

**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  
 1,114.8    430.4    45

**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	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	3											
Hickory	0											
Maple	4	7		High	17	10	Increase	12	14	Very Good	5	4
Oak	0	6		Medium	17	24	No Change	5	2	Good	5	7
Pine	0	11		Low	11	11	Decrease	7	8	Fair	7	8
Other	17	21		FIA	0		New	21	21	Poor	4	2
	<b>24</b>	<b>45</b>			<b>45</b>	<b>45</b>	Unknown	0	0	Very Poor	1	0
								<b>45</b>	<b>45</b>	FIA Only	0	0
										Unknown	0	0
											<b>22</b>	<b>21</b>

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	38.1	40.0	42.6	42.6	
	CCSM85	38.1	40.7	43.4	46.9	
	GFDL45	38.1	42.4	44.9	46.5	
	GFDL85	38.1	41.8	46.4	51.8	
	HAD45	38.1	41.4	44.5	46.3	
	HAD85	38.1	41.6	45.7	51.5	
Growing Season (May-Sep)	CCSM45	57.0	59.1	61.1	61.3	
	CCSM85	57.0	59.3	61.9	65.8	
	GFDL45	57.0	61.7	64.2	66.1	
	GFDL85	57.0	61.0	65.8	71.5	
	HAD45	57.0	60.0	62.6	64.9	
	HAD85	57.0	59.7	64.2	70.4	
Coldest Month	CCSM45	8.1	10.0	12.1	12.4	
	CCSM85	8.1	11.2	12.7	15.3	
	GFDL45	8.1	10.8	13.7	15.1	
	GFDL85	8.1	12.2	14.9	18.1	
	HAD45	8.1	11.1	14.0	14.5	
	HAD85	8.1	12.7	15.2	19.2	
Warmest Month	CCSM45	63.1	65.3	66.7	66.7	
	CCSM85	63.1	65.8	67.7	69.7	
	GFDL45	63.1	66.4	68.5	69.8	
	GFDL85	63.1	66.8	69.9	72.9	
	HAD45	63.1	66.3	67.6	69.1	
	HAD85	63.1	66.0	68.6	73.0	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	52.3	51.3	51.2	55.1	
	CCSM85	52.3	53.8	53.3	54.8	
	GFDL45	52.3	56.7	59.4	58.2	
	GFDL85	52.3	55.3	57.9	58.8	
	HAD45	52.3	56.2	58.6	58.4	
	HAD85	52.3	57.7	57.1	61.5	
Growing Season (May-Sep)	CCSM45	25.6	25.7	24.2	25.9	
	CCSM85	25.6	26.1	25.5	24.5	
	GFDL45	25.6	25.8	25.3	25.3	
	GFDL85	25.6	26.0	25.4	23.9	
	HAD45	25.6	27.4	27.2	28.7	
	HAD85	25.6	27.1	26.6	29.1	

**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	99.4	4124.6	12.6	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
sugar maple	Acer saccharum	WDH	High	97.3	2677.4	10.8	No change	Sm. dec.	High	Abundant	Very Good	Good			1	2
yellow birch	Betula alleghaniensis	NDL	High	97.3	2430.9	10.8	Sm. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	3
red spruce	Picea rubens	NDH	High	89.3	1628.4	5.7	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	4
red maple	Acer rubrum	WDH	High	95.3	1267.7	6.8	Lg. inc.	Lg. inc.	High	Abundant	Very Good	Very Good			1	5
paper birch	Betula papyrifera	WDH	High	81.2	823.7	3.7	No change	No change	Medium	Abundant	Good	Good			1	6
northern white-cedar	Thuja occidentalis	WSH	High	14.7	504.6	2.9	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	7
black cherry	Prunus serotina	WDL	Medium	22.5	286.2	1.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	8
white spruce	Picea glauca	NSL	Medium	62	281.8	1.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	9
American beech	Fagus grandifolia	WDH	High	51	221.2	3.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
striped maple	Acer pensylvanicum	NSL	Medium	42.1	168.4	1.4	No change	No change	Medium	Common	Fair	Fair			1	11
pin cherry	Prunus pensylvanica	NSL	Low	51.6	72.1	0.9	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	12
quaking aspen	Populus tremuloides	WDH	High	36.2	64.5	1.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	13
white ash	Fraxinus americana	WDL	Medium	7.9	44.9	0.5	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	14
eastern hemlock	Tsuga canadensis	NSH	High	12.6	37.1	1.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	15
American mountain-ash	Sorbus americana	NSL	Low	50.3	34.0	0.8	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	16
green ash	Fraxinus pennsylvanica	WSH	Low	3.7	22.9	1.0	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	17
bigtooth aspen	Populus grandidentata	NSL	Medium	9	17.0	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	18
mountain maple	Acer spicatum	NSL	Low	25.1	16.1	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	19
American elm	Ulmus americana	WDH	Medium	4.1	16.0	0.1	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	20
black ash	Fraxinus nigra	WSH	Medium	0.9	13.5	0.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	21
balsam poplar	Populus balsamifera	NSH	Medium	3.2	13.3	0.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	22
gray birch	Betula populifolia	NSL	Low	6	9.4	0.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	23
black spruce	Picea mariana	NSH	High	24	9.2	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	24
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	25
tamarack (native)	Larix laricina	NSH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	26
red pine	Pinus resinosa	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	27
eastern white pine	Pinus strobus	WDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	28
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	29
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	30
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	31
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	32
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	33
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	34
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	36
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	37
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	38
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	39
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	40
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	41
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	42
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	43
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	44
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	45