

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

Area of Region    sq. km    sq. mi    FIA Plots  
 1,829.4    706.3    53

**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	Adaptability	Scenario	Scenario	Scenario	Scenario	SHIFT	SHIFT			
				Reliability		RCP45	RCP85	RCP45	RCP85	RCP45	RCP85			
Ash	2				8	Increase	14	13	Very Good	5	5	Likely	0	0
Hickory	0				27	No Change	2	3	Good	8	8	Infill	4	4
Maple	5	8		Low	11	Decrease	14	14	Fair	6	6	Migrate	0	4
Oak	1	16		FIA	2	New	15	15	Poor	6	6		4	8
Pine	2	8				Unknown	2	2	Very Poor	3	3			
Other	22	15							FIA Only	1	1			
									Unknown	0	0			
	<b>32</b>	<b>47</b>			<b>47</b>		<b>47</b>	<b>47</b>		<b>29</b>	<b>29</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

Scenario	2009	2039	2069	2099		
Annual	CCSM45	40.2	42.1	44.4	44.6	
Average	CCSM85	40.2	42.8	45.4	49.0	
	GFDL45	40.2	43.3	46.9	48.4	
	GFDL85	40.2	43.6	48.4	53.7	
	HAD45	40.2	43.5	46.4	48.1	
	HAD85	40.2	43.7	47.9	53.6	
Growing Season	CCSM45	59.6	61.7	63.5	63.7	
	CCSM85	59.6	62.0	64.3	68.2	
May—Sep	GFDL45	59.6	63.3	66.6	68.3	
	GFDL85	59.6	63.3	67.9	73.2	
	HAD45	59.6	62.4	65.0	67.0	
	HAD85	59.6	62.2	66.6	72.6	
Coldest Month	CCSM45	9.7	11.2	13.1	13.5	
	CCSM85	9.7	12.4	14.2	16.7	
Average	GFDL45	9.7	12.2	15.5	16.8	
	GFDL85	9.7	13.3	16.7	19.9	
	HAD45	9.7	13.1	15.5	16.8	
	HAD85	9.7	14.8	17.5	21.2	
Warmest Month	CCSM45	66.2	68.4	69.5	69.6	
	CCSM85	66.2	68.8	70.5	72.4	
Average	GFDL45	66.2	69.3	71.1	72.4	
	GFDL85	66.2	69.3	72.2	74.8	
	HAD45	66.2	69.2	70.5	71.8	
	HAD85	66.2	69.1	71.6	75.5	

**Precipitation (in)**

Scenario	2009	2039	2069	2099		
Annual	CCSM45	40.4	39.7	40.0	44.2	
Total	CCSM85	40.4	42.1	41.0	42.9	
	GFDL45	40.4	44.5	46.7	46.1	
	GFDL85	40.4	44.8	45.9	46.9	
	HAD45	40.4	43.0	46.4	46.9	
	HAD85	40.4	43.6	44.3	48.3	
Growing Season	CCSM45	18.1	17.7	17.0	18.8	
	CCSM85	18.1	19.1	18.3	17.4	
May—Sep	GFDL45	18.1	17.8	17.9	17.5	
	GFDL85	18.1	18.7	18.0	16.9	
	HAD45	18.1	19.3	19.3	21.5	
	HAD85	18.1	18.5	19.4	22.0	

**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
balsam fir	Abies balsamea	NDH	High	87.3	2950.4	13.7	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
northern white-cedar	Thuja occidentalis	WSH	High	72.4	2129.9	10.3	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	2
white spruce	Picea glauca	NSL	Medium	69.5	1271.8	6.4	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	3
quaking aspen	Populus tremuloides	WDH	High	74.1	1214.0	6.7	No change	No change	Medium	Abundant	Good	Good			1	4
red maple	Acer rubrum	WDH	High	80.2	1061.6	4.6	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	5
sugar maple	Acer saccharum	WDH	High	48.4	687.8	5.7	Sm. inc.	Lg. inc.	High	Abundant	Very Good	Very Good			1	6
balsam poplar	Populus balsamifera	NSH	Medium	44.7	683.7	8.6	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	7
yellow birch	Betula alleghaniensis	NDL	High	55.1	586.3	3.7	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	8
red spruce	Picea rubens	NDH	High	57	499.0	2.8	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	9
American beech	Fagus grandifolia	WDH	High	26.6	463.3	8.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
black spruce	Picea mariana	NSH	High	19.1	458.5	8.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	11
tamarack (native)	Larix laricina	NSH	High	29.1	431.6	8.1	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	12
paper birch	Betula papyrifera	WDH	High	52.4	420.8	2.7	Sm. inc.	No change	Medium	Common	Good	Fair			1	13
black ash	Fraxinus nigra	WSH	Medium	47.6	267.5	2.2	Sm. inc.	No change	Low	Common	Fair	Poor			1	14
Norway spruce	Picea abies	NSH	FIA	1.4	259.7	11.8	Unknown	Unknown	NA	Common	NNIS	NNIS			0	15
northern red oak	Quercus rubra	WDH	Medium	5.5	182.2	33.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	16
bigtooth aspen	Populus grandidentata	NSL	Medium	26.1	147.2	2.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
white ash	Fraxinus americana	WDL	Medium	20.4	143.7	1.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	18
red pine	Pinus resinosa	NSH	Medium	5.5	102.5	18.8	No change	Sm. dec.	Low	Common	Poor	Poor			0	19
eastern hemlock	Tsuga canadensis	NSH	High	12.5	95.3	2.3	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	20
eastern white pine	Pinus strobus	WDH	High	2.7	84.1	1.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good	Infill ++	Infill ++	1	21
striped maple	Acer pensylvanicum	NSL	Medium	33.3	83.1	1.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	22
chokecherry	Prunus virginiana	NSLX	FIA	2	65.5	1.5	Unknown	Unknown	Medium	Common	FIA Only	FIA Only			0	23
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	12.9	64.4	1.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	24
black cherry	Prunus serotina	WDL	Medium	5.5	34.2	6.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	25
pin cherry	Prunus pensylvanica	NSL	Low	23.4	22.2	0.7	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	26
mountain maple	Acer spicatum	NSL	Low	17.1	21.9	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	27
serviceberry	Amelanchier spp.	NSL	Low	10.5	11.9	1.0	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	28
American elm	Ulmus americana	WDH	Medium	10.2	10.5	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	29
gray birch	Betula populifolia	NSL	Low	10.5	8.0	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	30
American mountain-ash	Sorbus americana	NSL	Low	5.5	1.6	0.3	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	31
boxelder	Acer negundo	WSH	Low	2.3	1.5	0.1	Lg. dec.	Lg. inc.	High	Rare	Poor	Good			2	32
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	33
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	34
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
pinut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	36
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	37
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	38
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	39
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	40
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	41
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	42
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	43
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	44
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	45
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	46
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	47

