

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 2,650.1 1,023.2 180

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	1			High	14	11	Increase	8	8	Very Good	3	3
Hickory	0			Medium	16	24	No Change	2	1	Good	4	4
Maple	3	Abundant	9	Low	13	10	Decrease	12	13	Fair	9	9
Oak	1	Common	8	FIA	2		New	21	21	Poor	3	3
Pine	3	Rare	7				Unknown	2	2	Very Poor	2	1
Other	16	Absent	21							FIA Only	2	2
	24		45		45	45		45	45	Unknown	0	0
											23	22

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	37.4	38.9	41.8	42.0
	CCSM85	37.4	39.8	43.0	46.7
	GFDL45	37.4	40.8	43.9	45.6
	GFDL85	37.4	41.1	45.2	50.9
	HAD45	37.4	40.9	44.1	46.3
	HAD85	37.4	41.2	45.3	51.4
Growing Season May—Sep	CCSM45	57.6	59.1	61.6	61.8
	CCSM85	57.6	59.9	62.6	66.6
	GFDL45	57.6	61.9	65.8	68.1
	GFDL85	57.6	62.4	67.0	73.6
	HAD45	57.6	60.7	63.1	65.5
	HAD85	57.6	60.5	64.4	70.2
Coldest Month Average	CCSM45	5.5	6.5	9.1	9.0
	CCSM85	5.5	6.6	9.0	11.5
	GFDL45	5.5	8.7	11.0	11.6
	GFDL85	5.5	9.9	11.8	15.4
	HAD45	5.5	8.2	12.2	12.3
	HAD85	5.5	11.2	14.2	18.6
Warmest Month Average	CCSM45	64.4	66.0	67.5	67.8
	CCSM85	64.4	67.2	69.0	71.3
	GFDL45	64.4	69.2	71.0	72.6
	GFDL85	64.4	69.7	72.2	75.1
	HAD45	64.4	67.6	68.4	70.4
	HAD85	64.4	67.7	69.6	73.5

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	31.7	32.9	33.4	31.9
	CCSM85	31.7	31.1	33.0	32.7
	GFDL45	31.7	33.9	35.3	34.4
	GFDL85	31.7	34.7	36.9	37.1
	HAD45	31.7	33.4	32.8	32.2
	HAD85	31.7	33.2	34.2	35.7
Growing Season May—Sep	CCSM45	18.3	18.9	17.8	17.3
	CCSM85	18.3	17.1	17.8	16.5
	GFDL45	18.3	19.5	19.4	19.3
	GFDL85	18.3	20.1	20.8	19.6
	HAD45	18.3	18.2	16.8	16.4
	HAD85	18.3	18.2	16.7	16.4

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
paper birch	Betula papyrifera	WDH	High	97.7	2593.9	13.6	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	1
quaking aspen	Populus tremuloides	WDH	High	92.2	2289.2	14.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	2
balsam fir	Abies balsamea	NDH	High	93.3	1862.3	11.6	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	3
black spruce	Picea mariana	NSH	High	80.6	1446.8	11.3	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	4
sugar maple	Acer saccharum	WDH	High	36.1	778.5	12.6	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	5
northern white-cedar	Thuja occidentalis	WSH	High	62.6	709.7	8.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	6
white spruce	Picea glauca	NSL	Medium	82.8	655.2	5.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	7
black ash	Fraxinus nigra	WSH	Medium	42.6	530.7	5.4	No change	No change	Low	Abundant	Fair	Fair			0	8
jack pine	Pinus banksiana	NSH	Medium	45.9	506.9	5.8	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	9
red pine	Pinus resinosa	NSH	Medium	34.2	366.7	7.2	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	10
tamarack (native)	Larix laricina	NSH	High	32.3	265.2	5.4	No change	Sm. dec.	Low	Common	Poor	Poor			0	11
eastern white pine	Pinus strobus	WDH	High	33.4	233.7	4.0	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	12
red maple	Acer rubrum	WDH	High	51.2	177.2	2.0	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	13
mountain maple	Acer spicatum	NSL	Low	68.5	161.4	1.6	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	14
yellow birch	Betula alleghaniensis	NDL	High	36.8	104.9	2.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
balsam poplar	Populus balsamifera	NSH	Medium	17.6	68.3	3.4	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	16
American mountain-ash	Sorbus americana	NSL	Low	37	50.1	0.9	Very Lg. dec.	Very Lg. dec.	Low	Common	Lost	Lost			0	17
pin cherry	Prunus pensylvanica	NSL	Low	44.5	44.8	0.7	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	18
serviceberry	Amelanchier spp.	NSL	Low	21.4	15.7	0.7	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	19
bigtooth aspen	Populus grandidentata	NSL	Medium	3.6	15.4	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	20
peachleaf willow	Salix amygdaloides	NSLX	FIA	8.2	15.0	0.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	21
chokecherry	Prunus virginiana	NSLX	FIA	22.9	13.3	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	22
northern red oak	Quercus rubra	WDH	Medium	2.9	7.9	1.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	23
black cherry	Prunus serotina	WDL	Medium	3.8	1.1	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	24
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	25
eastern hemlock	Tsuga canadensis	NSH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	26
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	27
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	28
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	29
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	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	Migrate +	Migrate +	3	32
white ash	Fraxinus americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	33
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	34
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	36
eastern cottonwood	Populus deltoides	NSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	37
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	38
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	39
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	40
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	41
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	42
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	43
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	44
American elm	Ulmus americana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	45