	66.7	69.6		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	29.2	29.8	29.7	31.1	
	CCSM85	29.2	30.3	30.7	31.4	
	GFDL45	29.2	32.1	34.4	34.8	
	GFDL85	29.2	30.8	34.8	36.4	
	HAD45	29.2	29.5	30.4	30.2	
HAD85	29.2	30.7	28.5	31.0		
Growing Season (May—Sep)	CCSM45	13.8	13.8	13.6	14.0	
	CCSM85	13.8	13.4	13.7	13.1	
	GFDL45	13.8	15.1	15.6	15.9	
	GFDL85	13.8	14.4	15.5	15.7	
	HAD45	13.8	13.8	12.7	13.2	
HAD85	13.8	13.7	11.2	11.8		

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	81.2	1724.8	18.5	Lg. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
sugar maple	Acer saccharum	WDH	High	53.1	621.1	9.5	No change	No change	High	Abundant	Very Good	Very Good			1	2
black cherry	Prunus serotina	WDL	Medium	65.5	518.8	7.4	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	3
American elm	Ulmus americana	WDH	Medium	70.3	470.2	6.0	No change	Sm. inc.	Medium	Common	Fair	Good			1	4
green ash	Fraxinus pennsylvanica	WSH	Low	56.8	396.9	7.8	No change	Sm. inc.	Medium	Common	Fair	Good			1	5
yellow-poplar	Liriodendron tulipifera	WDH	High	31.6	390.0	10.5	No change	No change	High	Common	Good	Good			1	6
white ash	Fraxinus americana	WDL	Medium	58.5	374.2	6.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	7
northern red oak	Quercus rubra	WDH	Medium	54.7	347.3	5.8	No change	Sm. dec.	High	Common	Good	Fair			1	8
American beech	Fagus grandifolia	WDH	High	39.3	282.8	5.9	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	9
pin oak	Quercus palustris	NSH	Low	27.3	253.6	9.1	Sm. dec.	No change	Low	Common	Poor	Poor			0	10
silver maple	Acer saccharinum	NSH	Low	31.6	227.2	6.8	No change	Sm. inc.	High	Common	Good	Very Good			1	11
American basswood	Tilia americana	WSL	Medium	43.2	171.5	4.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	12
shagbark hickory	Carya ovata	WSL	Medium	40.4	167.8	3.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
bitternut hickory	Carya cordiformis	WSL	Low	31.4	143.7	4.2	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	14
quaking aspen	Populus tremuloides	WDH	High	14.1	135.9	5.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	15
blackgum	Nyssa sylvatica	WDL	Medium	36.1	121.5	2.8	Sm. dec.	No change	High	Common	Fair	Good			1	16
swamp white oak	Quercus bicolor	NSL	Low	19	116.2	5.4	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	17
eastern cottonwood	Populus deltoides	NSH	Low	29.9	103.8	6.9	Sm. dec.	No change	Medium	Common	Poor	Fair			1	18
bigtooth aspen	Populus grandidentata	NSL	Medium	24.4	92.1	2.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	19
eastern white pine	Pinus strobus	WDH	High	10.9	90.7	6.7	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	20
sycamore	Platanus occidentalis	NSL	Low	8.2	87.3	8.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	21
Norway spruce	Picea abies	NSH	FIA	10.3	71.1	9.4	Unknown	Unknown	NA	Common	NNIS	NNIS			0	22
black locust	Robinia pseudoacacia	NDH	Low	12.9	66.6	6.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
black ash	Fraxinus nigra	WSH	Medium	8.5	66.1	6.9	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	24
white oak	Quercus alba	WDH	Medium	15.8	57.1	3.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	25
sassafras	Sassafras albidum	WSL	Low	13.8	55.0	3.3	Lg. inc.	Sm. inc.	Medium	Common	Very Good	Good			1	26
black willow	Salix nigra	NSH	Low	10.6	47.9	3.0	Lg. dec.	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	1	27
boxelder	Acer negundo	WSH	Low	6.8	47.3	2.5	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	28
ailanthus	Ailanthus altissima	NSL	FIA	2.5	46.2	18.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	29
Osage-orange	Maclura pomifera	NDH	Medium	3.4	38.6	9.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	30
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	16.6	38.4	1.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	31
Scots pine	Pinus sylvestris	NSH	FIA	3.9	37.5	5.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	32
black walnut	Juglans nigra	WDH	Low	16.1	32.3	4.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	33
slippery elm	Ulmus rubra	WSL	Low	12.6	32.2	2.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	34
bur oak	Quercus macrocarpa	NDH	Medium	6.3	31.3	4.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	35
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	16.9	30.5	1.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	36
eastern hemlock	Tsuga canadensis	NSH	High	4.5	25.9	4.7	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	37
serviceberry	Amelanchier spp.	NSL	Low	5.3	22.7	1.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	38
black oak	Quercus velutina	WDH	High	1.3	22.0	17.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	39
yellow birch	Betula alleghaniensis	NDL	High	4.3	16.3	2.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	40
cucumbertree	Magnolia acuminata	NSL	Low	6.3	11.2	1.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	41
chokecherry	Prunus virginiana	NSLX	FIA	1.6	9.8	2.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	42
balsam fir	Abies balsamea	NDH	High	1.3	6.4	5.1	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	43
pignut hickory	Carya glabra	WDL	Medium	6.3	6.1	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	44
flowering dogwood	Cornus florida	WDL	Medium	5.2	4.9	0.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	45
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.3	3.8	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	46
black maple	Acer nigrum	NSH	Low	1.3	3.4	2.7	Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost			0	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
swamp chestnut oak	Quercus michauxii	NSL	Low	1.3	2.0	1.6	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	48
shellbark hickory	Carya laciniosa	NSL	Low	1.3	1.8	1.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	49
pin cherry	Prunus pensylvanica	NSL	Low	1.5	1.6	0.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	50
sourwood	Oxydendrum arboreum	NDL	High	0.8	1.1	0.6	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	51
sweetgum	Liquidambar styraciflua	WDH	High	5.1	1.0	0.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	52
scarlet oak	Quercus coccinea	WDL	Medium	6.9	0.7	0.5	No change	No change	Medium	Rare	Poor	Poor	Infill +		2	53
mockernut hickory	Carya alba	WDL	Medium	1.8	0.5	0.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	54
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	55
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	56
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	57
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	58
sweet birch	Betula lenta	NDH	High	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	59
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	60
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	61
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	62
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	63
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	64
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	65
blue ash	Fraxinus quadrangulata	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	66
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	67
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	68
red mulberry	Morus rubra	NSL	Low	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
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	71
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	72
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	73
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	74
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	75
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	76
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	77
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	78