

	sq. km	sq. mi	FIA Plots
Area of Region	33,916	13,095	771

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	22	27	Increase	20	26	Very Good	9	10	Likely	0	0
Hickory	4			Medium	31	50	No Change	14	12	Good	13	17	Infill	11	13
Maple	7	Abundant	5	Low	35	14	Decrease	31	27	Fair	10	9	Migrate	6	10
Oak	10	Common	26	FIA	7		New	13	15	Poor	15	10		17	23
Pine	6	Rare	41				Unknown	17	15	Very Poor	15	15			
Other	42	Absent	21							FIA Only	3	3			
	72		93		95	91		95	95	Unknown	10	8			
											75	72			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	48.6	50.5	53.0	53.2	
	CCSM85	48.6	51.0	53.6	56.8	
	GFDL45	48.6	51.6	54.6	55.8	
	GFDL85	48.6	52.1	55.8	60.1	
	HAD45	48.6	51.6	55.0	56.7	
	HAD85	48.6	51.7	56.2	61.2	
Growing Season (May—Sep)	CCSM45	64.8	66.7	68.9	69.4	
	CCSM85	64.8	67.1	69.7	73.7	
	GFDL45	64.8	68.1	72.2	73.8	
	GFDL85	64.8	69.3	73.5	78.4	
	HAD45	64.8	68.3	71.3	73.6	
	HAD85	64.8	68.0	73.4	79.0	
Coldest Month (Average)	CCSM45	23.6	25.5	27.4	27.7	
	CCSM85	23.6	26.4	27.7	29.6	
	GFDL45	23.6	26.6	27.7	28.4	
	GFDL85	23.6	26.9	28.2	30.0	
	HAD45	23.6	24.9	27.8	27.9	
	HAD85	23.6	26.0	28.2	30.9	
Warmest Month (Average)	CCSM45	70.6	72.7	74.0	74.4	
	CCSM85	70.6	73.2	74.8	77.2	
	GFDL45	70.6	73.6	76.0	77.3	
	GFDL85	70.6	75.3	77.7	80.7	
	HAD45	70.6	74.4	76.4	78.0	
	HAD85	70.6	75.0	78.6	82.5	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	42.7	44.4	43.9	46.0	
	CCSM85	42.7	44.3	45.7	47.7	
	GFDL45	42.7	47.0	48.6	48.6	
	GFDL85	42.7	44.3	49.1	50.2	
	HAD45	42.7	43.9	44.5	44.2	
	HAD85	42.7	45.1	42.1	45.3	
Growing Season (May—Sep)	CCSM45	20.4	21.1	20.6	21.3	
	CCSM85	20.4	20.3	20.9	20.8	
	GFDL45	20.4	21.9	21.6	21.3	
	GFDL85	20.4	20.1	21.2	20.8	
	HAD45	20.4	21.1	19.1	19.8	
	HAD85	20.4	20.8	17.7	18.3	

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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Current and Potential Future Habitat, Capability, and Migration

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	84.1	2167.6	18.4	Sm. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
black cherry	Prunus serotina	WDL	Medium	82.6	1751.5	16.4	Sm. dec.	Lg. dec.	Low	Abundant	Fair	Poor			0	2
sugar maple	Acer saccharum	WDH	High	45.9	744.1	10.2	No change	No change	High	Abundant	Very Good	Very Good			1	3
white ash	Fraxinus americana	WDL	Medium	59.1	541.0	7.4	No change	No change	Low	Abundant	Fair	Fair			0	4
northern red oak	Quercus rubra	WDH	Medium	54.7	522.3	6.8	No change	No change	High	Abundant	Very Good	Very Good			1	5
eastern hemlock	Tsuga canadensis	NSH	High	25.2	425.6	11.7	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	6
American beech	Fagus grandifolia	WDH	High	33.8	275.1	5.7	No change	No change	Medium	Common	Fair	Fair			1	7
yellow-poplar	Liriodendron tulipifera	WDH	High	23.6	273.2	7.5	Lg. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	8
black locust	Robinia pseudoacacia	NDH	Low	25.5	267.6	8.6	No change	Sm. inc.	Medium	Common	Fair	Good			1	9
sweet birch	Betula lenta	NDH	High	28.7	266.2	6.1	Sm. dec.	Lg. dec.	Low	Common	Poor	Very Poor			0	10
quaking aspen	Populus tremuloides	WDH	High	20	256.9	8.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	11
white oak	Quercus alba	WDH	Medium	28.8	246.4	6.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
American elm	Ulmus americana	WDH	Medium	34.4	246.0	5.5	No change	Sm. inc.	Medium	Common	Fair	Good			1	13
bigtooth aspen	Populus grandidentata	NSL	Medium	21.3	187.6	7.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	14
eastern white pine	Pinus strobus	WDH	High	16.2	166.1	8.1	No change	Lg. dec.	Low	Common	Poor	Very Poor			0	15
sassafras	Sassafras albidum	WSL	Low	27	153.4	4.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	16
chestnut oak	Quercus prinus	NDH	High	15.1	148.9	4.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	17
black oak	Quercus velutina	WDH	High	20.8	127.7	4.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
Scots pine	Pinus sylvestris	NSH	FIA	8.7	112.5	9.0	Unknown	Unknown	NA	Common	NNIS	NNIS			0	19
shagbark hickory	Carya ovata	WSL	Medium	18.4	103.9	4.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	20
yellow birch	Betula alleghaniensis	NDL	High	17.9	101.9	3.6	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	21
black walnut	Juglans nigra	WDH	Low	15.3	100.3	6.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
slippery elm	Ulmus rubra	WSL	Low	16	84.5	4.7	No change	Sm. inc.	Medium	Common	Fair	Good			1	23
Norway spruce	Picea abies	NSH	FIA	7.1	77.3	10.2	Unknown	Unknown	NA	Common	NNIS	NNIS			0	24
blackgum	Nyssa sylvatica	WDL	Medium	21.2	75.1	2.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	25
black willow	Salix nigra	NSH	Low	3.6	73.0	13.6	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	26
bitternut hickory	Carya cordiformis	WSL	Low	14.5	72.3	3.6	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	27
American basswood	Tilia americana	WSL	Medium	12.5	68.2	2.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	28
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	19.4	56.3	2.1	No change	Sm. inc.	High	Common	Good	Very Good			1	29
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	14.7	55.3	2.7	Lg. dec.	No change	Medium	Common	Poor	Fair			1	30
scarlet oak	Quercus coccinea	WDL	Medium	8	51.6	4.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	31
boxelder	Acer negundo	WSH	Low	6.3	47.5	7.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	32
pignut hickory	Carya glabra	WDL	Medium	12.9	45.1	2.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	33
cucumbertree	Magnolia acuminata	NSL	Low	14.7	44.8	2.1	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	34
shingle oak	Quercus imbricaria	NDH	Medium	4.8	40.8	6.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
green ash	Fraxinus pennsylvanica	WSH	Low	3.8	39.4	5.9	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	36
serviceberry	Amelanchier spp.	NSL	Low	15.4	35.5	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	37
sycamore	Platanus occidentalis	NSL	Low	4	35.2	4.9	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	38
pin cherry	Prunus pensylvanica	NSL	Low	6.6	34.5	3.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	39
silver maple	Acer saccharinum	NSH	Low	3	32.3	8.2	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	40
pin oak	Quercus palustris	NSH	Low	2.7	31.8	7.6	No change	No change	Low	Rare	Very Poor	Very Poor			2	41
red pine	Pinus resinosa	NSH	Medium	4.9	27.2	4.3	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	42
black ash	Fraxinus nigra	WSH	Medium	0.9	26.7	6.6	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	43
ailanthus	Ailanthus altissima	NSL	FIA	4.8	19.8	4.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	44
mockernut hickory	Carya alba	WDL	Medium	5.6	17.8	2.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	45
black maple	Acer nigrum	NSH	Low	2.1	17.0	8.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	46
Osage-orange	Maclura pomifera	NDH	Medium	2.4	16.7	9.0	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	47

