

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	8,300.0	3,204.6	213

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	2			High	19	25	Increase	20	26	Very Good	6	7	Likely	1	1
Hickory	4			Medium	27	50	No Change	16	14	Good	15	22	Infill	29	32
Maple	4	Abundant	4	Low	37	11	Decrease	20	16	Fair	15	10	Migrate	5	8
Oak	11	Common	24	FIA	6		New	15	18	Poor	9	9			
Pine	7	Rare	34				Unknown	18	15	Very Poor	9	7			
Other	34	Absent	25							FIA Only	3	3			
	62		87		89	86		89	89	Unknown	12	9			
											69	67			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	52.8	54.6	56.9	57.1	
Average	52.8	55.0	57.6	60.7	
GFDL45	52.8	55.9	58.5	59.6	
GFDL85	52.8	56.2	59.6	63.6	
HAD45	52.8	55.4	58.8	60.2	
HAD85	52.8	55.6	59.7	64.4	
Growing Season	68.2	70.1	72.1	72.6	
May—Sep	68.2	70.4	73.1	77.0	
GFDL45	68.2	71.8	75.0	76.6	
GFDL85	68.2	72.5	76.4	80.9	
HAD45	68.2	71.2	74.5	76.3	
HAD85	68.2	71.2	76.2	81.4	
Coldest Month	29.7	31.6	33.1	33.5	
Average	29.7	32.2	33.4	34.9	
GFDL45	29.7	32.9	33.4	34.1	
GFDL85	29.7	32.4	33.5	34.9	
HAD45	29.7	31.2	33.4	33.5	
HAD85	29.7	31.6	33.4	35.2	
Warmest Month	73.8	76.0	77.0	77.4	
Average	73.8	76.1	78.0	79.8	
GFDL45	73.8	77.1	79.1	80.5	
GFDL85	73.8	78.6	81.0	83.7	
HAD45	73.8	77.3	79.5	80.6	
HAD85	73.8	77.8	81.1	84.5	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	39.9	43.5	44.6	45.5	
Total	39.9	43.8	44.9	50.8	
GFDL45	39.9	44.3	46.3	46.6	
GFDL85	39.9	40.8	46.8	47.8	
HAD45	39.9	42.7	43.3	42.5	
HAD85	39.9	45.1	41.4	44.6	
Growing Season	18.9	21.7	22.5	22.3	
May—Sep	18.9	21.7	21.7	24.2	
GFDL45	18.9	19.9	20.2	20.3	
GFDL85	18.9	18.0	20.3	20.5	
HAD45	18.9	20.6	19.3	18.9	
HAD85	18.9	20.8	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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Cedar Creek and Belle Grove

