

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
 8,208.3 3,169.2 263

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		
		High	Common	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	2											
Hickory	0											
Maple	2	Abundant	3	High	11	14	Increase	13	13	Very Good	3	4
Oak	1	Common	11	Medium	17	23	No Change	1	1	Good	6	5
Pine	3	Rare	9	Low	15	8	Decrease	7	7	Fair	8	8
Other	15	Absent	21	FIA	2		New	19	19	Poor	3	3
	23		44		45	45	Unknown	5	5	Very Poor	1	0
								45	45	FIA Only	2	2
										Unknown	3	3
											26	25
											20	16
											9	9
											1	1

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	38.5	40.0	42.8	43.3	
Average	CCSM85	38.5	40.7	44.3	47.9	
	GFDL45	38.5	42.4	43.9	45.5	
	GFDL85	38.5	41.5	45.3	50.5	
	HAD45	38.5	41.8	45.4	47.5	
	HAD85	38.5	42.3	46.5	52.7	
Growing Season	CCSM45	60.6	62.2	64.6	65.1	
	CCSM85	60.6	63.2	66.2	70.0	
May—Sep	GFDL45	60.6	65.2	67.1	68.9	
	GFDL85	60.6	64.1	68.2	73.9	
	HAD45	60.6	63.8	66.6	69.0	
	HAD85	60.6	63.7	67.5	73.7	
Coldest Month	CCSM45	2.3	4.0	6.3	6.5	
	CCSM85	2.3	3.2	6.1	8.5	
Average	GFDL45	2.3	5.8	7.6	8.3	
	GFDL85	2.3	6.6	8.4	11.8	
	HAD45	2.3	4.6	8.7	8.4	
	HAD85	2.3	8.0	11.5	15.7	
Warmest Month	CCSM45	67.5	69.5	71.0	71.4	
	CCSM85	67.5	70.7	72.9	75.2	
Average	GFDL45	67.5	71.3	72.9	74.3	
	GFDL85	67.5	71.4	73.7	76.8	
	HAD45	67.5	70.9	72.4	74.3	
	HAD85	67.5	71.0	73.2	77.2	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	23.6	23.8	24.1	23.1	
Total	CCSM85	23.6	23.6	23.7	23.2	
	GFDL45	23.6	25.9	27.5	27.2	
	GFDL85	23.6	27.5	28.1	28.8	
	HAD45	23.6	24.6	22.9	24.3	
	HAD85	23.6	23.8	23.8	25.4	
Growing Season	CCSM45	16.7	16.5	16.3	15.6	
	CCSM85	16.7	16.0	15.8	15.1	
May—Sep	GFDL45	16.7	18.4	19.2	18.9	
	GFDL85	16.7	19.4	19.6	19.3	
	HAD45	16.7	16.6	14.6	14.8	
	HAD85	16.7	15.8	14.5	14.1	

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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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
quaking aspen	Populus tremuloides	WDH	High	87.7	2584.4	31.7	Sm. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	1
balsam poplar	Populus balsamifera	NSH	Medium	82.8	1385.1	17.9	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	2
tamarack (native)	Larix laricina	NSH	High	35.7	1263.0	25.4	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	3
black spruce	Picea mariana	NSH	High	34.2	497.4	11.0	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	4
black ash	Fraxinus nigra	WSH	Medium	59.8	354.6	6.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	5
bur oak	Quercus macrocarpa	NDH	Medium	41.8	303.4	10.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	6
balsam fir	Abies balsamea	NDH	High	28.5	239.2	7.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	7
jack pine	Pinus banksiana	NSH	Medium	18.2	210.7	10.6	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	8
northern white-cedar	Thuja occidentalis	WSH	High	19	194.6	7.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	9
paper birch	Betula papyrifera	WDH	High	38.4	185.2	4.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
green ash	Fraxinus pennsylvanica	WSH	Low	43.7	172.9	4.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
red pine	Pinus resinosa	NSH	Medium	7.7	111.0	11.6	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	12
white spruce	Picea glauca	NSL	Medium	17.4	78.4	3.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
American elm	Ulmus americana	WDH	Medium	36.5	70.5	2.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
boxelder	Acer negundo	WSH	Low	17	30.3	2.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	15
chokecherry	Prunus virginiana	NSLX	FIA	24.2	22.4	1.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	16
serviceberry	Amelanchier spp.	NSL	Low	15.3	6.9	0.8	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	17
mountain maple	Acer spicatum	NSL	Low	7.4	6.4	0.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	18
American basswood	Tilia americana	WSL	Medium	7	5.0	4.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	19
eastern white pine	Pinus strobus	WDH	High	0.6	3.5	1.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	20
peachleaf willow	Salix amygdaloides	NSLX	FIA	3.3	1.7	3.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	21
black willow	Salix nigra	NSH	Low	3.3	0.5	1.1	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	22
hackberry	Celtis occidentalis	WDH	Medium	2.1	0.3	0.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	23
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	24
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	25
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	26
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	27
sugar maple	Acer saccharum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	28
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	29
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	30
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	31
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	32
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	33
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	34
red mulberry	Morus rubra	NSL	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 +	Migrate ++	3	37
bigtooth aspen	Populus grandidentata	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	38
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	39
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	40
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	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
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	44
slippery elm	Ulmus rubra	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	45