Current and Potential Future Habitat, Capability, and Migration

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
swamp white oak	Quercus bicolor	NSL	Low	2.2	14.5	6.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				2 48
chokecherry	Prunus virginiana	NSLX	FIA	2.9	12.4	4.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 49
butternut	Juglans cinerea	NSLX	FIA	2.1	12.1	5.9	Unknown	Unknown	Low	Rare	FIA Only	FIA Only				0 50
flowering dogwood	Cornus florida	WDL	Medium	6.1	10.5	1.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +		1 51
eastern cottonwood	Populus deltoides	NSH	Low	0.5	9.7	1.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +		2 52
Norway maple	Acer platanoides	NSL	FIA	1.2	7.3	6.2	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 53
striped maple	Acer pensylvanicum	NSL	Medium	4.2	7.0	1.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 54
white spruce	Picea glauca	NSL	Medium	1.2	6.1	5.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 55
jack pine	Pinus banksiana	NSH	Medium	0.3	6.0	20.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor				0 56
hackberry	Celtis occidentalis	WDH	Medium	3.6	5.4	1.5	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++		2 57
honeylocust	Gleditsia triacanthos	NSH	Low	0	3.9	1.2	Sm. dec.	Sm. inc.	High	Rare	Poor	Good				2 58
pitch pine	Pinus rigida	NSH	High	1.4	3.3	1.6	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				2 59
Virginia pine	Pinus virginiana	NDH	High	0.3	2.9	9.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 60
bur oak	Quercus macrocarpa	NDH	Medium	0.6	2.1	3.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +		2 61
balsam poplar	Populus balsamifera	NSH	Medium	0.3	1.6	5.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 62
gray birch	Betula populifolia	NSL	Low	0.7	1.4	1.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 63
yellow buckeye	Aesculus flava	NSL	Low	0.3	1.3	3.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor				0 64
paper birch	Betula papyrifera	WDH	High	0.4	1.2	1.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 65
peachleaf willow	Salix amygdaloides	NSLX	FIA	0.3	1.1	3.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 66
eastern redbud	Cercis canadensis	NSL	Low	0.3	1.0	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 67
red mulberry	Morus rubra	NSL	Low	0.3	0.9	3.1	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good				2 68
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0.7	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 69
sweetgum	Liquidambar styraciflua	WDH	High	0.3	0.6	2.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 70
sourwood	Oxydendrum arboreum	NDL	High	0.1	0.3	0.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 71
American holly	Ilex opaca	NSL	Medium	0.3	0.2	0.6	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost				0 72
balsam fir	Abies balsamea	NDH	High	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown				0 73
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 74
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 75
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 76
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++		3 77
northern white-cedar	Thuja occidentalis	WSH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 78
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +		3 79
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 80
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 81
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 82
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 83
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 84
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 85
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 86
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 87
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 88
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 89
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				3 90
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			Migrate ++	3 91
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			Migrate +	3 92
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 93
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 94

MidAtlantic 1

NIACS EVAS Region Climate Change Atlas Tree Species

USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

Current and Potential Future Habitat, Capability, and Migration

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	95