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
chestnut oak	Quercus prinus	NDH	High	74.7	1412.9	21.1	Sm. dec.	Sm. dec.	High	Abundant	Good	Good	Infill ++	Infill ++	1	1
white oak	Quercus alba	WDH	Medium	72.3	781.2	12.0	No change	No change	High	Abundant	Very Good	Very Good	Infill ++	Infill ++	1	2
yellow-poplar	Liriodendron tulipifera	WDH	High	51.8	661.3	13.9	Sm. dec.	Lg. dec.	High	Abundant	Good	Good	Infill ++	Infill ++	1	3
red maple	Acer rubrum	WDH	High	74.7	647.3	8.7	No change	Sm. dec.	High	Abundant	Very Good	Good			1	4
black oak	Quercus velutina	WDH	High	68.7	482.8	8.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	5
blackgum	Nyssa sylvatica	WDL	Medium	68.7	421.0	6.5	Sm. dec.	No change	High	Common	Fair	Good	Infill +	Infill ++	1	6
northern red oak	Quercus rubra	WDH	Medium	54.2	383.2	7.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	7
black locust	Robinia pseudoacacia	NDH	Low	60.2	326.3	5.8	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	1	8
Virginia pine	Pinus virginiana	NDH	High	50.6	316.9	6.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	9
scarlet oak	Quercus coccinea	WDL	Medium	50.6	310.4	6.9	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	1	10
eastern white pine	Pinus strobus	WDH	High	32.5	294.8	9.1	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	11
eastern redcedar	Juniperus virginiana	WDH	Medium	20.5	294.4	14.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	12
pignut hickory	Carya glabra	WDL	Medium	74.7	278.9	4.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	13
white ash	Fraxinus americana	WDL	Medium	50.6	254.0	5.0	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	14
black cherry	Prunus serotina	WDL	Medium	47	228.8	5.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	15
sassafras	Sassafras albidum	WSL	Low	44.6	169.1	3.8	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	16
ailanthus	Ailanthus altissima	NSL	FIA	34.9	151.7	4.9	Unknown	Unknown	NA	Common	NNIS	NNIS			0	17
mockernut hickory	Carya alba	WDL	Medium	37.3	138.9	3.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	18
sweet birch	Betula lenta	NDH	High	24.1	113.9	4.7	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	19
black walnut	Juglans nigra	WDH	Low	31.3	108.2	4.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	20
flowering dogwood	Cornus florida	WDL	Medium	31.3	93.9	3.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	21
pitch pine	Pinus rigida	NSH	High	27.7	89.4	3.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	22
American basswood	Tilia americana	WSL	Medium	13.3	88.7	6.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	23
sycamore	Platanus occidentalis	NSL	Low	15.7	87.9	7.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	2	24
eastern hemlock	Tsuga canadensis	NSH	High	10.8	71.2	6.6	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	25
hackberry	Celtis occidentalis	WDH	Medium	21.7	56.2	3.1	Sm. dec.	Sm. inc.	High	Common	Fair	Very Good			2	26
loblolly pine	Pinus taeda	WDH	High	4.8	52.9	11.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			2	27
shagbark hickory	Carya ovata	WSL	Medium	15.7	50.5	3.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	28
boxelder	Acer negundo	WSH	Low	4.8	41.0	8.5	No change	No change	High	Rare	Good	Fair			2	29
eastern redbud	Cercis canadensis	NSL	Low	22.9	39.1	1.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	30
serviceberry	Amelanchier spp.	NSL	Low	22.9	37.0	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
sugar maple	Acer saccharum	WDH	High	13.3	36.7	2.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	32
American elm	Ulmus americana	WDH	Medium	21.7	33.1	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	33
pin oak	Quercus palustris	NSH	Low	4.8	32.3	6.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	34
striped maple	Acer pensylvanicum	NSL	Medium	10.8	26.9	2.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
slippery elm	Ulmus rubra	WSL	Low	7.2	24.3	3.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	36
common persimmon	Diospyros virginiana	NSL	Low	7.2	22.5	3.1	No change	Sm. inc.	High	Rare	Fair	Good		Infill ++	2	37
bitternut hickory	Carya cordiformis	WSL	Low	12	21.8	3.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	38
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	8.4	19.8	2.3	No change	No change	High	Rare	Fair	Fair		Infill +	1	39
Table Mountain pine	Pinus pungens	NSL	Low	4.8	18.9	3.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	40
cucumbertree	Magnolia acuminata	NSL	Low	1.2	13.7	11.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	41
American beech	Fagus grandifolia	WDH	High	2.4	12.8	5.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	42
swamp chestnut oak	Quercus michauxii	NSL	Low	1.2	12.3	10.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	43
bigtooth aspen	Populus grandidentata	NSL	Medium	2.4	10.5	4.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	44
bear oak; scrub oak	Quercus ilicifolia	NSLX	FIA	3.6	9.1	2.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	45
shortleaf pine	Pinus echinata	WDH	High	3.6	8.6	2.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	46
black willow	Salix nigra	NSH	Low	1.2	4.8	4.0	Sm. dec.	Lg. inc.	Low	Rare	Very Poor	Fair			2	47



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pawpaw	Asimina triloba	NSL	Low	3.6	4.6	1.3	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 48
butternut	Juglans cinerea	NSLX	FIA	7.2	4.1	1.7	Unknown	Unknown	Low	Rare	FIA Only	FIA Only				0 49
post oak	Quercus stellata	WDH	High	2.4	4.0	1.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 50
Scots pine	Pinus sylvestris	NSH	FIA	1.2	3.0	2.5	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 51
river birch	Betula nigra	NSL	Low	2.4	2.7	1.1	Sm. dec.	Lg. inc.	Medium	Rare	Very Poor	Good				0 52
red mulberry	Morus rubra	NSL	Low	1.2	2.7	2.2	No change	No change	Medium	Rare	Poor	Poor				2 53
paulownia	Paulownia tomentosa	NSL	FIA	1.2	2.1	1.7	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 54
Osage-orange	Maclura pomifera	NDH	Medium	1.2	2.0	1.7	Very Lg. dec.	Lg. inc.	High	Rare	Lost	Good				2 55
blackjack oak	Quercus marilandica	NSL	Medium	1.2	1.5	1.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 56
American chestnut	Castanea dentata	NSLX	FIA	3.6	1.4	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 57
honeylocust	Gleditsia triacanthos	NSH	Low	1.2	1.4	1.2	No change	Lg. inc.	High	Rare	Fair	Good				2 58
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	1.2	1.2	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 59
green ash	Fraxinus pennsylvanica	WSH	Low	1.2	0.9	0.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 60
willow oak	Quercus phellos	NSL	Low	1.2	0.8	0.6	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good				0 61
gray birch	Betula populifolia	NSL	Low	1.2	0.7	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 62
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		3 63
northern white-cedar	Thuja occidentalis	WSH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 64
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 65
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 66
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				3 67
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 68
black hickory	Carya texana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 69
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		3 70
blue ash	Fraxinus quadrangulata	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 71
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 72
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				3 73
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 74
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 75
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 76
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 77
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 78
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 79
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 80
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +		3 81
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 82
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				3 83
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown				0 84
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 85
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		3 86
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 87
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 88
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 89