

States
 Climate Change Atlas Tree Species
 Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	84,046	32,450	3,150

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									
Hickory	1	Abundant	High	23	Increase	22	24	Very Good	3	3
Maple	7	Common	Medium	27	No Change	11	9	Good	17	20
Oak	6	Rare	Low	30	Decrease	12	12	Fair	11	10
Pine	5	Absent	FIA	7	New	18	26	Poor	9	7
Other	30				Unknown	24	16	Very Poor	5	5
	52	87		87		87	87	FIA Only	4	4
								Unknown	17	9
									66	58

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	41.2	43.0	45.3	45.4	
Average	41.2	43.6	46.2	49.6	
	41.2	44.1	47.7	49.2	
	41.2	44.6	49.1	54.3	
	41.2	44.3	47.3	49.0	
	41.2	44.5	48.6	54.2	
Growing Season	59.7	61.8	63.6	63.8	
	59.7	62.0	64.4	68.1	
May—Sep	59.7	63.2	66.6	68.4	
	59.7	63.4	68.0	73.3	
	59.7	62.6	65.2	67.3	
	59.7	62.4	66.9	72.6	
Coldest Month	12.0	13.5	15.3	15.8	
Average	12.0	14.6	16.1	18.6	
	12.0	14.7	17.5	18.8	
	12.0	15.7	18.6	21.6	
	12.0	14.8	17.4	18.2	
	12.0	16.4	18.9	22.6	
Warmest Month	66.2	68.3	69.4	69.5	
Average	66.2	68.7	70.4	72.2	
	66.2	69.3	71.2	72.5	
	66.2	69.4	72.4	75.1	
	66.2	69.2	70.5	71.8	
	66.2	69.0	71.5	75.3	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	45.1	44.3	43.6	48.8	
Total	45.1	46.2	46.1	48.1	
	45.1	49.3	52.1	50.8	
	45.1	48.5	50.7	52.0	
	45.1	48.5	52.0	51.2	
	45.1	49.5	50.0	53.5	
Growing Season	19.6	19.6	18.3	20.2	
May—Sep	19.6	20.2	19.9	19.2	
	19.6	19.2	19.1	18.7	
	19.6	19.9	19.1	17.9	
	19.6	21.1	21.4	22.4	
	19.6	20.4	21.0	22.8	

