

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
 2,274.7 878.3 75

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	2			High	16	7	Increase	10	9	Very Good	4	4	Likely	3	3
Hickory	0			Medium	16	26	No Change	5	5	Good	5	4	Infill	2	3
Maple	4	Abundant	10	Low	11	11	Decrease	9	10	Fair	7	7	Migrate	2	3
Oak	0	Common	9	FIA	2		New	18	18	Poor	5	5		7	9
Pine	2	Rare	7				Unknown	3	3	Very Poor	3	1			
Other	18	Absent	18							FIA Only	1	1			
	26		44		45	44		45	45	Unknown	1	1			
											26	23			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	38.3	40.1	42.6	42.7	
	CCSM85	38.3	40.8	43.6	47.2	
	GFDL45	38.3	41.4	45.1	46.7	
	GFDL85	38.3	41.7	46.6	52.2	
	HAD45	38.3	41.6	44.5	46.3	
	HAD85	38.3	41.9	46.0	51.9	
Growing Season (May—Sep)	CCSM45	58.2	60.2	62.1	62.2	
	CCSM85	58.2	60.5	62.9	66.7	
	GFDL45	58.2	62.0	65.5	67.2	
	GFDL85	58.2	62.1	66.8	72.3	
	HAD45	58.2	61.0	63.5	65.5	
	HAD85	58.2	60.8	65.1	71.2	
Coldest Month (Average)	CCSM45	7.0	8.3	10.4	10.7	
	CCSM85	7.0	9.4	11.3	13.9	
	GFDL45	7.0	9.2	12.7	14.0	
	GFDL85	7.0	10.4	14.0	17.5	
	HAD45	7.0	10.4	13.0	14.3	
	HAD85	7.0	12.4	15.1	19.1	
Warmest Month (Average)	CCSM45	64.8	66.9	68.1	68.3	
	CCSM85	64.8	67.4	69.1	71.0	
	GFDL45	64.8	68.1	69.9	71.3	
	GFDL85	64.8	68.2	71.0	73.7	
	HAD45	64.8	67.8	69.1	70.4	
	HAD85	64.8	67.7	70.3	74.3	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	40.9	39.8	41.3	44.0	
	CCSM85	40.9	42.5	41.5	43.7	
	GFDL45	40.9	44.8	46.3	46.0	
	GFDL85	40.9	45.1	46.5	47.5	
	HAD45	40.9	43.0	46.2	47.2	
	HAD85	40.9	44.8	44.6	49.3	
Growing Season (May—Sep)	CCSM45	19.6	19.2	18.9	20.5	
	CCSM85	19.6	20.3	19.4	19.2	
	GFDL45	19.6	19.5	19.2	18.8	
	GFDL85	19.6	20.2	19.6	18.7	
	HAD45	19.6	20.2	20.5	22.9	
	HAD85	19.6	20.5	20.4	23.0	

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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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	96.4	2782.8	17.3	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
northern white-cedar	Thuja occidentalis	WDH	High	82.6	1568.0	9.8	Sm. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	2
sugar maple	Acer saccharum	WDH	High	67.2	1097.3	10.1	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	3
red maple	Acer rubrum	WDH	High	94.2	1021.4	6.7	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	4
American beech	Fagus grandifolia	WDH	High	63	807.4	8.5	No change	No change	Medium	Abundant	Good	Good			1	5
quaking aspen	Populus tremuloides	WDH	High	61.6	674.4	6.6	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	6
yellow birch	Betula alleghaniensis	NDL	High	81.3	651.6	5.8	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	7
paper birch	Betula papyrifera	WDH	High	78.9	587.6	4.5	No change	No change	Medium	Abundant	Good	Good			1	8
red spruce	Picea rubens	NDH	High	83.7	557.3	3.8	No change	No change	Low	Abundant	Fair	Fair			0	9
black spruce	Picea mariana	NSH	High	30.4	510.6	6.2	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	10
white spruce	Picea glauca	NSL	Medium	71.1	435.5	3.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	11
balsam poplar	Populus balsamifera	NSH	Medium	24.8	268.0	7.1	Lg. dec.	Very Lg. dec.	Medium	Common	Poor	Lost			0	12
black ash	Fraxinus nigra	WSH	Medium	33.7	172.1	2.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	13
tamarack (native)	Larix laricina	NSH	High	29.8	122.9	2.2	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	14
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	29	89.2	1.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	15
red pine	Pinus resinosa	NSH	Medium	7.2	84.4	7.0	No change	No change	Low	Common	Poor	Poor	Infill +		0	16
Norway spruce	Picea abies	NSH	FIA	4.4	77.5	17.6	Unknown	Unknown	NA	Common	NNIS	NNIS			0	17
eastern white pine	Pinus strobus	WDH	High	17.7	63.3	2.6	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	18
bigtooth aspen	Populus grandidentata	NSL	Medium	7.5	57.0	1.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	19
striped maple	Acer pensylvanicum	NSL	Medium	45.1	46.6	0.6	Sm. inc.	No change	Medium	Rare	Fair	Poor			1	20
mountain maple	Acer spicatum	NSL	Low	28.8	25.4	0.7	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	21
pin cherry	Prunus pensylvanica	NSL	Low	30.3	21.8	0.4	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	22
white ash	Fraxinus americana	WDL	Medium	4.4	21.5	4.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	23
chokecherry	Prunus virginiana	NSLX	FIA	7.9	7.7	0.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	24
American mountain-ash	Sorbus americana	NSL	Low	16	5.0	0.3	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	25
eastern hemlock	Tsuga canadensis	NSH	High	1.3	4.3	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	26
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	27
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	28
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	29
gray birch	Betula populifolia	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	30
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	31
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	32
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	33
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	34
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	35
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	36
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	37
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	38
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	39
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	40
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	41
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	42
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	43
American elm	Ulmus americana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	44
slippery elm	Ulmus rubra	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	45