

One x One Degree  
Climate Change Atlas Tree Species  
Current and Potential Future Habitat, Capability, and Migration

sq. km      sq. mi      FIA Plots  
Area of Region    2,625.2    1,013.6      57

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				
		Abundant	Common	High	Medium	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	2													
Hickory	2													
Maple	2	5		19	14	Increase	13	15	Very Good	3	3	Likely	0	0
Oak	6	7		21	32	No Change	10	8	Good	9	12	Infill	8	10
Pine	3	24		14	10	Decrease	10	10	Fair	6	6	Migrate	5	6
Other	21	19		3		New	15	17	Poor	7	5			
	<b>36</b>	<b>55</b>		<b>57</b>	<b>56</b>	Unknown	9	7	Very Poor	7	5			
							<b>57</b>	<b>57</b>	FIA Only	2	2			
									Unknown	6	4			
										<b>40</b>	<b>37</b>			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	50.4	52.0	53.7	54.0	
Average	50.4	52.4	54.5	57.1	
GFDL45	50.4	54.6	55.3	56.4	
GFDL85	50.4	53.1	56.5	60.4	
HAD45	50.4	52.4	56.0	57.6	
HAD85	50.4	52.3	56.9	61.2	
Growing Season	65.3	66.9	68.3	68.5	
May—Sep	65.3	67.0	69.1	71.9	
GFDL45	65.3	69.6	70.6	71.6	
GFDL85	65.3	68.0	71.7	75.8	
HAD45	65.3	67.2	70.8	72.8	
HAD85	65.3	66.4	71.8	76.0	
Coldest Month	28.1	29.3	30.6	31.3	
Average	28.1	30.3	31.3	33.1	
GFDL45	28.1	31.1	32.4	33.5	
GFDL85	28.1	31.2	32.9	34.9	
HAD45	28.1	29.2	31.4	31.9	
HAD85	28.1	30.2	32.1	34.9	
Warmest Month	71.8	73.4	74.2	74.1	
Average	71.8	73.4	74.8	76.0	
GFDL45	71.8	74.3	75.6	76.5	
GFDL85	71.8	74.7	76.8	79.1	
HAD45	71.8	73.8	75.7	76.7	
HAD85	71.8	72.6	75.6	78.0	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	48.5	47.6	47.3	52.4	
Total	48.5	49.0	49.4	53.7	
GFDL45	48.5	51.2	52.8	51.5	
GFDL85	48.5	49.9	52.1	53.0	
HAD45	48.5	48.6	54.4	53.6	
HAD85	48.5	52.5	53.5	54.6	
Growing Season	18.4	19.4	18.2	19.5	
May—Sep	18.4	19.0	19.0	19.4	
GFDL45	18.4	17.2	16.4	16.6	
GFDL85	18.4	17.7	16.2	16.0	
HAD45	18.4	18.6	20.5	18.8	
HAD85	18.4	19.2	19.2	19.3	

**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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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
eastern white pine	Pinus strobus	WDH	High	66.1	1950.4	17.6	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
red maple	Acer rubrum	WDH	High	74.4	1764.4	13.7	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	2
pitch pine	Pinus rigida	NSH	High	77.9	1582.5	14.9	Sm. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	3
scarlet oak	Quercus coccinea	WDL	Medium	83.7	750.3	7.1	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	4
white oak	Quercus alba	WDH	Medium	77.4	506.2	4.8	Sm. inc.	No change	High	Abundant	Very Good	Very Good			1	5
black oak	Quercus velutina	WDH	High	69.5	438.9	5.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
black cherry	Prunus serotina	WDL	Medium	35.5	145.0	3.5	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	7
blackgum	Nyssa sylvatica	WDL	Medium	23.5	139.8	1.8	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	8
yellow birch	Betula alleghaniensis	NDL	High	12.2	65.8	2.7	No change	No change	Medium	Common	Fair	Fair			1	9
eastern redcedar	Juniperus virginiana	WDH	Medium	25.7	62.6	1.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	10
bear oak; scrub oak	Quercus ilicifolia	NSLX	FIA	16.9	59.7	2.9	Unknown	Unknown	Medium	Common	FIA Only	FIA Only			0	11
eastern hemlock	Tsuga canadensis	NSH	High	9	58.9	4.3	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	12
American beech	Fagus grandifolia	WDH	High	11.5	41.1	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	13
sweet birch	Betula lenta	NDH	High	7.6	37.0	4.8	No change	No change	Low	Rare	Very Poor	Very Poor			0	14
honeylocust	Gleditsia triacanthos	NSH	Low	0.3	33.7	0.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	15
northern red oak	Quercus rubra	WDH	Medium	9.5	31.3	0.8	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	16
post oak	Quercus stellata	WDH	High	9.6	30.4	4.8	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	17
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	6.2	25.1	0.8	No change	No change	Low	Rare	Very Poor	Very Poor			0	18
black locust	Robinia pseudoacacia	NDH	Low	11.9	19.1	2.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	19
sassafras	Sassafras albidum	WSL	Low	13.7	14.1	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	20
black willow	Salix nigra	NSH	Low	9.5	12.7	8.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	21
white ash	Fraxinus americana	WDL	Medium	7.7	11.6	1.5	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	1	22
American holly	Ilex opaca	NSL	Medium	5.2	10.4	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good		Infill ++	2	23
tamarack (native)	Larix laricina	NSH	High	1.9	10.3	1.3	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	24
shagbark hickory	Carya ovata	WSL	Medium	10.5	10.2	1.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	25
American elm	Ulmus americana	WDH	Medium	4.2	9.1	0.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	26
Norway spruce	Picea abies	NSH	FIA	5.7	8.9	0.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	27
gray birch	Betula populifolia	NSL	Low	8.5	8.4	0.5	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	28
sugar maple	Acer saccharum	WDH	High	3.6	6.7	1.6	No change	No change	High	Rare	Fair	Fair		Infill +	2	29
chokecherry	Prunus virginiana	NSLX	FIA	1.2	5.3	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	30
pignut hickory	Carya glabra	WDL	Medium	3.9	4.4	1.2	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	31
bigtooth aspen	Populus grandidentata	NSL	Medium	0.9	4.0	0.3	No change	No change	Medium	Rare	Poor	Poor	Infill +		2	32
red pine	Pinus resinosa	NSH	Medium	5.2	3.5	1.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	33
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	1.9	2.4	0.3	No change	Lg. inc.	Medium	Rare	Poor	Good		Infill ++	2	34
pin cherry	Prunus pensylvanica	NSL	Low	0.8	1.9	0.1	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	35
green ash	Fraxinus pennsylvanica	WSH	Low	1.9	1.0	0.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	36
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	37
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	38
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	39
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	40
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	41
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	42
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	43
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	44
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	45
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	46
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	47



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Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	48
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	49
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	50
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	51
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	52
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	53
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	54
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	55
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	56
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	57