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-DGP30 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
balsam fir	Abies balsamea	NDH	High	93.1	1889.6	18.3	Sm. dec.	Lg. dec.	Low	Abundant	Fair	Poor			0	1
red maple	Acer rubrum	WDH	High	95.2	1313.8	12.4	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	2
red spruce	Picea rubens	NDH	High	82.4	971.0	10.5	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	3
northern white-cedar	Thuja occidentalis	WSH	High	64.4	737.1	10.7	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	4
eastern white pine	Pinus strobus	WDH	High	62.9	673.2	9.7	Sm. inc.	No change	Low	Abundant	Good	Fair			1	5
sugar maple	Acer saccharum	WDH	High	62.1	566.3	8.2	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	6
yellow birch	Betula alleghaniensis	NDL	High	77.9	550.5	6.4	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	7
eastern hemlock	Tsuga canadensis	NSH	High	50.3	528.0	9.8	Sm. inc.	No change	Low	Abundant	Good	Fair			1	8
paper birch	Betula papyrifera	WDH	High	86.2	520.6	5.3	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	9
American beech	Fagus grandifolia	WDH	High	62.1	501.3	7.6	No change	No change	Medium	Abundant	Good	Good			1	10
quaking aspen	Populus tremuloides	WDH	High	53.2	296.2	5.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
black spruce	Picea mariana	NSH	High	27.2	272.0	9.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	12
northern red oak	Quercus rubra	WDH	Medium	26.7	261.3	8.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	13
white spruce	Picea glauca	NSL	Medium	52.5	224.8	3.7	No change	No change	Medium	Common	Fair	Fair			1	14
white ash	Fraxinus americana	WDL	Medium	41.1	168.1	3.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	15
bigtooth aspen	Populus grandidentata	NSL	Medium	31.3	127.1	3.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	16
tamarack (native)	Larix laricina	NSH	High	19.8	99.6	4.4	No change	No change	Low	Common	Poor	Poor			0	17
gray birch	Betula populifolia	NSL	Low	29.8	93.8	2.9	No change	No change	Medium	Common	Fair	Fair			1	18
black ash	Fraxinus nigra	WSH	Medium	22.2	55.3	2.3	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	19
balsam poplar	Populus balsamifera	NSH	Medium	10	44.6	4.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	20
red pine	Pinus resinosa	NSH	Medium	7.8	43.7	5.0	No change	No change	Low	Rare	Very Poor	Very Poor			2	21
black cherry	Prunus serotina	WDL	Medium	15.4	43.6	2.6	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	22
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	22.9	43.3	1.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	23
pin cherry	Prunus pensylvanica	NSL	Low	23.5	34.1	1.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	24
American elm	Ulmus americana	WDH	Medium	11.3	24.5	2.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	25
mountain maple	Acer spicatum	NSL	Low	15.8	17.6	1.0	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	26
Norway spruce	Picea abies	NSH	FIA	0.8	13.8	9.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	27
chokecherry	Prunus virginiana	NSLX	FIA	2.6	13.0	3.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	28
white oak	Quercus alba	WDH	Medium	3.2	11.9	3.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	29
pitch pine	Pinus rigida	NSH	High	1.3	10.2	3.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	30
American basswood	Tilia americana	WSL	Medium	4.7	6.6	1.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	31
American mountain-ash	Sorbus americana	NSL	Low	8.5	6.2	0.6	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	32
green ash	Fraxinus pennsylvanica	WSH	Low	1.9	6.1	2.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	33
sweet birch	Betula lenta	NDH	High	1	5.7	3.0	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	34
black oak	Quercus velutina	WDH	High	2	5.4	2.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	35
serviceberry	Amelanchier spp.	NSL	Low	4.6	4.6	0.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	36
silver maple	Acer saccharinum	NSH	Low	0.4	4.1	11.5	Sm. dec.	Sm. inc.	High	Rare	Poor	Good			2	37
jack pine	Pinus banksiana	NSH	Medium	0.1	2.0	3.5	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	38
Scots pine	Pinus sylvestris	NSH	FIA	0.1	1.7	14.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	39
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	1.2	1.0	0.8	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +		2	40
bear oak; scrub oak	Quercus ilicifolia	NSLX	FIA	0.3	0.9	2.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	41
American chestnut	Castanea dentata	NSLX	FIA	0.2	0.7	3.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	42
striped maple	Acer pensylvanicum	NSL	Medium	23.1	0.5	0.2	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			1	43
butternut	Juglans cinerea	NSLX	FIA	0.2	0.4	1.9	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	44
black locust	Robinia pseudoacacia	NDH	Low	0.1	0.4	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	45
shagbark hickory	Carya ovata	WSL	Medium	0.4	0.3	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	46
boxelder	Acer negundo	WSH	Low	0.2	0.2	1.0	No change	Lg. inc.	High	Rare	Fair	Good			2	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
bur oak	Quercus macrocarpa	NDH	Medium	0.1	0.2	2.1	Lg. dec.	Sm. inc.	High	Rare	Poor	Good				2 48
Norway maple	Acer platanoides	NSL	FIA	0.1	0.2	1.5	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 49
swamp white oak	Quercus bicolor	NSL	Low	0.1	0.1	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 50
sassafras	Sassafras albidum	WSL	Low	0.1	0.1	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 51
blackgum	Nyssa sylvatica	WDL	Medium	0	0.1	0.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 52
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 53
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 54
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 55
black maple	Acer nigrum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 56
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 57
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 58
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +		3 59
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate +		3 60
pecan	Carya illinoensis	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 61
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 62
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				3 63
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		3 64
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 65
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 66
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				3 67
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 68
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 69
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 70
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				0 71
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 72
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 73
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 74
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	New Habitat	NA	Absent	Unknown	New Habitat				0 75
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 76
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 77
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 78
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 79
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 80
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 81
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 82
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				3 83
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 84
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 85
black willow	Salix nigra	NSH	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat				3 86
slippery elm	Ulmus rubra	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		3 87