

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	5,825.2	2,249.1	204

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	3			High	19	13	Increase	15	12	Very Good	4	4	Likely	0	0
Hickory	0			Medium	20	32	No Change	1	4	Good	9	8	Infill	2	2
Maple	5	Abundant	8	Low	19	14	Decrease	16	16	Fair	6	7	Migrate	7	10
Oak	2	Common	15	FIA	2		New	22	24	Poor	7	7		9	12
Pine	2	Rare	11				Unknown	6	4	Very Poor	6	5			
Other	22	Absent	26							FIA Only	1	1			
	34		60		60	59		60	60	Unknown	4	2			
											37	34			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	43.7	45.4	47.5	47.7	
	CCSM85	43.7	46.0	48.4	51.6	
	GFDL45	43.7	46.7	49.8	51.3	
	GFDL85	43.7	47.0	51.2	56.1	
	HAD45	43.7	46.6	49.6	51.2	
	HAD85	43.7	46.9	50.9	56.1	
Growing Season (May—Sep)	CCSM45	61.0	62.9	64.6	64.9	
	CCSM85	61.0	63.2	65.3	68.8	
	GFDL45	61.0	64.4	67.4	69.1	
	GFDL85	61.0	64.3	68.8	73.9	
	HAD45	61.0	63.8	66.4	68.5	
	HAD85	61.0	63.6	68.2	73.3	
Coldest Month Average	CCSM45	16.3	17.6	19.1	19.8	
	CCSM85	16.3	18.8	20.1	22.3	
	GFDL45	16.3	18.9	21.4	22.7	
	GFDL85	16.3	20.0	22.5	25.1	
	HAD45	16.3	18.8	21.2	21.9	
	HAD85	16.3	20.1	22.4	25.7	
Warmest Month Average	CCSM45	67.4	69.4	70.4	70.4	
	CCSM85	67.4	69.8	71.3	73.0	
	GFDL45	67.4	70.5	72.2	73.5	
	GFDL85	67.4	70.4	73.3	75.9	
	HAD45	67.4	70.3	71.6	72.8	
	HAD85	67.4	70.1	72.6	75.8	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	45.6	45.3	43.3	50.4	
	CCSM85	45.6	46.4	46.8	48.5	
	GFDL45	45.6	49.0	52.2	50.4	
	GFDL85	45.6	48.2	50.2	51.4	
	HAD45	45.6	48.6	53.3	51.1	
	HAD85	45.6	49.7	50.8	52.9	
Growing Season (May—Sep)	CCSM45	17.9	18.3	16.4	18.9	
	CCSM85	17.9	18.4	18.4	17.8	
	GFDL45	17.9	16.8	16.9	16.2	
	GFDL85	17.9	17.8	16.7	15.5	
	HAD45	17.9	19.0	20.0	19.8	
	HAD85	17.9	18.2	19.4	20.1	

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
balsam fir	Abies balsamea	NDH	High	86.8	2023.3	13.3	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	1
red maple	Acer rubrum	WDH	High	91.5	1740.5	9.9	Sm. inc.	No change	High	Abundant	Very Good	Very Good			1	2
red spruce	Picea rubens	NDH	High	79.4	1414.8	9.7	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	3
eastern white pine	Pinus strobus	WDH	High	83.5	1122.4	7.7	Sm. inc.	No change	Low	Abundant	Good	Fair			1	4
northern white-cedar	Thuja occidentalis	WSH	High	60.7	779.6	6.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	5
eastern hemlock	Tsuga canadensis	NSH	High	51.3	615.4	7.9	Sm. inc.	No change	Low	Abundant	Good	Fair			1	6
paper birch	Betula papyrifera	WDH	High	78.2	599.2	4.0	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	7
northern red oak	Quercus rubra	WDH	Medium	43.9	515.6	6.4	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	8
white spruce	Picea glauca	NSL	Medium	54.6	461.7	3.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	9
American beech	Fagus grandifolia	WDH	High	43.5	428.8	7.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
black spruce	Picea mariana	NSH	High	30	412.9	8.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	11
quaking aspen	Populus tremuloides	WDH	High	50	326.9	4.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
gray birch	Betula populifolia	NSL	Low	49	312.9	3.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	13
white ash	Fraxinus americana	WDL	Medium	40.5	284.5	3.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	14
yellow birch	Betula alleghaniensis	NDL	High	59.2	269.3	3.0	No change	No change	Medium	Common	Fair	Fair			1	15
sugar maple	Acer saccharum	WDH	High	29.5	219.6	5.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
black cherry	Prunus serotina	WDL	Medium	16	190.5	5.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	17
tamarack (native)	Larix laricina	NSH	High	23.5	170.2	3.0	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	18
bigtooth aspen	Populus grandidentata	NSL	Medium	43.7	165.9	2.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	19
striped maple	Acer pensylvanicum	NSL	Medium	42.2	106.0	1.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	20
red pine	Pinus resinosa	NSH	Medium	11.4	100.9	4.5	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	21
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	16.6	87.6	3.8	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	22
black ash	Fraxinus nigra	WSH	Medium	17	61.8	2.0	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	23
pin cherry	Prunus pensylvanica	NSL	Low	14.1	27.1	1.3	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	24
American elm	Ulmus americana	WDH	Medium	6.2	12.7	1.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	25
serviceberry	Amelanchier spp.	NSL	Low	7	9.2	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	26
chokecherry	Prunus virginiana	NSLX	FIA	2	8.7	0.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	27
balsam poplar	Populus balsamifera	NSH	Medium	2	7.2	1.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	28
green ash	Fraxinus pennsylvanica	WSH	Low	0.6	5.5	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	29
white oak	Quercus alba	WDH	Medium	1.7	5.2	2.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	30
American mountain-ash	Sorbus americana	NSL	Low	0.3	4.3	0.5	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	31
mountain maple	Acer spicatum	NSL	Low	5.5	3.0	0.3	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	32
Norway maple	Acer platanoides	NSL	FIA	1.6	2.8	1.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	33
American basswood	Tilia americana	WSL	Medium	1.7	0.8	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	34
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	35
pitch pine	Pinus rigida	NSH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	36
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	37
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	38
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	39
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	40
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	41
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	42
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	43
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	44
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	45
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	46
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	47



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yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	48
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	49
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	50
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	51
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	52
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	53
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	54
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	55
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	56
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	57
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	58
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	59
sassafras	Sassafras albidum	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	60