

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
 1,137.1 439.0 34

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	13	10	Increase	14	13	Very Good	2	3	Likely	0	0
Hickory	0			Medium	16	24	No Change	2	3	Good	12	10	Infill	4	4
Maple	3	Abundant	8	Low	12	9	Decrease	8	8	Fair	6	7	Migrate	4	12
Oak	2	Common	7	FIA	2		New	15	15	Poor	1	2		8	16
Pine	3	Rare	11				Unknown	4	4	Very Poor	2	1			
Other	16	Absent	16							FIA Only	2	2			
	26		42		43	43		43	43	Unknown	2	2			
											27	27			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	37.6	39.0	41.9	42.2	
	CCSM85	37.6	39.9	43.2	46.8	
	GFDL45	37.6	42.0	44.0	45.8	
	GFDL85	37.6	41.2	45.4	51.1	
	HAD45	37.6	41.0	44.3	46.4	
	HAD85	37.6	41.4	45.5	51.6	
Growing Season (May—Sep)	CCSM45	59.1	60.6	63.2	63.5	
	CCSM85	59.1	61.6	64.4	68.4	
	GFDL45	59.1	64.5	67.1	69.3	
	GFDL85	59.1	63.7	68.3	74.7	
	HAD45	59.1	62.2	64.7	67.2	
	HAD85	59.1	62.1	66.0	71.9	
Coldest Month Average	CCSM45	3.1	4.2	6.7	6.7	
	CCSM85	3.1	3.8	6.3	8.7	
	GFDL45	3.1	6.5	8.8	9.6	
	GFDL85	3.1	7.7	9.7	13.3	
	HAD45	3.1	5.7	9.7	9.7	
	HAD85	3.1	8.8	11.8	16.1	
Warmest Month Average	CCSM45	66.1	67.7	69.3	69.7	
	CCSM85	66.1	69.1	71.0	73.3	
	GFDL45	66.1	70.8	72.4	74.0	
	GFDL85	66.1	71.1	73.7	76.6	
	HAD45	66.1	69.3	70.2	72.2	
	HAD85	66.1	69.4	71.3	75.3	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	27.6	28.5	28.8	27.6	
	CCSM85	27.6	27.2	29.0	28.5	
	GFDL45	27.6	29.3	30.7	29.7	
	GFDL85	27.6	30.6	31.9	32.0	
	HAD45	27.6	29.2	27.6	28.1	
	HAD85	27.6	28.7	28.9	30.4	
Growing Season (May—Sep)	CCSM45	17.9	18.3	17.5	17.0	
	CCSM85	17.9	17.0	17.6	16.6	
	GFDL45	17.9	18.9	19.0	18.7	
	GFDL85	17.9	19.9	20.1	18.9	
	HAD45	17.9	17.9	15.9	16.1	
	HAD85	17.9	17.6	15.9	15.6	

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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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	90	2143.5	8.4	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
paper birch	Betula papyrifera	WDH	High	90	2132.8	8.1	Sm. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	2
quaking aspen	Populus tremuloides	WDH	High	90	1746.4	7.5	Sm. inc.	No change	Medium	Abundant	Very Good	Good			1	3
jack pine	Pinus banksiana	NSH	Medium	64.9	1393.6	11.1	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	4
black spruce	Picea mariana	NSH	High	81.4	1305.1	6.9	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	5
black ash	Fraxinus nigra	WSH	Medium	28.9	907.4	12.5	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	6
red maple	Acer rubrum	WDH	High	61.3	809.6	4.5	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	7
eastern white pine	Pinus strobus	WDH	High	54.8	528.1	3.8	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	8
white spruce	Picea glauca	NSL	Medium	79.5	359.7	1.5	No change	No change	Medium	Common	Fair	Fair			1	9
red pine	Pinus resinosa	NSH	Medium	28.7	291.1	2.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	10
tamarack (native)	Larix laricina	NSH	High	24.2	241.7	8.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	11
northern white-cedar	Thuja occidentalis	WSH	High	17.1	222.5	6.0	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	12
bigtooth aspen	Populus grandidentata	NSL	Medium	34.7	199.6	1.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
green ash	Fraxinus pennsylvanica	WSH	Low	11.7	168.6	6.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	14
mountain maple	Acer spicatum	NSL	Low	23.6	108.8	0.7	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	15
yellow birch	Betula alleghaniensis	NDL	High	1.5	49.3	1.0	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	16
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0.9	38.3	0.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	17
balsam poplar	Populus balsamifera	NSH	Medium	21.8	24.4	1.3	Lg. inc.	Sm. inc.	Medium	Rare	Good	Fair			1	18
sugar maple	Acer saccharum	WDH	High	14.3	23.5	1.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	19
northern red oak	Quercus rubra	WDH	Medium	23.6	17.7	0.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	20
chokecherry	Prunus virginiana	NSLX	FIA	12.3	12.8	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	21
pin cherry	Prunus pensylvanica	NSL	Low	8.4	11.3	0.2	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	22
peachleaf willow	Salix amygdaloides	NSLX	FIA	3.7	8.8	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	23
serviceberry	Amelanchier spp.	NSL	Low	6.5	4.3	0.1	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			1	24
American mountain-ash	Sorbus americana	NSL	Low	4.7	2.5	0.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	25
American elm	Ulmus americana	WDH	Medium	6.7	2.0	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	26
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	27
eastern hemlock	Tsuga canadensis	NSH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	28
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	29
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	30
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	31
American beech	Fagus grandifolia	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	32
white ash	Fraxinus americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	33
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	34
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	35
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	36
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	37
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	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
bur oak	Quercus macrocarpa	NDH	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		Migrate ++	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 ++	Migrate ++	3	43